

TT Clips August 15, 2016

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ICANN

[WSJ] Last Call for the Open Internet

Gordon Crovitz 14 August 2016

<http://www.wsj.com/articles/last-call-for-the-open-internet-1471210952>

“The survival of the internet as we know it is at risk,” declares this year’s Republican platform. President Obama “has launched a campaign . . . to subjugate it to agents of government. . . . He has unilaterally announced America’s abandonment of the international internet by surrendering U.S. control. . . . He threw the internet to the wolves, and they—Russia, China, Iran, and others—are ready to devour it.”

Congress used the power of the purse for the past two years to block the White House from spending resources to carry out its plan to end U.S. protection of the internet, but the Obama administration plans to do so immediately after midnight on Sept. 30, when the spending ban expires.

The U.S. has long protected the open internet through its contract with the Internet Corporation for Assigned Names and Numbers, or Iccann, ensuring that the root zone of the internet functions smoothly, without meddling by authoritarian regimes or abuses by Iccann, which has monopoly control over highly lucrative web domains such as .com.

A two-year effort to find an alternative to U.S. oversight has produced only uncertainty—and a growing list of challenges by Congress and companies if the administration carries out its plan.

In June, companies including Disney, 21st Century Fox and NBC Universal wrote congressional leaders warning that “significant questions remain regarding Iccann’s current readiness” to operate without U.S. oversight. They gave as an example a top-level country domain from a “failed state” being “re delegated to an entity affiliated with a sophisticated piracy and counterfeit organization, a multinational criminal enterprise, or even a terrorist organization.” U.S. oversight to prevent such an outcome “is to be replaced with—nothing.”

Last month Assistant Commerce Secretary Lawrence Strickling tried to rebut what he called “hyperventilating hyperbole” about the risks. In the process he only confirmed the worst fears of critics.

Mr. Strickling called it a “false claim” that Iccann could be moved from its U.S. legal jurisdiction, which would undermine the plan Iccann submitted for how it would be held accountable as a California-based

corporation. He's wrong: Legal jurisdiction is explicitly reserved for Ican's "Phase Two" transition plan to be decided only after the U.S. gives up control—and leverage. Ending U.S. legal jurisdiction has been the top goal for authoritarian regimes in recent Ican meetings.

He also said: "In the last couple of weeks, I have heard new concerns about the possible antitrust liability of a post-transition Ican." They aren't new. Courts have approved Ican's monopoly control over the root zone only because its contract with the Commerce Department exempts it from antitrust challenge. Once the contract ends, would-be competitors could sue for a share of Ican's hundreds of millions of dollars in annual revenues. A single root zone might not survive.

Ican has a long history of abusing its monopoly power. Just this month Dot Registry LLC won a judgment against the organization for denying it new domains. An independent panel ruled Ican was "simply not credible" and had "failed to fulfill its transparency obligations."

Last week two dozen advocacy groups, including Tech Freedom and Heritage Action, urged Congress to sue Mr. Obama if he ends the Ican contract on the ground that federal personnel and paid outside contractors worked on the plan for two years despite the spending ban.

The advocacy groups noted Mr. Obama does not have the authority on his own to transfer Ican, whose domain monopoly is worth billions of dollars, because the Constitution says Congress must approve transfers of U.S. property. Their letter, whose signatories include the first chairman of Ican, Esther Dyson, warns that the "fragile" multistakeholder model is endangered without a solid plan replacing U.S. oversight.

Republican Sens. Ted Cruz and Mike Lee and Rep. Sean Duffy last week demanded that the Justice Department's antitrust division investigate Ican's recent renewal of the .com registry agreement with Verisign two years ahead of schedule. That means there can be no review of the prices monopolist Verisign charges companies for .com web addresses until 2024. This concern is exacerbated by Verisign's recent record payment to Ican of \$135 million for the new .web domain.

The internet was not broken when Mr. Obama decided to fix it by ending U.S. protection. The administration naively thought crafting an alternative to U.S. oversight, which it dismissed as "largely clerical," would be easy. By now it's clear Mr. Obama's solution to the nonproblem of U.S. protection is too half-baked for anyone who cares about the free and open internet.

[Fox] Sue Obama administration to block Internet grab, group urges

Fred Lucas 13 August 2016

<http://www.foxnews.com/politics/2016/08/13/sue-obama-administration-to-block-internet-grab-group-urges.html>

coalition of technology groups and conservatives wants Congress to sue to stop the Obama administration from handing over control of Internet domain names to an international board, charging it could give authoritarian regimes power over the web.

Since 1998, an arm of the U.S. Commerce Department called the National Telecommunications Information Administration (NTIA) has handled domain names. However, in September, the Obama administration plans to allow the U.S. government's contract to lapse so the Internet Corporation for Assigned Names and Numbers (ICANN) will be run by a global board of directors with the domain-

naming responsibility. Many fear this will allow governments such as Russia, China and Iran to have a stake in Internet governance and the “de facto” power to tax domain names and stifle free speech.

Congress twice included riders in appropriations bills to expressly prohibit tax dollars from being used for the transition, which President Obama signed into law. So, if the Obama administration allows the contract to lapse in September it could mark yet another questionable executive action by the administration.

That’s part of the reason the tech groups and conservatives are asking House Speaker Paul Ryan, R-Wisc., and other congressional leaders to support litigation, similar to that which the House took against the Obama administration regarding unauthorized spending on Obamacare in a 2014 lawsuit.

“Suing to enforce the appropriations rider and extending it through FY2017 are amply justified by the extraordinary importance of the constitutional principle at stake,” the [coalition letter](#) says.

The letter also says that the Obama administration has not ensured the United States will maintain ownership of domain names .mil or .gov for military and government websites.

“Without robust safeguards, Internet governance could fall under the sway of governments hostile to the freedoms protected by the First Amendment,” the letter says. “Ominously, governments will gain a formal voting role in ICANN for the first time when the new bylaws are implemented.”

Speaker Ryan’s office referred questions on the matter to the House Judiciary Committee, which did not immediately respond to FoxNews.com for this story.

TechFreedom spearheaded the letter signed by 26 organizations, including Protect Internet Freedom, Center for Financial Privacy and Human Rights and Americans for Tax Reform; and 11 individuals such as TechFreedom President Berin Szóka; National Bloggers Club President Ali Akbar and Cliff May, president of the Foundation for Defense of Democracies.

“Congress twice told the White House to pause the transition, yet the Commerce Department is blatantly ignoring the law,” Szóka said in a statement. “Congress cannot just let this slide. It must defend the Constitution’s separation of powers, which gives the ‘power of the purse’ to the House. That means making clear to the administration that the House will sue if NTIA does not extend the contract.”

However, the Obama administration contends it isn’t bound by the appropriation bills.

“The law prohibits NTIA from using appropriated funds to ‘relinquish the responsibility during fiscal year 2016, with respect to Internet domain name system functions,’” NTIA spokeswoman Juliana Grunewald told FoxNews.com. “However, the law does not prohibit NTIA from evaluating a transition proposal or engaging in other preparatory activities related to the transition. In fact, Congress directed NTIA to conduct a thorough review of any proposed transition plan we receive and to provide Congress with quarterly updates on the transition, which we have done.”

Grunewald noted that a [number of organizations](#) have supported the transition, such as Freedom House, the Internet Society, the Internet Association, Computer and Communications Industry Association and the Internet Infrastructure Association.

The Obama administration [announced in 2014](#) it planned to let the contract between the Commerce Department and ICANN expire at the end of fiscal year 2016, allowing the operating of the Internet absent the U.S. government.

The coalition letter continues by warning that the ICANN structure will have a tough time holding board members and staff accountable.

“ICANN has already morphed from the technical coordinating body set up in 1998 into something much more like a government: It has the de facto power to tax domain names,” the letter says. It adds, “There are good reasons to worry about what it may do with this power absent the incentive for self-restraint created by its contract with the U.S.”

Republican Sens. Ted Cruz of Texas, Mike Lee of Utah and James Lankford of Oklahoma have sponsored the Protecting Internet Freedom Act to prevent the transition.

In June, Sen. Charles Grassley, R-Iowa, and Rep. Bob Goodlatte, R-Va., the chairmen of the Judiciary Committees of their respective chambers, [wrote](#) to Assistant Commerce Secretary Larry Strickling, stating the transfer would be illegal.

“As we are sure you are aware, it is a violation of federal law for an officer or employee of the United States government ‘to make or authorize an expenditure or obligation exceeding an amount available in an appropriation or fund for the expenditure or obligation,’” the letter says. “It is troubling that NTIA appears to have taken these actions in violation of this prohibition.”

In a letter of response on Aug. 10, [Strickling told](#) the lawmakers they had a “misunderstanding” of the transition.

“Free expression exists and flourishes online not because of perceived U.S. government oversight over the [domain name system], or because of any asserted special relationship that the United States has with ICANN,” Strickling said in the letter. “It exists and is protected when stakeholders work together to make decisions.”

[\[PC World\] New Internet assigned number authority org set up amid internet handover controversy](#)

John Ribeiro 12 August 2016

<http://www.pcworld.com/article/3106741/internet/iana-successor-organization-set-up-amid-internet-handover-controversy.html>

A new organization that will perform key internet domain name system functions has been formed, suggesting that a proposed transition to a global governance model could be completed this year despite opposition from some U.S. lawmakers and advocacy groups.

Following the filing and receipt of the incorporation documents for the new organization by the California Secretary of State, Public Technical Identifiers (PTI) has been formed as a nonprofit public benefit corporation and controlled affiliate of the Internet Corporation for Assigned Names and Numbers.

ICANN operates under contract with the U.S. Department of Commerce the Internet Assigned Numbers Authority (IANA) functions, which include responsibility for the coordination of the DNS (Domain Name

System) root, IP addressing, and other internet protocol resources. In March 2014, the U.S. National Telecommunications and Information Administration (NTIA), an agency located in the Department of Commerce, said it planned to let its contract with ICANN expire in September 2015, passing the oversight of the agency to a global governance model.

The Department of Commerce said last year that the transition was being delayed to September this year, to give the Internet multi-stakeholder community time to finalize a transition plan. That plan would have to convince critics that the transition would not hand over control of the internet to governments, including some of them that have a reputation for censorship and other ways of stifling online activity.

The Department also kept the option of extending the contract beyond 2016 for three more years. ICANN [submitted a transition plan](#) in March this year, which the NTIA said in June met its criteria, including [maintaining the openness of the internet](#). NTIA's current contract with ICANN over the IANA functions end on Sept. 30. Demands for replacing the multi-stakeholder model with a multilateral government-run approach "will only grow louder if the U.S. government fails to complete the transition," and may also lead to some governments forming regional domain name systems, NTIA said.

Although it exists as a legal entity, PTI will not perform any services under the IANA functions contract with the NTIA. It will start performing those functions on the completion of the transition under contracts with ICANN, the agency said Thursday.

Twenty-five advocacy groups and some individuals have told leaders in the Senate and the House of Representatives that key issues about the transition are "not expected to be fully resolved until [summer 2017](#)."

"Without robust safeguards, Internet governance could fall under the sway of governments hostile to freedoms protected by the First Amendment," wrote the groups, which include TechFreedom, Heritage Action for America and Taxpayers Protection Alliance. "Ominously, governments will gain a formal voting role in ICANN for the first time when the new bylaws are implemented."

The groups want Congress to use riders it has passed on prohibiting spending of taxpayer money on IANA transition. Congress should make clear that it will sue to enforce the funding prohibition, the groups said.

Republicans in Congress have been critical of the IANA transition plans. A bill proposed in the Senate by Ted Cruz, a Republican from Texas, called the Protecting Internet Freedom Act, would [prohibit any transfer of internet domain name system functions](#) except if expressly allowed under a federal statute passed after the new legislation has been enacted. Also of concern to Cruz is that the U.S. should secure sole ownership of the .gov and .mil top-level domains and a contract for the exclusive control and use of the the domains in perpetuity.

The Republican [Platform for 2016](#) is critical of the transition and accuses U.S. President Barack Obama of throwing the internet to the wolves, "and they – Russia, China, Iran, and others – are ready to devour it."

Cybersecurity

[WSJ] Democrats Brace for More Leaks From Hackers

Damian Paletta

14 August 2016

http://www.wsj.com/articles/democrats-brace-for-more-leaks-from-hackers-1471220388?mod=WSJ_TechWSJD_NeedToKnow

WASHINGTON—Two websites created in recent months and whose operators are believed to have ties to the Russian government now serve as portals for leaking sensitive and at times embarrassing information about the Democratic Party and its supporters.

Some computer experts and Democrats in Congress believe both websites—the Guccifer 2.0 WordPress page and DCLeaks.com—have ties to Russian intelligence services and that the sites are using hacked information to try to influence the November elections.

The precise motives of the entities controlling these webpages cannot be learned because their identities are unclear.

U.S. officials are now debating whether to publicly accuse the Russian government of conducting the attacks, two people familiar with the deliberations said, though no final decision about how to proceed has been made.

“I certainly believe that this is a coordinated Russian effort against the U.S. political process,” said Rep. Jim Himes (D., Conn.), a member of the House Intelligence Committee, in an interview Sunday. “It’s an act of hostility by a foreign power.”

Rep. Himes said the U.S. must make clear that “there will be a cost to be paid for that sort of hacking.” But, he added, “If you are going to make an accusation against a foreign country, you better dot your i’s and cross your t’s.”

U.S. officials have told some members of Congress that they are certain that Russian hackers were behind the latest breach, two people familiar with these briefings said.

Hackers and spies have long targeted U.S. political parties, but the deliberate leak of party emails and other records this year has created new challenges for law enforcement and intelligence officials as they search for motives [and a potential response](#).

“The incident itself is unprecedented, but they are trying to follow past precedents in their response,” such as with Russia’s alleged recent hacks on White House and State Department systems, where the full U.S. response isn’t known, said Peter Singer, a senior fellow at the New America think tank and an expert on the use of cyberweapons by nation states.

On Friday, after being dormant for a month, Guccifer 2.0 posted a spreadsheet containing the [personal cellphone numbers and personal email addresses](#) of close to 200 current and former House Democrats and their senior staff members.

Hours later, WordPress, an online publishing platform, stripped the information off the webpage, saying it violated its privacy policy. But the information by then was public and had prompted many people to

bombard lawmakers and their staff with harassing emails and text messages, people familiar with the matter said.

[Twitter](#) also suspended the Guccifer 2.0 account on its service early Saturday for violating terms of use, but by late Saturday the Twitter account was back online after the suspension had been withdrawn.

“Here I am! They’ll have to try much harder to block me!” the Guccifer 2.0 account said in a tweet Sunday.

Dozens of House Democrats, including House Minority Leader [Nancy Pelosi](#) of California, [spent the weekend changing their cellphone numbers](#) and trying to learn the extent of potential damage.

By having access to cellphone numbers and email addresses, spies and hackers could attempt to intercept communication to and from these lawmakers, particularly those on sensitive committees that oversee things like intelligence and the military.

And in making the information public, the hackers sowed fear among a number of Democrats that they were being watched. The lawmakers hadn’t been warned that their information had been stolen before its publication late Friday.

Close to 24 hours after the lawmaker spreadsheet was posted on Guccifer 2.0’s WordPress account, another site, DCLeaks.com, released internal records from George Soros’s Open Society Foundations, a pro-democracy group, including its 2014 priorities in places like Afghanistan, Armenia and Macedonia. Mr. Soros is a large-scale contributor to liberal causes.

DCLeaks.com previously published the content of emails and records connected to the Democratic Party, as well as those of retired Air Force Gen. Philip Breedlove, a former supreme commander of the North Atlantic Treaty Organization. It also released emails from Republican Party operatives, though those messages were fairly limited and mundane.

DCLeaks.com was created in April, according to website domain registration records. Its contact information is listed as a domain registration company in Australia, a setup that can shield the identity of people creating websites.

The Guccifer 2.0 WordPress account was created in June, just days after the Democratic National Committee said that [Russia-linked hackers had stolen many of its emails and records](#). WordPress didn’t respond to requests for comment about who created the page.

On its WordPress page, Guccifer 2.0 claims to be from Eastern Europe, though many analysts have questioned parts of its self-published background. Guccifer 2.0 told The Wall Street Journal late Friday in a Twitter direct message conversation that “I’m acting alone” and “I have a lot of docs and emails.” It also said “I won’t disclose my whereabouts for the safety reasons. i have a full archive of docs and emails from the dcc server,” in an apparent reference to the Democratic Congressional Campaign Committee.

Guccifer 2.0 has said it is turning over more records to WikiLeaks, the antisecrecy group, to publish later. Representatives from WikiLeaks didn’t respond to a request for comment.

Cybersecurity firms that have scrutinized the DNC and DCCC hacks have pointed to evidence they say shows that the breaches came from two well-known cyberespionage groups with suspected links to the

Russian government. These groups also have been accused of interfering in the political process in other countries, such as France and Germany.

The governments of Ukraine and Estonia also have accused Russian hackers of interfering in their domestic politics. Russian officials have long denied interfering in politics in other countries.

ThreatConnect, a cybersecurity firm, has examined emails purportedly sent by Guccifer 2.0, and said they suggest a direct link between the hacking entity and DCLeaks.com.

“There’s something happening between Guccifer 2.0 and DCLeaks,” said Toni Gidwani, ThreatConnect’s director of research operations.

Dimitri Simes, president of the Center for the National Interest, a think tank that has urged closer ties between Washington and Moscow, said it was very likely that Russian intelligence agencies were behind the latest breach.

The Federal Bureau of Investigation are looking into the theft of records from the DNC and the DCCC.

[\[WIRED\] Security News This Week: The DNC Hack Was Worse Than We Thought](#)

Lily Hay Newman

13 August 2016

<https://www.wired.com/2016/08/security-news-week-dnc-hack-worse-thought/>

AS THE ANNUAL [mega-week of hacking conferences](#) wound down in Las Vegas, more news surfaced about the DNC hack, and the usual trickle of vulnerabilities and breaches continued. A researcher showed [methods for unlocking](#) “high security” consumer electronic safes without leaving any evidence of the attack, [Oracle’s payment system](#) Micros (which is used at roughly 330,000 cash registers around the world) was hacked, and a [Windows vulnerability](#) served as a reminder of why putting backdoors in secure processes doesn’t make sense.

WIRED reported on [vulnerabilities in the keyless entry systems](#) of roughly 100 million Volkswagens, open Internet advocates are [petitioning to keep web access unfettered](#) in Brazil, and [hacking newswires to get embargoed press releases](#) is actually a decent way to do insider trading. Oh, and a hardware vulnerability [exposed 900 million Android devices](#). Casual.

But there’s more: Each Saturday we round up the news stories that we didn’t break or cover in depth at WIRED, but which deserve your attention nonetheless. As always, click on the headlines to read the full story in each link posted. And stay safe out there.

[Scope of the DNC Hack Is Larger Than Officials Originally Thought](#)

On top of breaching the Democratic National Committee and Democratic Congressional Campaign Committee, investigators say that Russian hackers targeted and compromised personal email accounts and the accounts of other organizations related to Hillary Clinton’s presidential campaign. The evidence is strong enough that officials have been notifying people associated with the Clinton campaign that their email data may have been compromised. Information about who was actually hacked is trickling out slowly. For example, Democrats feared that the Democratic Governors’ Association had been breached, but so far the group says it doesn’t see evidence that its networks were affected. Law enforcement officials say they’re confident Russia was behind the attacks, but it’s still unclear whether Moscow was doing routine surveillance or actively looking to impact the US presidential election.

[Meanwhile, White House Weighs Imposing Sanctions on Russia Over DNC Hack](#)

White House officials are considering using economic sanctions against Russia as retaliation for the DNC hack. That action would require the US to definitively accuse Russia of orchestrating the attacks. So far investigators and lawmakers say they are very confident about the attribution, but the White House hasn't made any such allegations.

The move has some recent precedents: In January of last year, President Obama [issued economic sanctions](#) against North Korea in response to the Sony Pictures hack. Then in April of the same year, he [signed an executive order](#) expanding the government's ability to impose sanctions against international hackers.

The U.S. government tends to tolerate a certain amount of foreign espionage, given that the US itself participates in digital surveillance and information-gathering. In this case, however, White House may decide that it needs to respond, since the DNC breach involved a trove of information that was released publicly. On the other hand, the US already has sanctions in place against some Russian groups because of the country's invasion of Ukraine and annexation of Crimea, and officials could decide it's too problematic to strain the relationship further.

[Powerful 'Project Sauron' Malware Lurked Undetected for Five Years](#)

If that wasn't enough state-sponsored hacking news for your week, researchers at Kaspersky Lab and Symantec reported that they'd discovered a previously unknown type of malware that's so sophisticated it was most likely developed by state-sponsored hackers. Dubbed "Project Sauron" by Kaspersky Lab and "Remsec" by Symantec, the malware has been around since 2011 (if not earlier) and has now been identified on dozens of systems. And the program's stealthy enough that it seems likely to have infected many more.

Both groups of researchers say that the malware targets sensitive data on computers used by international government and military groups, financial organizations, and infrastructure companies like airlines and telecoms. Project Sauron has shown up in Russia, China, Sweden, Belgium, Iran, and Rwanda so far. It can even infect computers that aren't and have never been connected to the Internet through USB drives. The malware hides on flash drives, undetectable by Windows and virus scanners, and then probably exploits a zero day vulnerability to infiltrate its targets.

Project Sauron is aimed at collecting IP addresses, passwords, encryption keys and network details. It's sophisticated enough that it was likely built by a group of specialists with millions of dollars in backing, which points to a nation state (or states) as the likely sponsor. Given Sauron's targets, plenty of experts are pointing fingers at the NSA and American allies.

[Forum Data Breach Compromises 3,000 Login Credentials Including Those of Apple, Google, Samsung, Intel Employees](#)

Hackers accessed the login credentials of a popular developer forum, exposing 2,955 accounts, many of which are used by programmers from tech companies like Apple and Google. The data came from the Khronos Group, which runs a popular application programming interface for rendering graphics called OpenGL. The breach revealed usernames and passwords, but also email addresses and the IP address users were on when they signed up for their accounts. It could be a potentially problematic data trove in

the hands of bad actors since so many of the accounts are for tech company employees who could have valuable access and privileges inside their companies' networks.

Data Breach

[Reuters] Business software company Sage hit by data breach

14 August 2016

<http://www.reuters.com/article/us-sage-group-cyber-idUSKCN10P0LQ>

Sage Group, a provider of accounting, payroll and payments software for businesses, said an internal login had been used to gain unauthorized access to the data of some of its British customers.

The personal details of the employees of about 280 British companies were potentially exposed in the breach, a company source said. It was working to ascertain whether any data had been stolen, the source added.

"We are investigating unauthorized access to customer information using an internal login," the company said in a statement.

"We cannot comment further whilst we work with the authorities to investigate but our customers remain our first priority and we are speaking directly with those affected," it added.

Sage, one of Britain's largest technology companies, says it has more than 6 million small and medium-sized businesses using its software worldwide.

It said last month it was confident its revenue would increase by at least 6 percent in the current year ending next month, continuing a pace set in the six months to end-March, when revenue rose 6.2 percent to 747 million pounds (\$966 million).

In the same period its operating profit rose by 1.9 percent on a like-for-like basis to 189 million pounds.

Encryption

[Mac Rumors] Cryptography Experts Recommend Apple Replace its iMessage Encryption

Tim Hardwick

14 August 2016

<http://www.macrumors.com/2016/08/14/imessage-encryption-vulnerable-attack/>

Apple has implemented a series of short- and long-term defenses to its iMessage protocol after several issues were discovered by a team of researchers at Johns Hopkins University, according to a [report](#) published today (via [PatentlyApple](#)).

This attack is different to the one Johns Hopkins researchers [discovered in March](#), which allowed an attacker to decrypt photos and videos sent over iMessage.

The technical paper details how another method known as a "ciphertext attack" allowed them to retrospectively decrypt certain types of payloads and attachments when either the sender or receiver is

still online.

The scenario requires that the attacker intercepts messages using stolen TLS certificates or by gaining access to Apple's servers. While the attack takes a high level of technical expertise to be successful, the researchers note that it would be well within the means of state-sponsored actors.

Overall, our determination is that while iMessage's end-to-end encryption protocol is an improvement over systems that use encryption on network traffic only (e.g., Google Hangouts), messages sent through iMessage may not be secure against sophisticated adversaries.

The team also discovered that Apple doesn't rotate encryption keys at regular intervals, in the way that modern encryption protocols such as OTR and Signal do. This means that the same attack can be used on iMessage historical data, which is often backed up inside [iCloud](#). In theory, law enforcement could issue a court order forcing Apple to provide access to their servers and then use the attack to decrypt the data.

The researchers believe the attack could also be used on other protocols that use the same encryption format, such as Apple's Handoff feature, which transfers data between devices via Bluetooth. OpenPGP encryption (as implemented by GnuPGP) may be vulnerable to similar attacks when used in instant messaging applications, the paper noted.

Apple was notified of the issue as early as November 2015 and patched the iMessage protocol in [iOS 9.3](#) and OS X 10.11.4 as a result. Since that time, the company has been pushing out further mitigations recommended by the researchers through monthly updates to several of its products.

However, the team's long-term recommendation is that Apple should replace the iMessage encryption mechanism with one that eliminates weaknesses in the protocol's core distribution mechanism.

The paper detailing the security issue is called *Dancing on the Lip of the Volcano: Chosen Ciphertext Attacks on Apple iMessage*, and was published as part of the [USENIX Security Symposium](#), which took place in Austin, Texas. You can read the full paper [here](#).

Big Data/IoT

[Tech Crunch] The IoT threat to privacy

Christine Bannan

14 August 2016

<https://techcrunch.com/2016/08/14/the-iot-threat-to-privacy/>

As the Internet of Things becomes more widespread, consumers must demand better security and privacy protections that don't leave them vulnerable to corporate surveillance and data breaches. But before consumers can demand change, they must be informed — which requires companies to be more transparent.

The most dangerous part of IoT is that consumers are surrendering their privacy, bit by bit, without realizing it, because they are unaware of what data is being collected and how it is being used. As mobile

applications, wearables and other Wi-Fi-connected consumer products replace “dumb” devices on the market, consumers will not be able to buy products that don’t have the ability to track them. It is normal for consumers to upgrade their appliances, and it most likely does not occur to them that those new devices will also be monitoring them.

After an Electronic Frontier Foundation activist tweeted about the unsettling similarity of the Samsung Smart TV privacy policy — which [warned consumers](#) not to discuss sensitive topics near the device — to a passage from George Orwell’s *1984*, widespread criticism [caused](#) Samsung to edit its privacy policy and clarify the Smart TV’s data collection practices.

But most people do not read privacy policies for every device they buy or every app they download, and, even if they attempted to do so, most would be written in legal language unintelligible to the average consumer. Those same devices also typically come with similarly unintelligible terms of use, which include mandatory arbitration clauses forcing them to give up their right to be heard in court if they are harmed by the product. As a result, the privacy of consumers can be compromised, and they are left without any real remedy.

Increased corporate transparency is desperately needed, and will be the foundation of any successful solution to increased privacy in the IoT. This transparency could be accomplished either by industry self-regulation or governmental regulation requiring companies to receive informed and meaningful consent from consumers before collecting data.

Consumers must demand to know what data is collected and how it is used.

Generally, industries will respond if their customers demand more privacy. For example, after [surveys](#) revealed that new-car buyers are concerned about the data privacy and security of connected cars, the Alliance of Automobile Manufacturers (a trade association of 12 automotive manufacturers) [responded](#) by developing privacy principles they agreed to follow.

Businesses can self-regulate by developing and adopting industry-wide best practices on cybersecurity and data minimization. When companies collect user data, they must take responsibility for protecting their users; if they do not want to be responsible for the data, they should refrain from collecting it in the first place.

Some companies, such as [Fitbit](#), embed privacy into their technology. The benefit of industry self-regulation is that each industry can create standards specific to the needs of their customers and the sensitivity of the data they collect.

Layered privacy policies should be a best practice adopted by many industries, and Creative Commons licenses could serve as useful models. [Those licenses](#) have a three-layer design: the “legal code” layer, the “human-readable” layer and the “machine-readable” layer.

The “legal code” layer would be the actual policy, written by lawyers and interpreted by judges. The “human-readable” layer would be a concise and simplified summary of the privacy policy in plain language that an average consumer could read. The “machine-readable” layer would be the code that software, search engines and other kinds of technology can understand, and would only allow the technology to have access to information permitted by the consumer.

These best practices would make tremendous progress in protecting the privacy of consumers, but they are not enough. Companies must be legally bound to the promises they make to their customers. The use of pre-dispute mandatory arbitration clauses in terms of use have become standard in many industries. These clauses deny consumers their right to pursue a remedy in a court of law, usually without their knowledge, because they are buried in indecipherable fine print.

The Consumer Financial Protection Bureau has [found](#) that arbitration clauses' bar on class actions further hurts the public interest because lawsuits often generate publicity about a corporate practice, and, without them, consumers may not have access to that information. The agency has therefore [proposed](#) prohibiting mandatory arbitration clauses for most consumer financial products and services.

The Department of Education has also [proposed](#) a rule that would prohibit the use of pre-dispute mandatory arbitration agreements by for-profit schools, giving students who have been exploited the right to sue their schools. The Federal Trade Commission should consider proposing a similar rule that would prohibit the use of pre-dispute mandatory arbitration agreements by companies that sell IoT products.

Because this is such a complex problem, involving countless industries and implicating various privacy concerns, an adequate solution will require participation by consumers, businesses and the government. Consumers must demand to know what data is collected and how it is used. Industries should develop best privacy practices that match their customers' expectations.

The Federal Trade Commission should bring enforcement actions for deceptive practices against companies that do not comply with their own privacy policies, holding them accountable to their customers. It should also consider prohibiting pre-dispute mandatory arbitration clauses, so that consumers can have a cause of action when their privacy is violated.

But before this can happen, consumers must demand to know what data is collected by their devices in the IoT.

[\[TechRepublic\] Big data and IoT solve food safety and supply challenges](#)

Mary Shacklett 13 August 2016

<http://www.techrepublic.com/article/big-data-and-iot-solve-food-safety-and-supply-challenges/>

Grocery stores operate on paper-thin profit margins, and cannot afford to overstock inventories or to let food go to waste. Grocers and food suppliers also want to avoid food contamination issues that can negatively impact their reputations and discourage consumers from doing business with them.

For stakeholders in both of these groups, big data is making a difference by helping them manage food chain supply challenges. Here's what's happening.

SEE: [How big data is changing farming \(PDF download\)](#)

Benefits of IoT, barcodes, and traceability

Barcode and sensor-based Internet of Things (IoT) data is being applied to food chains from their points of origin (e.g., in the orchard where apples are picked) to their follow-up destinations in processing plants, storage warehouses, distribution points, and in the grocery stores. The end-to-end tracking and

traceability that sensors and barcodes provide enable store chains, food brands, and goods supply networks to quickly identify points of origin and distribution if it's discovered that food is contaminated. This facilitates rapid mitigation of a situation.

In 2011, President Obama signed into law strict food monitoring and traceability measures that included traceability data such as the box or case of fruit, its point of origin, the name of the product, the name of the transportation provider, etc. The information is captured and recorded in a central database. "This information is vital for meeting the new requirement of tracing the product 'one forward and one back,' in each point of the supply chain," said Don Ratliff, co-executive director of Georgia Tech's Supply Chain & Logistics Institute, in [an interview with Material Handling & Logic](#).

Optimized logistics

Trucks carrying produce and other foods to market are now equipped with sensors so that logistics providers can see where these vehicles are located on their routes at any point in time. This IoT-facilitated data visibility allows transport providers and those who employ them to make on-the-spot decisions, such as re-routing a truck to Washington, D.C. from Atlanta because of a food shortage for a particular item that the truck is carrying in the D.C. area.

Greater inventory visibility

The ability to get foods into stores for sale quickly and then to monitor sales is extremely important when you manage tight profit margins, and you want to avoid prolonged times on food sitting on the shelf. Grocers now use inventory barcodes and sensor-collected data to determine how quickly food inventory is consumed so that stocking levels can be set to meet but not exceed demand.

Extra insurance that food stays safe

Refrigerated goods and other foodstuffs that require being maintained at certain temperature and humidity levels are now packed inside of sealed containers that are equipped with IoT sensors and monitoring. The sensor on the inside of a container can send out alerts to a central network if there is a detected malfunction in the temperature or humidity controls, or if the sensor detects that a container seal has been broken. This enables personnel in the food supply chain to immediately mitigate the situation, thereby reducing the threats of food contamination and spoilage.

What other industries can learn from these use cases

These food chain big data successes have exponentially improved performance for grocery stores and those who produce and ship food for them. There are three valuable things that other industries can learn from these use cases.

1: Stick with very specific, tightly defined projects

When it was determined that sensors placed in containers could detect food container environmental and seal breakage and then transmit alerts to a central network, that was what food and transport companies focused on—they didn't try to make the business case too big.

2: Look for results in revenues or cost savings

Sensors in food containers alerted staff to flawed environmental tests so they could quickly remedy the situation, saving food from spoilage or contamination. Results like this easily translate into saved dollars and improved profit margins.

3: Work on one IoT technology at a time

The goal in tracking trucks on routes was to ensure that the most optimal time and safety routes were taken and also to more readily reroute trucks with produce and other perishable goods to the markets that most needed them.

For this purpose, companies in food and logistics instrumented sensors, IoT, and networks to track the whereabouts of trucks. This single application of IoT resulted in many benefits, including better inventory management and customer fulfillment. They kept it simple by implementing only one IoT technology concept.

Cloud

[WSJ] [Workday Inks Seven-Year Deal to Use IBM Cloud Services](http://www.wsj.com/articles/workday-inks-seven-year-deal-to-use-ibm-cloud-services-1471233661?mod=WSJ_TechWSJD_NeedToKnow)

Rachel King

15 August 2016

http://www.wsj.com/articles/workday-inks-seven-year-deal-to-use-ibm-cloud-services-1471233661?mod=WSJ_TechWSJD_NeedToKnow

Business software provider [Workday](#) Inc. on Monday expects to announce a seven-year deal to use [International Business Machine](#) Corp.'s cloud-computing services for some internal operations.

The deal, in which Big Blue is winning a marquee customer with solid cloud credentials, comes soon after two recent reports from analysts raised questions about IBM's ability to compete with [Amazon.com](#) Inc., [Microsoft](#) Corp., and [Alphabet](#) Inc. in the contentious market for computing horsepower delivered over the internet.

Workday, which makes web-based human resources and finance software, will use IBM's SoftLayer cloud-computing service to test and develop new programs. Under the terms of the agreement, IBM will be Workday's primary provider of computing capacity for software development and testing, providing the majority of processing power needed for these activities. Previously, in this area, Workday used a mix of its own data centers and cloud-computing infrastructure from Amazon. Workday will continue to use Amazon for some of this work.

The terms of the deal weren't disclosed.

IBM's software hosting services have faced challenges recently. Last week, Australia's online national census website, which was hosted by IBM, had to be shut down after [a series of cyberattacks](#) disrupted citizens' ability to enter information.

IBM said in a statement that it "genuinely regrets the inconvenience that has occurred." The company pointed out that while hackers had interrupted the census, no data was accessed or stolen in the attack.

A report from [Deutsche Bank](#) in May said that IBM was losing ground to Amazon and Microsoft in a major segment of the market known as public cloud infrastructure, and corporate customers increasingly weren't considering using its services. [Gartner](#) Inc. earlier this month said that [IBM was falling behind](#) in the same segment while Amazon and Microsoft were gaining steam.

Still, Synergy Research Group and other firms that track IBM's revenue tend to categorize the company in the same league as cloud services from Amazon, Microsoft and Alphabet Inc.'s Google. IBM reported substantial cloud revenues that rose 30% to \$3.4 billion during the second quarter from the same period a year earlier.

"There's a lot of noise in the industry on cloud providers," said Jim Comfort, chief technology officer of IBM Cloud. Big Blue is investing billions of dollars in cloud computing, he added.

[IBM acquired SoftLayer for \\$2 billion in 2013](#). Since then, it has invested \$1.2 billion to expand the service, according to a May report from Deutsche Bank.

IBM SoftLayer counts a range of large customers including SAP AG, [VMware](#) Inc., [Coca-Cola](#) Co. and [1-800-Flowers.com](#) Inc. IBM notes that most clients don't specify how they use SoftLayer services, so the company doesn't know how many are, like Workday, using it for software development and testing.

"With this announcement, we will begin migrating a portion of those workloads onto the IBM cloud," said David Clarke, Workday's senior vice president of technology development.

Mr. Clarke said he hopes to make Workday's software development and testing more productive and efficient by using IBM's cloud services. Workday may expand its use of SoftLayer into other areas later, the company said.

SoftLayer offers services from nearly 50 data centers around the world, so Workday can deliver its services within many countries while working with a single vendor, IBM said. Some countries require data to be housed within their borders, and proximity to users can make applications more responsive. Some rival cloud-computing providers operate in fewer local areas.

Monday's announcement will build on an existing partnership between IBM and Workday. IBM offers global Workday Consulting Services and in 2015 acquired Meteorix, a Workday services partner. In addition, IBM is a Workday customer, using Workday's Human Capital Management software to manage its own workforce.

Patents

[IP Watchdog] [U.S. patent system may be biggest obstacle for inventors](#)

Bruce Berman 14 August 2016

<http://www.ipwatchdog.com/2016/08/14/u-s-patent-system-obstacle-inventors/id=71899/>

Is the U.S. patent system the biggest impediment to success faced by innovators today? That is one of questions posed in an unsettling article recently published in *Popular Mechanics*, by investigative reporter, Scott Eden.

In [How the U.S. Patent System Got So Screwed Up](#), Eden, an award-winning reporter, whose credits include the *Wall Street Journal*, ESPN and *TheStreet*, examines the negative impact of recent changes to the patent system by focusing on an inventor who got screwed by it.

The NPR-style article tells the story of Tory Norred, a fellow in the cardiology program at the University of Missouri, who in 1998 came up with the idea for a collapsible prosthetic aortic valve that could be fished up through an artery with a catheter and implanted in the hearts of patients who suffered from failing aortic valves. Unlike previous valves, Norred's stent disperses the force needed to hold it in place against the aorta's walls, requiring no sutures.

In November 2002 he received [U.S. Patent No. 6,482,228](#), "Percutaneous Aortic Valve Replacement." Norred knew that he was on to something important, but that was not the beginning of success, it was the start of a nightmare that led to repeated frustration.

"That's my valve!"

Norred spent the next four years talking to venture capitalists, medical products companies and consultants, in an effort to finance his invention. Despite many quality meetings, no one was interested in providing capital or product development – including the product-development people he signed non-disclosure agreements with at Medtronic, Edwards Lifesciences, Johnson & Johnson, and Guidant.

"By September 2003," writes Eden, "Norred had all but given up on his dream when he and a colleague were strolling the exhibition hall at an important cardiology congress held annually in Washington, D.C. They came upon a booth occupied by a California startup called CoreValve. With increasing alarm, Norred studied the materials at the booth. He turned to his colleague: 'That's my valve!'"

The rest of the story is not unfamiliar: CoreVale basically ignored him, and Norred settled into private practice. Then, in 2009, Norred saw the news online: CoreValve had sold itself to Medtronic for \$775 million in cash and future payments.

In fact, collapsible prosthetic valves fished up through an artery with a catheter and implanted in the aorta are well on their way to becoming the standard method of replacing worn-out heart valves. The annual market has already surpassed \$1.5 billion and is expected to grow.

Immediate Suspicion

The remainder of *How the U.S. Patent System Got So Screwed Up* is devoted to the slow decline of the patents system over the past decade, and how a handful of "patent trolls" have been used as the reason to systematically dismantle much of the patent system. The same system that was the envy of the free-world and spawned many breakthrough inventions and successful businesses that employ millions.

"Norred wasn't a troll," continues the article, "and the decision to sue did not come easily for him. His lawyer told him that the cost to litigate could exceed half a million dollars. Norred did not have half a million dollars. He considered letting it drop and moving on with his life, but in the end he couldn't. 'It's hard to give up on something you've worked so hard on,' he said."

"Whenever an independent inventor sues for infringement today, an immediate suspicion attaches to the case," states Eden. "The anti-patent feeling is such that to assert one is to become stigmatized as a troll or, worse, a con artist or a quack. But there's another way to look at these litigants. It could be that an inventor-plaintiff is a modern-day [Bob Kearns](#), the Michigan engineer who spent decades fighting the global automobile manufacturing industry over the intermittent windshield wiper. They made a movie about it called [Flash of Genius](#)."

Inter partes reviews (IPRs) were supposed to clear up much of the uncertainty surrounding patents that are thought to be infringed, by determining which if any of their claims are valid in the first place. But IPRs also have had an unfortunate side effect. IPR tribunals make it easier for sophisticated defendants to kill patents held by legitimate inventors.

“The IPR isn’t an effort to figure out whether an inventor invented something,” says Ron Epstein, a former Intel attorney. “It has turned into a process where you use every i-dot and t-cross in the law to try to blow up patents.” He adds, “There isn’t a patent that doesn’t have some potential area of ambiguity. If you set up the office so that no ambiguity is allowed, no patents will survive.”

The names of some of the great inventors adorn the halls of the United States Patent and Trademark Office (USPTO), in Alexandria, VA – Fermi, Marconi, Tesla, Disney, Pasteur. If Tory Norred’s experience is any indication, we can expect fewer new names to join them.

Popular Mechanics is the classic magazine of popular technology. First published on January 11, 1902, it has been known for over a century as the monthly bible of the independent inventor.

In 2011, two of Scott Eden’s pieces received “Best in Business” awards from the [Society of American Business Editors and Writers](#) (one for investigative reporting and one for feature writing). Eden is former staff reporter for *TheStreet* and *Dow Jones Newswires*.

Privacy Shield

[WSJ] [U.S. Companies Slow to Adopt European Data Transfer Agreement](#)

Dana Heide 14 August 2016

<http://www.wsj.com/articles/u-s-companies-slow-to-adopt-european-data-transfer-agreement-1471196672>

U.S. companies have been slow to sign on to a new international data-transfer agreement with the European Union for reasons that include uncertainty that the terms will survive legal tests in the EU, experts said.

The agreement, called Privacy Shield, allows businesses to transfer personal data on European citizens to the U.S. About 40 companies have been certified under the new rules since Aug. 1, when the U.S. Department of Commerce began accepting applications, the agency said on Friday.

“Many American companies are waiting to see if the Privacy Shield survives an expected challenge by privacy advocates in the European courts,” said Jay Cline, who heads cybersecurity and privacy at PwC, an international consultancy. “So we don’t expect a stampede to join it in the next few days, but rather a steadily growing wave over the long run, especially if European companies begin to favor Privacy Shield membership in competitive bids.”

Some companies still need to implement new measures to comply with the new system, such as updating privacy policies with information about where customers can address complaints. Many firms waited until the EU formally published the new mechanism’s documents in mid-July before beginning to implement the new requirements, company representatives said.

Other companies are evaluating whether the new agreement offers advantages over alternative approaches to complying with European data protection laws, experts say. Alternatives include so-called model clauses—standardized data-protection language preapproved for addition to contracts with customers—and binding corporate policies approved by the EU.

More than 4,000 U.S. companies had been certified under the previous, less robust agreement, known as Safe Harbor, before it was [invalidated by the European Court of Justice last year](#) in the wake of Edward Snowden’s revelation of U.S. surveillance programs.

[Microsoft](#) applied for Privacy Shield certification on the first day applications were accepted, the company said. The Redmond, Wash., software giant said it implemented both Privacy Shield principles and model clauses. The combination strengthened Microsoft’s competitive position, said John Frank, Microsoft’s vice president for EU Government Affairs.

“European privacy protections are important to European citizens and organizations. We offer EU-approved Model Clauses and we have signed onto the Privacy Shield rules so that we can offer our customers strong data protection standards,” Mr. Frank said.

[Amazon.com](#) Inc. competes directly with Microsoft in cloud infrastructure services—the reason for much of Microsoft’s data transfer activity—yet it hasn’t yet applied for Privacy Shield certification.

“The new EU-US Privacy Shield does not impact AWS customers” because the company maintains data centers in several countries where its customers can store their data, and that it also uses model clauses, wrote Stephen Schmidt, vice president of security engineering and chief information security officer of Amazon Web Services, in a recent blog post. Amazon nonetheless planned to apply for Privacy Shield certification, he added.

Experts say Privacy Shield certification is likely to help companies compete with rivals.

“When Safe Harbor was still in place, we saw that companies who were part of it had a competitive advantage in competitive bids over companies who used model clauses. I think we will see the same with Privacy Shield,” Mr. Cline said.

BSA, a software industry organization dedicated to international trade, expects Privacy Shield eventually to be adopted as widely as its predecessor.

“We expect that at least the 4,000 companies who applied for Safe Harbor will apply for the new mechanism as well,” said Thomas Boué, an expert on privacy issues at BSA.

A study by the Future of Privacy Forum, a think-tank based in Washington, D.C., said the Safe Harbor agreement got off to a slow start when it launched in 2000. Some commentators blamed the delay on companies wanting to gauge the consequences of abstaining, the report said. Others blamed bureaucracy.

Despite the new agreement, the rules that govern handling of data on European citizens remain unsettled. Both Privacy Shield and model clauses are likely to be examined by the European Court of Justice, and Christian Schefold, an expert in data protection and compliance at the international law firm Dentons, expects model clauses to fail the test.

As for Privacy Shield, the European Commission has said it was confident it would withstand legal challenges.

The annual fee for Privacy Shield certification depends on the size of the company and can cost up to \$3,250. The application process usually takes from several weeks to six months, experts said.

[WSJ] Forty U.S. Companies Sign on to EU Data Protection Agreement

Dana Heide

12 August 2016

http://www.wsj.com/articles/forty-u-s-companies-sign-on-to-eu-data-protection-agreement-1471038607?mod=WSJ_TechWSJD_NeedToKnow

About 40 companies have signed on to the new international data-protection agreement that allows U.S. companies to transfer data on European citizens to servers in the U.S.

A list of companies that have been deemed compliant with the requirements of the so-called Privacy Shield agreement was released on Friday by the International Trade Administration, an office of the U.S. Commerce Department that promotes exports. [Microsoft](#) Corp., [Workday](#) Inc. and [Salesforce.com](#) Inc. are among those named.

The list will be updated on a rolling basis, a Commerce Department spokesman said. “There are nearly 200 applications currently involved in our rigorous review process,” he added.

Privacy Shield is the successor to an earlier agreement called Safe Harbor. More than 4,000 companies were certified for Safe Harbor before the European Court of Justice in October ruled that agreement invalid. The court’s decision threw Safe Harbor signatories that hadn’t made alternative arrangements suddenly out of compliance with EU data-protection requirements.

The Commerce Department started to accept Privacy Shield applications on Aug. 1. Certified companies must agree to follow the agreement’s data-protection rules or else face sanctions.

Computer Science For All

[SF Chronicle] Learning to code must be matched with working toward change

Elisabeth Soep and Clifford Lee

14 August 2016

<http://www.sfchronicle.com/opinion/article/Learning-to-code-must-be-matched-with-working-9141932.php>

President Obama wants all students in America to learn to code. He’s joined by leaders from Google, Facebook and other tech giants who are throwing their names — and dollars — behind this national push to expand computer-science education.

Teaching kids to code is, among other things, what we do for a living. But at this moment of national enthusiasm, we want to pose a key question to the “code for all” movement.

Code for what?

It's great that earlier this year, Obama set aside more than \$4 billion in federal [funding](#) to help teach teens to code, so they can drive innovation and power the future economy with well-paid jobs. All this investment will help teens become successful creators in the digital age while achieving upward mobility — something we work toward every day at [Youth Radio](#). Most of our students are youth of color whose schools don't teach coding, and who don't see themselves reflected in the tech workforce, which is still mostly male and white.

But not all code does good in the world. While a weekend hackathon or Javascript summer camp are great for exposure, it's disingenuous to suggest these isolated experiences would prepare a young person for a full-time engineering gig at Snapchat. Laboring for months to make a glitchy website no one visits can leave kids discouraged, not hungry for more. Not surprisingly, plenty of projects built with code — video games, for example — reinforce stereotypes of the communities least likely to be among their makers: women and people of color.

To realize the promise of next-generation, computer-science education, coding needs to be seen as a place to begin, not an end in itself. Students need to be prepared to ask themselves, again and again: What is the purpose, value and impact of the thing I'm making? Is my product, and my process, part of a solution or part of a problem?

We frame this approach to computer science education, which puts civic questions front-and-center, as a form of "Critical Computational Literacy."

Here's an example from our recent class. Teens are given a challenge: Build an app that promotes youth health. The group decides to develop a simple tool that allows teens to reflect on how they're feeling on a day-to-day basis, without causing harm to themselves or others. Namiye Peoples and her team work on a set of designs for a mobile app based on surveys with 70 of their peers plus interviews with mental health professionals.

The app, Mood Ring, invites teens to track their feelings through any combination of nine emojis plus written reflections. "After user research, we added daily affirmations," Peoples says, because teens wanted to see something positive each time they logged on. The Mood Ring team is now refining the functionality that prompts users to reach out to a select network of trusted friends when they're feeling down.

To make Mood Ring and other projects like it, young people had to learn to code. But they also had to tap their deep knowledge of unmet needs in their communities. For example, the team made sure their app didn't pathologize sadness or anger in youth who are regularly exposed to violence and other sources of trauma.

Instead, Mood Ring builds self-awareness and combats isolation. "There are a lot of other kids right now going through a lot of life problems," says Peoples. "Their phones are what they keep so close to them." Anticipating the publication of Mood Ring, Peoples says, "It will create a change. And we did that."

That's Critical Computational Literacy, a process of creating technology that combines computational thinking and consciousness about social issues. The idea is to connect individual gain to public good.

There's a side benefit to Critical Computational Literacy: unstoppable student engagement. When young people produce tools that communicate and transform challenging issues in their communities, they

keep cranking out line after line of code — not to win a prize, or to get a grade, but because what they're doing is that important.

The public and private investment that's coming in to expand computer science learning is a huge opportunity. But promises of future employment are not enough. We need to look carefully at specifics in the curriculum we support. Do programs make an explicit connection between computer science skills and a larger social purpose? That's what's needed for youth truly to become active, empowered citizens in our technology-driven world.

ConnectHome

[Daily Dot] Disconnected in Silicon Valley's shadow

Rebecca Huval

14 August 2016

<http://www.dailydot.com/debug/fresno-silicon-valley-silicon-valley/>

Just two hours outside of futuristic Silicon Valley, the county of Fresno, California, looks like a time capsule from the 1970s. Beyond the prom dress shops with their cartoonish window paintings, the vacant lots, and the brutalist AT&T building that seems to lack windows, you'll find the Parc Grove Commons housing projects. Inside the community room, 45 adult students are learning about the internet. On this sunny summertime Thursday, every single student has shown up to class.

Today, they're learning about email. "Instead of putting mail in an envelope and waiting a couple of days, you can send a message instantly," explains the teacher, John Gonzalez. An older student responds with delight: "Ooooooh." At the end of the nine-week class—organized by the Fresno Housing Authority and California State University (CSU), Fresno's Office of Community & Economic Development—students with perfect attendance will earn an HP laptop.

Racheale Mitchell, who lives in the apartments, is attending because she had once lost a job offer as a result of her limited access to the internet. The 28-year-old had been driving 10 minutes to her cousin's house to use his computer. Sometimes, she would drive to the library, but she was often given a numbered ticket and told to wait. Since then, she's landed a job with the public school district working as an attendance clerk, and she wants to be able to update students' files from home.

"[The internet] should be a right for everyone," Mitchell says. "You can't even go into a store and fill out a job application anyone. They say: 'We'll email you back for the interview.'"

Other students complained that they're struggling to sign up for social security, Medicare, driver's license renewals, and student loan payments. The list goes on. Those governmental services have migrated online. "Now you can't even make a phone call to do your unemployment insurance; you have to do it online," Gonzalez says. "As more of the government agencies move in that direction, they're leaving behind a lot of people behind who don't have internet at home."

With an unemployment rate that hovers around [10 percent](#), the cause of Fresno's doldrums can be linked to the tools of Silicon Valley's own success: Only [69 percent](#) of the Fresno metro population uses the internet. The city is barely better off than the two least connected California metros, Bakersfield and Hanford, both of which are also in Central Valley.

As powerful tech companies like Facebook strive to bring greater internet access to other parts of the world, are they overlooking the digital divide in their own backyard?

The connectivity gap at home

The reasons for the low internet usage in Fresno are complex and intertwined. The poverty rate—[28 percent](#)—is much higher than in other California cities, meaning that many households are unable to afford either a computer or a costly monthly subscription to the internet. As a result, there’s a lack of digital literacy, which is what draws so many students to CSU Fresno’s digital literacy classes (more than 500 total in just the Spring 2016 semester).

On top of all these factors, the large internet service providers (ISPs), such as [Comcast](#) and [AT&T](#), struggle to make a return on their investment in certain underserved areas, given the lack of customer base, says Gladys Palpallatoc, associate vice president of the California Emerging Technology Fund. Not to mention, those broadband and fiber-optic cables are cumbersome infrastructure to build from scratch.

“You can’t even go into a store and fill out a job application anyone. They say: ‘We’ll email you back for the interview.’”

In a public relations move, both Comcast and AT&T have launched subscriptions for low-income households—[Internet Essentials](#) and [AT&T Access](#), respectively—but both have limitations. AT&T only just launched its program in April, offering service to households in its 21-state service area where at least one resident is enrolled in the U.S. Supplemental Nutrition Assistance Program (SNAP) or receives California’s Supplemental Security Income (SSI) benefits.

The Comcast program, at \$9.95 a month (for families with at least one child who qualifies for free and reduced lunch), is affordable, but it doesn’t cover low-income seniors and people without children. Comcast is expanding the eligibility in certain trial areas. Just this July, the company and U.S. HUD announced [ConnectHome](#) to make people living in housing assistance eligible for Internet Essentials. Fresno is one of its priority areas, but the program won’t help residents outside of public housing in Fresno County’s sprawling, isolated patches.

Even qualified people sometimes struggle to sign up for it.

“[Comcast] is really hard to get ahold of,” says Gonzalez, whose office coordinates three-way calls between low-income customers and the ISP because some of his Internet Essential-qualified students have been asked to subscribe at the market rate. People without the internet often call the first phone number they can find, which is commonly Comcast’s general line instead of the Internet Essentials phone number, he says. “They’re a business, so of course they’re trying to make money, and sometimes these participants feel like they have to sign up for all the extras, and we’re there on the phone making sure everything goes as it should.” In the last three years, his office at CSU Fresno has facilitated 2,320 new broadband subscriptions.

The California government almost stepped up to improve the situation. This past April, a state [bill](#), known as the “Internet for All Act,” was poised to collect [\\$350 million](#) in funds to support what ISPs are unwilling or unable to do: Build the infrastructure to bring broadband into rural and underserved

areas. Then, AT&T's lobbyists pushed for a new, competing [bill](#) that would have given the company first dibs on areas with new broadband infrastructure. In the end, the author killed both proposals over a lack of support.

Though smaller ISPs are the ones that stand to make a return on their investments in sparsely populated areas, bigger ISPs don't want them to encroach on their territory, Palpallatoc says. "The incumbents would rather not open up that opportunity—but when given the opportunity, they can't do it, so it's this tug of war. It's mirrored in ubiquitous utilities over time. There's always a subsidy and an incumbent. A government entity has to step in to make sure their citizenship gets the services necessary."

Even though the U.N. declared internet a basic human right in [2011](#), some lawmakers in the United States are still uncomfortable with the idea. California assemblymember Mike Gatto opposed the Internet for All Act. "Some proposals involve bringing connectivity to mountain cabins, where vacationers probably prefer to unplug," he [wrote](#) in the *Sacramento Bee*. Likewise, the *Orange County Register* editorial staff [wrote](#) in May: "High-speed Internet is a service and a convenience, not a fundamental right. It is not, and should not, be an entitlement. Moreover, it is already available in libraries, Internet cafes and businesses that offer free WiFi access."

About that: On the same Thursday of the digital literacy class, around lunchtime, the Fresno Central Library's 45 computers with internet were all occupied. Only two screens were opened to [Facebook](#). The rest of the visitors were applying to jobs—at Michael's, at restaurants, at malls—filing for federal student aid, browsing Fresno City College's schedule of classes, or researching how to grow plants at home.

Among them, Anthonia Washington, a farmer in northwest Fresno and a civil rights activist, was emailing an advocacy group to spread the word about abuses in Fresno prisons. Without a computer or high-speed internet at home, she goes to the library almost daily, she says. About half the time, she has to wait to use the computers—sometimes as long as two hours. As an advocate, she's helped her low-income neighbors and friends of friends to contest foreclosures and credit issues because they don't have the internet at home, either.

"You're denied your right to due process by virtue of whether you have access to the internet," Washington says. "If you can't afford it, you're shunted from civil process. You're supposed to have the right to file a foreclosure. So if you have those rights, but the only way to afford it is to go on the internet, you're actually denied that right. That's a whole avenue of civil process that's denied to you. A lot of the people I talk to speak as though they don't have a right to participate in society because they're so used to having that door slammed in their face because they're being told, 'Oh, it's on the internet.'"

Bridging the digital divide

Meanwhile, in San Francisco and San Jose, tech workers dine on gourmet bacon-wrapped figs stuffed with goat cheese. The figs were likely grown in Fresno, as are 350 other types of produce. Though Central Valley harvests most of the country's crops, tech workers often forget their neighboring region exists. In the Bay Area map according to Urban Dictionary, the Central Valley is jokingly referred to as "[unknown parts](#)."

Though Facebook has [tried to force](#) the internet upon India with Free Basics, no large tech company has sought to improve connectivity in Fresno. “Their philanthropy dollars go abroad,” Palpallatoc says. “They look at the digital divide issue abroad because they think it’s their new market. They don’t look here. ... The focus of this new tech money tends to be very narrow.”

“You’re denied your right to due process by virtue of whether you have access to the internet.”

Even Google Fiber’s Digital Inclusion Fellowship, which seeks to close the digital divide by partnering with local organizations, chose San Francisco as a partner city over Fresno. “Being in its second year, [the fellowship is] still growing,” says Samantha Akwei, the chosen Digital Inclusion Fellow in San Francisco. “Being in San Francisco is a big thing. But it should also be in Oakland and Walnut Creek and Central Valley. Part of what the fellowship is built to do is ask those questions and shine light.”

Though the tech industry and the ISPs have the money and the technical connections, it isn’t up to those parties alone to get everyone on the internet, says Kish Rajan, chief evangelist for [Cal Innovates](#), an advocacy group that links the high-tech industry with public policymakers in California. “It has to be a collaboration between the public sector and the private sector,” he says. “No one party is responsible. The service providers have a big role in making broadband services accessible affordable and usable so that its usage can grow. At the same time, you have to look at the government creating the regulatory condition that will enable businesses to make rational investments. We can’t expect businesses to invest for public good.”

The nerve center of Fresno’s own tech community is small but growing. [Bitwise Industries](#), which houses 107 companies and a tech academy, was founded by Irma Olguin Jr., who grew up in Caruthers, just outside Fresno, without internet. The day she wrote her first email was her first day of college. In her wildest visions for her company, Bitwise will help fund a train throughout Fresno’s isolated, disconnected sprawl. “It’s because 10-year-old Irma wants to get on a train and take a robotics class,” she says. “If we can expose young people to that opportunity to learn about tech and engineering, they’re going to build their own tower and ISP.”

Until then, the next Irma Olguin is boarding an hour-long bus to the library—to wait for the internet for another two hours.

Competition

[\[Android Headlines\] Korea Fair Trade Commission Investigating Google](#)

David Steele

13 August 2016

<http://www.androidheadlines.com/2016/08/korea-fair-trade-commission-investigating-google.html>

The Korea Fair Trade Commission, KFTC, announced yesterday (Friday) that it is to formally investigate if Google has violated anticompetition laws. This is not the first time that South Korea’s antitrust regulator has investigated Google as in 2013, the regulator investigated if Google’s insistence that smartphone manufacturers using Android on their devices had to use the Google Search on the device was bad for competition. At the time, Google was cleared of any wrongdoing after the investigation. For the current story in 2016, it is not clear the extent of the investigation so far. The KFTC did not disclose the nature of the investigation nor did they detail any potential antitrust violations. However, an unnamed individual told the source website, Reuters, that the Korea Fair Trade Commission visited Google’s Seoul

headquarters back in July 2016. The KFTC's announcement followed a local report that the commission had quashed anticompetition charges concerning the pre-loading of Google's applications and services onto devices running the Android operating system.

Google is no stranger to being accused of anti competitive practices. Earlier this week, Russia fined the [company \\$6.8 million](#) and the European Union has recently launched a new raft of investigations into Google's business, in particular at alleged anticompetitive behaviour. The massive success of Google's Android platform mirrors how successful Google's Search engine has been. However, there are a number of differences: Google insists that companies using the Android operating system must follow certain guidelines or rules. It's this that has raised eyebrows in a number of countries or regions of the world as it is seen as excluding other businesses. Although Android is the leading smartphone operating system across the world, in some countries such as India the market share [has reached 97%](#) and regulators are worried that this gives one business too much control. We have seen other moves designed to wrestle Google's insistence that manufacturers use Google's services, such as Microsoft supporting a Cyanogen OS platform based on Google's Android but without the requirement to use Google's applications.

At this time, neither Google nor parent business, Alphabet, have commented on the Korea Fair Trade Commission's statement and in the absence of information we will have to wait for the investigation to run its course. This is a developing story but it may be some weeks before we have an update.

Artificial Intelligence

[Recode] [The head of Google's Brain team is more worried about the lack of diversity in artificial intelligence than an AI apocalypse](#)

Johana Bhuiyan

13 August 2016

<http://www.recode.net/2016/8/13/12467506/google-brain-jeff-dean-ama-reddit-artificial-intelligence-robot-takeover>

As some would have it, robots are poised to take over the world in about 3 ... 2 ... 1 ...

But one machine-learning expert — who is, after all, in a position to know — thinks that's not the biggest issue facing artificial intelligence. In fact, it's not an issue at all.

"I am personally not worried about an AI apocalypse, as I consider that a completely made-up fear," Jeff Dean, a senior fellow at Google, wrote during a [Reddit AMA](#) on Aug. 11. "I *am* concerned about the lack of diversity in the AI research community and in computer science more generally." (Emphasis his.)

Ding, ding, ding. The issue that the tech industry is trying to maneuver their way around, for better or worse, is the same issue that can stunt the progress of "humanistic thinking" in the development of artificial intelligence, according to Dean.

For the optimists in the audience, [Google Brain](#) wants to improve lives, Dean wrote. And how can you improve lives without people with diverse perspectives and backgrounds helping to build and develop the technology you hope will impact positive change? (Answer: You can't.)

“One of the things I really like about our Brain Residency program is that the residents bring a wide range of backgrounds, areas of expertise (e.g. we have physicists, mathematicians, biologists, neuroscientists, electrical engineers, as well as computer scientists), and other kinds of diversity to our research efforts,” Dean wrote.

“In my experience, whenever you bring people together with different kinds of expertise, different perspectives, etc., you end up achieving things that none of you could do individually, because no one person has the entire skills and perspective necessary.”

[Newsweek] OLYMPIC WRESTLERS TUNE IN TO ARTIFICIAL INTELLIGENCE ‘SONGBOTS’

Anthony Cuthberston

14 August 2016

<http://www.newsweek.com/artificial-intelligence-music-olympics-wrestling-488308>

Argentinian goalkeeper Sergio Goycochea used to urinate on the pitch, certain French rugby players like to [headbutt each other](#) and Serena Williams apparently never changes her socks during a tournament—but as athletic rituals go, listening to music composed by a robot has got to be up there.

In an effort to get one up on their rivals, the U.S. Olympic wrestling team has been listening to songs written by artificial intelligence to prepare for matches. The music, created by [Brain.fm](#), combines neuroscience with musicology to offer listeners specific “brain states.”

Speaking to *Newsweek*, team coach Matt Lindland says he came across Brain.fm after actively seeking a sleep-based solution for his athletes. Lindland approached science journalist Steven Kotler, who recommended the AI-composed music as a safe and healthy performance-enhancing technique.

“Our athletes are sleeping better and are more recovered for practise the next day,” Lindland says. “Sleep is critical to the recovery of our athletes after hard practices, and this was the main thing I wanted to address leading up to and during Rio 2016.

“Some of the guys have also enjoyed using the focus sessions, as well as the relax sessions after a hard training session.”

The artificial intelligence compositions work by providing certain brainwave rhythms designed to provoke three types of neurological brain states: relaxation, focus or sleep. Brain.fm describes its musical platform as “the most advanced auditory AI engine on the planet,” having been built following 13 years of research into auditory neuroscience.

For the composition of the songs, a ‘songbot’ takes the place of a human conductor to control hundreds of ‘notebots’ that handle different instruments. Working together, the two types of bots build pieces from the ground up, aligning beats and instruments for whichever purpose is required.

“What Brain.fm is doing is creating a rhythmic stimuli that resembles frequencies already in your brain,” says a spokesperson for Brain.fm. “It plays that stimuli long and consistently enough to actually register a solid and predictable response.”

The team has been using the relaxation, focus and sleep sessions since February and will continue to use them throughout the Olympics, which for the men’s greco-roman wrestlers begins on August 14.

Team captain Robby Smith says that the AI songs have replaced the rap, country and classical music he used to listen to as preparation, and that the most common improvement for the team overall has been with getting restful sleep.

Before using Brain.fm, Smith was using the hormone melatonin to help him get to sleep, though this is not ideal due to the potential side effects, which include headaches, daytime sleepiness and dizziness.

"I listen to the focus sessions before practise to help me get in the zone. Then after practise, I use the relaxation sessions to focus my breath and calm myself down," Smith tells *Newsweek*.

"It gives me an outlet to focus on the things I need to focus on and I'm hoping it will bring me the results I want in Rio."

Self-Driving Cars

[NY Times] Tesla Removes 'Autopilot' From China Website After Beijing Crash

<http://www.nytimes.com/reuters/2016/08/15/business/15reuters-tesla-china-crash.html?ref=business>

Reuters

15 August 2016

<http://www.nytimes.com/reuters/2016/08/15/business/15reuters-tesla-china-crash.html?ref=business>

SHANGHAI/SAN FRANCISCO — Tesla removed the word "autopilot" and a Chinese term for "self-driving" from its China website after a driver in Beijing who crashed in "autopilot" mode complained that the car maker overplayed the function's capability and misled buyers.

The Tesla driver crashed earlier this month while on a Beijing commuter highway after the car failed to avoid a vehicle parked on the left side, partially in the roadway, damaging both cars but causing no injuries.

It was the first known such crash in China, though it follows a fatal accident in Florida earlier this year that put pressure on the auto executives and regulators to tighten rules for automated driving.

"At Tesla we are continuously making improvements, including to translations," a Tesla spokeswoman said in an emailed statement to Reuters.

"We've been in the process of addressing any discrepancies across languages for many weeks. Timing had nothing to do with current events or articles."

References to autopilot and the term "zidong jishi", which most literally translates as self-driving although also means autopilot, were taken off the webpage for the Model S sedan by late Sunday, according to a comparison with an archived version of page.

Both terms previously appeared several times on the site.

Instead a phrase that translates as 'self-assisted driving' is used.

Tesla China staff have additionally undergone training in response to the Aug. 2 crash to re-emphasize that employees must always keep two hands on the wheel when demonstrating the autopilot function, according to a Tesla employee who was not authorized to speak to the media.

Reuters was first to report last week that Tesla said it downloaded data from the Beijing car and confirmed it was in autopilot mode at the time of the crash, although the driver was not detected to have his hands on the wheel.

The spokeswoman for the U.S. automaker issued a statement saying that the system was not self-driving but merely assistive and that drivers were responsible for always maintaining control of the vehicle.

Other Tesla drivers interviewed by Reuters said China sales staff took their hands off the wheel while demonstrating the function. Under Chinese law, drivers are required to keep two hands on the wheel at all times.

The crash is another hiccup for Tesla in the Chinese auto market, the world's largest, after it initially struggled with distribution and charging issues.

Various Chinese government ministries did not respond to requests for comment on the Tesla crash and self-driving policies.

Education Technology

[Parent Herald] Education Technology Latest News Updates: How EdTech And Artificial Intelligence Help Transform Higher Education And Online Learning
<http://www.parentherald.com/articles/60947/20160813/education-technology-latest-news-updates-how-edtech-artificial-intelligence-help-transform-higher-education-online-learning.htm>

In an era where modern technology has become a valuable influence in the lives of humans, it's safe to assume that technology will be able to enhance the learning experience of educators and students, especially in higher education and online learning. As experts combined education technology (EdTech) and artificial intelligence (AI), a powerful tool to potentially transform education has been born.

Due to the pervasiveness of technology today, the way students communicate and entertain themselves have changed. But some experts believed that the implementation of education technology alone in schools, colleges and universities across the nation is not enough to revolutionize education.

As artificial technology continues to rise and gradually becomes a technological trend, AI-based language tech start-up [Knowble](#) managing director Josef Misik that education technology products will soon deep learning or AI technology to effectively address the common challenges when it comes to learning. The integration of AI in EdTech platforms, however, won't be only beneficial to students, as it would also be a great resource for educators, who are responsible for tracking the students' learning progress, as said by online education company [Coursera](#) VP of enterprise Julia Stiglitz.

"Most educational technology products will have an AI or deep learning component in future," Misik said, as per [Business Because](#). Stiglitz also added, "[AI-driven] Data [analysis] is an amazing resource for teachers, who glean detailed feedback on how learners are processing information."

Moreover, some experts believed that integrating artificial intelligence on education technology platforms or products will also be helpful in improving the academic performance of students. In

addition, EdTech and AI have also been perceived as an effective way to improve and develop better learning and assessment tools, particularly in terms of online learning.

Aside from the benefits of education technology and artificial intelligence in online learning, experts also saw their potential in transforming higher education. As a matter of fact, [Times Higher Education](#) outlined four AI and EdTech benefits in universities.

One the key benefits pointed out was the fact that artificial intelligence and education technology will help prepare higher education students for an industrial revolution, where more equipped and skilled workforce is needed. Second, AI and EdTech can potentially solve major higher education challenges such as the "underutilized and underfunded" AI-based learning analytics used to monitor and analyze students' learning improvements.

Artificial intelligence and education technology can also help educators tailor learning based on the students' individual needs through the use of data analytics. Lastly, higher education can be a conducive place for AI research as it can improve its benefits without hindering its progress.

"There are essential human abilities and skills that AI is a long way from mastering: social intelligence, empathy, love and creativity, for example," Times Higher Education wrote. "In addition to these essential human abilities there is another that is crucially important to education: the human ability to contextualize our actions. Context is a key variable in the effectiveness of education; some would argue it is the biggest variable in a student's propensity for success."

In other education technology and artificial intelligence-related news, Penn State's School of Music associate professor and music education graduate program chair Ann Clements is reportedly developing an AI-driven virtual reality classroom. According to [Penn State News](#), Clements is exploring the usefulness of technology through the AI classroom prototype called First Class.

Do you think education technology and artificial intelligence can help transform the education sector? Share your thoughts below and follow Parent Herald for more news and updates.

STEM Education/Skills

[WSJ] [Bigger Loans for STEM Students](#)

S.P. Kothari and Korok Ray

14 August 2016

<http://www.wsj.com/articles/bigger-loans-for-stem-students-1471210878>

Outstanding student debt has ballooned to \$1.3 trillion and is now, aside from mortgages, most American households' largest liability, according to the Federal Reserve. Last year alone student debt increased by almost \$83.2 billion, or 6.7%. The price of tuition has risen an average 3.4% each year for a decade, markedly outpacing inflation.

Meanwhile, the U.S. faces a daunting skills gap in science, technology, engineering and math. Each year there are 1.3 million [new openings](#) in STEM fields but fewer than 600,000 new graduates. Is there a way to solve both these problems at once?

Yes: Restructure the Federal Direct Loan Program to target loans based on field of study. Students' interests would be better served and taxpayers' dollars would be more productively invested if the Education Department were to extend loans depending on the employability and long-term economic productivity of different fields of study.

Since 2010, when the Obama administration's Direct Loan Program was launched, all federal student loans have run through the Education Department. At the end of last year they totaled \$840.7 billion of debt to 29.9 million students. In 2015 the [default rate](#) on direct loans was on average 2.1% per quarter or 8.4% for the entire year.

When the government is in the business of offering credit, as it is now with student loans, it should think hard about credit risk. One of the chief lessons of the 2008 financial crisis was that mispricing credit risk can have catastrophic consequences.

Yet the government's Direct Loan Program mostly ignores the credit risk of students, treating them largely as identical in their long-term employment outcomes. Just as a mortgage provider now requires higher down payments from risky borrowers with lower FICO scores, federal lenders should tailor the loan amount based on the long-term economic opportunities of the borrower.

Our proposal is to target the loan amount for each student based on field of study. First, we restrict attention to the loan amount rather than the interest rate since a partial loan (rather than higher rate) is better at ensuring that students have "skin in the game."

Second, the field of study category need not be determined by government alone but can rely on market data. The Boston-based company Burning Glass Technologies collects data on earnings and collegiate educational choices to quantify the value of different majors in college. Relying on such an index would allow government officials to peg the loan size to market data rather than by government fiat alone.

Some may feel that it is unfair to offer a greater subsidy to a computer science major than a history major. But treating these majors as financially equivalent imposes undue risk on the ultimate creditors behind student loans: taxpayers.

If the nation is serious about staying competitive in the global race for STEM talent, then targeting student loans is one solution that can and should earn bipartisan support.

[\[NY Times Op-ED\] STEM Education](#)

Smita Bakshi 15 August 2016

<http://www.nytimes.com/2016/08/15/opinion/stem-education.html?ref=opinion>

The Obama administration's push to elevate the importance of science and scientific research has provided a significant boost to those of us involved in STEM education (science, technology, engineering and mathematics), not to mention the lifelong impression made on the hard-working young scientists who participated in a White House Science Fair.

STEM education is more than supporting young people to become scientists and engineers, although I hope that many will.

It's also about encouraging scientific literacy and challenging students to value the critical lessons learned in the process of discovery: creativity, patience and attention to detail, all in service of expanding the bounds of possibility and enabling students to make lasting contributions in any job.

But the reality for the many students who go on to follow a STEM track in college is disconcerting. Entering higher education essentially underprepared for the coursework, more than 50 percent of them either change their degree paths or leave college entirely.

Without well-supported, inspiring science and math programs at the K-12 level, this trend will not improve. Students with potential may never be given the basic tools to succeed.

SMITA BAKSHI

Los Gatos, Calif.

[WSJ] [Is There a STEM Crisis or a STEM Surplus?](#)

Irving Wladawsky-berger

12 August 2016

<http://blogs.wsj.com/cio/2016/08/12/is-there-a-stem-crisis-or-a-stem-surplus/>

Is the US facing a critical shortage of STEM skills? Do we have enough [STEM](#) workers to meet the demands of the labor market? Are enough young people choosing STEM careers so we can meet future demands?

Such serious concerns have been expressed in a number of national studies over the past two decades. In 2005, for example, the [National Innovation Initiative](#) listed "Build the Base of Scientists and Engineers" as one of its top recommendations, noting that "unless the United States takes swift action, the demand for S&E talent will far outstrip supply. The number of jobs requiring technical training is growing at five times the rate of other occupations."

Two years later, a major [National Academies](#) study, [Rising Above the Gathering Storm](#), called for increasing America's STEM talent pool by providing 25,000 new 4-year competitive undergraduate scholarships to U.S. citizens enrolled in the physical sciences, the life sciences, engineering and math; and by funding 5,000 new graduate fellowships each year for U.S. citizens pursuing graduate studies in *areas of national need*.

And in 2012, a [report](#) by the [President's Council of Advisors on Science and Technology](#) wrote: "Economic projections point to a need for approximately 1 million more STEM professionals than the U.S. will produce at the current rate over the next decade if the country is to retain its historical preeminence in science and technology. To meet this goal, the United States will need to increase the number of students who receive undergraduate STEM degrees by about 34% annually over current rates."

There are, however, different views. In September of 2013, [IEEE Spectrum](#) published an article with the provocative title [The STEM Crisis is a Myth](#), by [Robert Charette](#). "Every year U.S. schools grant more STEM degrees than there are available jobs," wrote Mr. Charette. "When you factor in H-1B visa holders, existing STEM degree holders, and the like, it's hard to make a case that there's a STEM labor shortage... Even as the Great Recession slowly recedes, STEM workers at every stage of the career pipeline, from

freshly minted grads to mid- and late-career Ph.D.s, still struggle to find employment as many companies, including Boeing, [IBM](#), and [Symantec](#), continue to lay off thousands of STEM workers.”

A similar view was expressed by [Michael Teitelbaum](#), a Sloan Foundation Vice President at the time, when he testified before the House Subcommittee on Technology and Innovation in November of 2007. In his [testimony](#), Mr. Teitelbaum said:

“First, no one who has come to the question with an open mind has been able to find any objective data suggesting general *shortages* of scientists and engineers... I would add here that these findings of no general shortage are entirely consistent with isolated shortages of skilled people in narrow fields or in specific technologies that are quite new or growing explosively.”

“Second, there are substantially more scientists and engineers graduating from U.S. universities that can find attractive career openings in the U.S. workforce. Indeed science and engineering careers in the U.S. appear to be relatively unattractive – relative that is to alternative professional career paths available to students with strong capabilities in science and math...”

“[T]he postdoc population, which has grown very rapidly in U.S. universities and is recruited increasingly from abroad, looks more like a pool of low-cost research lab workers with limited career prospects than a high-quality training program for soon-to-be academic researchers. Indeed, if the truth be told – only a very small percentage of those in the current postdoc pool have any realistic prospects of gaining a regular faculty position.”

A *New York Times* [article](#) recently added that “The United States is producing more research scientists than academia can handle... The lure of a tenured job in academia is great – it means a secure, prestigious position directing a lab that does cutting-edge experiments, often carried out by underlings. Yet although many yearn for such jobs, fewer than half of those who earn science or engineering doctorates end up in the sort of academic positions that directly use what they were trained for.”

How do we reconcile these widely different views of the STEM labor market? An article published last year, [STEM crisis or STEM surplus? Yes and yes](#), by [Yi Xue](#), at the time an MIT graduate student, and MIT professor [Richard Larson](#), tried to make sense of this ongoing STEM debate. Their answer, as is often the case with such complex questions, is that both sides are right. It all depends. STEM includes a variety of disciplines, degree levels and employment sectors. While some occupations do indeed have a shortage of qualified talent, others have a surplus.

“The upshot is that there may not be a STEM *crisis* in all job categories, but instead just in select ones at certain degree levels and in certain locations... A job segment that traditionally has a shortage of workers may at some times have a surplus and vice versa. Thus, it is probably far more accurate to state that, within STEM job categories, there is a *crisis* or a *surplus* depending on the circumstances at the time the categories are investigated.”

The article examined the heterogeneous nature of STEM occupations on the basis of statistical data, current research papers, interviews with company recruiters across a range of industries, and anecdotal evidence from newspapers. It focused on graduates with postsecondary education within the STEM domain across the three main employment sectors: academia, government and the private sector. Their analysis yielded the following findings:

“The STEM labor market is heterogeneous. There are both shortages and surpluses of STEM workers, depending on the particular job market segment.”

“In the academic job market, there is no noticeable shortage in any discipline. In fact, there are signs of an oversupply of Ph.D.’s vying for tenure-track faculty positions in many disciplines (e.g., biomedical sciences, physical sciences).”

“In the government and government-related job sector, certain STEM disciplines have a shortage of positions at the Ph.D. level (e.g., materials science engineering, nuclear engineering) and in general (e.g., systems engineers, cybersecurity, and intelligence professionals) due to the U.S. citizenship requirement. In contrast, an oversupply of biomedical engineers is seen at the Ph.D. level, and there are transient shortages of electrical engineers and mechanical engineers at advanced-degree levels.”

“In the private sector, software developers, petroleum engineers, data scientists, and those in skilled trades are in high demand; there is an abundant supply of biomedical, chemistry, and physics Ph.D.’s; and transient shortages and surpluses of electrical engineers occur from time to time.”

“The geographic location of the position affects hiring ease or difficulty.”

So, is there a STEM crisis or a STEM surplus? “The answer is that both exist... As our society relies further on technology for economic development and prosperity, the vitality of the STEM workforce will continue to be a cause for concern.”

Drones

[WIRED] [It’s Time for Fancy Apartments to Offer Balconies for Drone Landings](#)

Charles Bombardier

14 August 2016

<https://www.wired.com/2016/08/time-fancy-apartments-offer-balconies-drone-landings/>

MAKE NO MISTAKE: [Drones](#) are coming, and they’re going to change a lot of things about how we shape our lives. So why shouldn’t we change how we shape our buildings to get ready for them?

Early adopters will probably buy [personal flying vehicles](#) in the not too distant future. Some models are being developed as we speak. Maybe an innovative architectural firm will even pitch the idea of building a ‘drone-ready’ condo tower in Japan or Dubai in the coming months—and maybe it will sell faster than we think.

A mechanical engineer and a member of the family whose aerospace and transportation company builds trains, planes, and snowmobiles, Bombardier’s actually at his best when he ignores pesky things like budgets, timelines, and contemporary physics. Since 2013, he’s run a [blog cataloging more than 200 concepts](#), each a fantastic, farfetched new way for people to travel through land, air, water, and space. His ideas are most certainly out there, but it’s Bombardier’s sort of creative thinking that keeps us moving forward.

That’s the basis for my Drone Tower, which would look like a futuristic condo building, with large balconies built to accommodate small electric aircraft or shipping drones. You wouldn’t need to buy your own drone, you’d simply order a ride with an app like a taxi—and hop in right from your terrace.

Of course this calls for rigorous safety standards, for the building as well as the increase in air traffic around residential buildings. If space is a bit tight, design railings that can slide down into the floor, or just use my idea for the [Teatrix](#), robotic furniture that can move and modify itself, to scoot out of the way when an inbound vehicle is approaching.

Large balconies are always welcome in swanky condos, but they could be so much more if they obliterated your need to use the stairs or elevator, or to even get in a car or subway to reach your office tower.

Space

[WSJ] SpaceX Launches Japanese Satellite

Andy Pasztor

14 August 2016

<http://www.wsj.com/articles/spacex-launches-japanese-satellite-1471161242?mod=LS1>

For the eighth time in 2016, Space Exploration Technologies Corp. on Sunday executed a successful launch of its Falcon 9 rocket, this time lifting a Japanese telecommunication satellite into orbit.

After a flawless early morning launch from Florida's Cape Canaveral Air Force Station, the rocket's main stage separated as planned about three minutes into the flight.

Roughly six minutes later, following a series of intricate maneuvers and engine burns to point the first stage back toward earth, the spent booster settled gently on a converted barge bobbing hundreds of miles offshore in the Atlantic Ocean.

It was the fourth time SpaceX, as the Southern California company is called, has vertically landed the same part of a used Falcon 9 rocket on a floating platform.

Two other landings have occurred on land.

Scenes of the deployable legs of the first stage touching down amid a cloud of exhaust on the bull's-eye painted on the ship's deck—with all nine main engines seemingly undamaged—no longer create an instant sensation on social media.

But Sunday morning's launch was important for another reason. It is the latest sign that SpaceX, founded and run by billionaire entrepreneur [Elon Musk](#), is accelerating its launch tempo this year to get closer to the ambitious schedule previously laid out by management.

Until 2016, the company had never launched successfully more than six times in a calendar year. This year, the eighth launch came less than a month after the last successful Falcon 9 mission to send cargo to the international space station in mid-July.

The latest launch manifest on the company's website lists seven more launches through the end of December, though at least one of those might slip at the customer's request due to availability of commercial insurance and other issues. SpaceX officials also have said they expect the initial launch of the Falcon Heavy, a more-powerful derivative of the Falcon 9, before the end of the fourth quarter. That long-awaited demonstration launch is years late.

Such a tempo would go a long way to assuage concerns of some commercial customers that SpaceX can't be relied on to launch spacecraft in a timely manner.

In recent months, a number of major commercial satellite operators have sought alternate launch providers for some spacecraft as a result of earlier schedule slips.

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Partly as a response, industry officials have said that SpaceX managers aim to be selective in seeking launches of U.S. spy satellites over roughly the next decade.

Business/Market

[Bloomberg] Uber and Lyft Want to Replace Public Buses

Joshua Brustein

15 August 2016

<http://www.bloomberg.com/news/articles/2016-08-15/uber-and-lyft-want-to-replace-public-buses>

Pinellas Park, Florida, isn't the kind of place you'd expect to gain insight about the future of mass transit. The suburb of Tampa is as car-crazy as your average stretch of Floridian sprawl—the local landmarks include the Tampa Bay Automobile Museum and a drag racing strip—and anyone who can avoid the bus does. But recently the agency responsible for the area's public transportation began a novel experiment: It stopped running two bus lines and started paying for a portion of Uber rides instead.

In Uber's early days, it said it wanted to be "[everyone's private driver](#)." Now the company and its main U.S. competitor, Lyft, are playing around with the idea of becoming the bus driver, too. Uber has partnered with a handful of local public transportation agencies to strike deals like the one in Pinellas Park, which it expanded earlier this month. Later this month Lyft plans to launch a partnership with Centennial, Colorado, its first deal where a local government will subsidize its rides. The company also said it has helped a dozen transit agencies apply for federal grants that would pay for a portion of Lyft fares in situations where its drivers would effectively become part of the public transportation system.

Each of the current projects is tiny, but they could eventually be combined into something big, said Emily Castor, director of transportation policy at Lyft. "This is an area that has the potential to be a very significant part of Lyft's work in the future," she said. "How quickly will it progress from small pilots to being institutionalized in transit agencies? I think that's harder to predict."

Over the past several years, ride-hailing companies and local government officials have often had an uneasy, sometimes outright hostile relationship over regulation. The public transportation deals have been an oasis of rapprochement between them. In part, the ride-hailing deals are too small to seem threatening, according to Kyle Shelton, a program manager at the Kinder Institute for Urban Research at Rice University. "It may affect some routes; it may affect service overall; but it's not going to replace the main lines that carry thousands of riders per day," he said.

Governments already pay for taxis in some situations, but the deals with Uber and Lyft could usher in more fundamental change, and with it, tensions. What happens to people without smartphones? How do Uber and Lyft serve disabled riders? What happens if the cities come to rely on the apps, only to have

the private companies decide the partnerships are no longer a sensible business venture for them? And do public governments want to encourage the replacement of public sector jobs with the contract work that defines the sharing economy?

It quickly became apparent that in areas with few riders, paying for part of a private ride was cheaper than running a bus.

As officials grapple with those questions, it's hard to ignore the real savings for governments—and real revenue for Uber and Lyft. In 2014, Americans spent \$15 billion in fares on public transportation at the 850 public transit agencies that share data with the Federal Transit Administration. The operating expenses at those agencies was \$42 billion. Much of the remaining 65 percent of the cost of running the systems came from public subsidies.

Suburban areas with less density and lower ridership are particularly expensive to run, making ride hailing an attractive alternative, said Adie Tomer, a fellow at Brookings Institution's Metropolitan Policy Program. "If they can provide better outcomes for your population and do it at either the same cost if not lower, that's a win-win for society," he said. "This could start spiraling very fast."

In late 2014, Pinellas County voters rejected a referendum that would have increased local taxes to fund more bus lines and a light rail system. The Pinellas Suncoast Transit Authority would have to cut back. It drew up plans to cut off the least popular of its four-dozen bus lines.

Residents in Pinellas Park, a relatively dense working class area, and East Lake, a richer area that had a publicly run van service, complained they'd be stranded. So the transportation agency decided to share the cost of Uber rides for anyone traveling those two routes. Earlier this year it started a pilot program where people received a 50 percent discount for rides, with a maximum subsidy per ride of \$3, to help riders connect to the transit system.

It quickly became apparent that in areas with few riders, paying for part of a private ride was cheaper than running a bus. The program will cost \$40,000 a year, or about a quarter the cost of the two bus lines it replaced, according to the PSTA. The PSTA declined to give statistics about its ridership, other than to describe it as a success. On Aug. 1, the agency began offering subsidies for all rides in the county that end at about 20 designated transit stops. "It's not supposed to be something you'd take instead of the bus; it's supposed to be something you'd take to the bus," said Ashlie Handy, a spokeswoman for the agency. On the same day it expanded the initial program, PSTA launched a separate one to give free Uber rides to low-income residents traveling after 9 p.m., when buses don't run.

Molly Spaeth, a spokeswoman for Uber, said the company was pleased with the response to the project and would continue to look for ways to work with transit agencies.

Officials in Centennial, a suburb of Denver, will launch a similar partnership with Lyft later this month, marking the first time a government will pay for Lyft rides using public funds. Through the program, Centennial will pay for Lyft rides to and from a regional rail stop from an area that has previously only been covered by a shuttle bus. The existing service costs the city about \$20 per ride, according to Cathy Noon, Centennial's mayor, far more than what it will have to pay for Lyft rides. The city projects it will handle 280 rides per day, or about six times as many rides as it currently handles through the bus

service. Bloomberg Philanthropies, the charitable group founded by Bloomberg LP founder and majority owner Michael Bloomberg, gave Centennial a grant in 2014 to work on urban innovation.

Around the same time that Pinellas County launched its pilot, nearby Altamonte Springs, Florida, a suburb of Orlando, began paying for 20 percent of any Uber ride within city limits. For rides that ended at regional rail stations, the rate was 25 percent. City officials said Uber keeps them from sharing ridership numbers but that the program has grown quickly. They're working to expand to several neighboring towns soon.

"They were being fined, but at the same time, we'd say, let's work together"

In July, Miami-Dade County, Florida, applied for a \$3.5 million federal grant to improve public transportation, \$575,000 of which it plans to use to subsidize Uber and Lyft rides to two train stations, hoping that doing so will increase ridership at those stations by 5 percent. "Ride-sharing companies will mature in the Miami-Dade market but are unlikely to serve low ridership and low income neighborhoods without public subsidy," the county said in its application. It is also working to incorporate ride hailing into its own mobile ticketing application.

Miami-Dade's cooperation with ride-hailing companies coincided with the end of a years-long fight with them over whether to allow Uber and Lyft to operate. Until a few months ago, Uber and Lyft were against the law, and the city handed out violations to drivers as they picked up fares. Carlos Cruz-Casas, assistant director of the Miami-Dade County Department of Transportation and Public Works, said it was odd to plan the area's future around ride hailing while also debating whether ride hailing should be legal at all. "It was a friendly relationship," he said. "They were being fined, but at the same time, we'd say, let's work together."

Issues of control are going to test these friendships, said Shelton and Tomer. Local governments are eager for data about ridership that they can use to reconfigure services, and Uber and Lyft tend to see information about demand as trade secrets. If ride hailing does drive down car ownership, as both Uber and Lyft expect it will, that could increase demand for subsidized rides, leaving governments holding the tab for new forms of semi-public transit.

Bridj, a startup that runs private bus service in some cities, is proposing a model that would leave more control with the governments. It has no set lines and instead responds to requests made on its app.

Earlier this year, Kansas City Area Transportation Authority agreed to buy 10 vehicles from Bridj, staff them with drivers, and set and collect fares. Unlike the ride-hailing partnerships, which are largely designed to get people to another form of transit, the Bridj program aims to drop people off where they're actually trying to go. Instead of sharing in fares, Bridj takes a service fee for the use of the technology that accepts ride requests and directs the vehicles on ever-changing routes.

The Kansas City government gets to keep more control, and Matthew George, Bridj's chief executive officer, said about three-dozen cities have inquired about partnerships since the Kansas City pilot started. The company plans to announce at least four partnerships before the end of the year. George thinks private, on-demand bus lines will prove to be more cost-effective than ride-hailing services that use smaller vehicles because they can move more people at once.

George also criticizes Lyft's and Uber's spotty track records of cooperation with local governments, and points out that unlike at those companies, Bridj's drivers in Kansas City are all union members hired by the transit authority. "On the one end of the spectrum you have the very traditional mode that we've done for 100 years, and on the other one, you have this Ayn Randian free market free-for-all that doesn't have basic protections in place for the people who are most vulnerable," he said. "We've shown that there's something in the middle."

[Bloomberg] Bulls and Bears Collide as 'China's Twitter' Surges to Record

Elana Popina and Sunny Oh

14 August 2016

<http://www.bloomberg.com/news/articles/2016-08-14/bulls-and-bears-collide-as-china-s-twitter-surges-to-record>

Weibo Corp. has more than doubled this year as steady user growth and an improved sales outlook have lured investors to the Chinese social media. Short sellers are becoming increasingly convinced the stock has peaked.

Bearish bets on Weibo, the Asian nation's answer to Twitter Inc., are at the highest ever, even after the company reported earnings that beat analysts estimates and forecast a bigger-than-expected increase in third-quarter revenue. The U.S.-traded stock posted a 19 percent gain last week, while the number of shares borrowed for short selling rose to a record 4 million.

Bullish investors are betting that television and video partnerships the company has been forging will further boost the number of people using Weibo, which has been growing at a steady rate of about 30 percent for the past two years. Short sellers are wagering that a 119 percent rally this year, twice as much as the second-biggest gainer among Chinese stocks in the U.S., has become excessive.

"There is a lot of optimism regarding Weibo," Henry Guo, an analyst at New York-based M Science LLC who has been covering Chinese American depository receipts for a decade, said by phone last week. "Investors bet that it has a potential to expand and monetize its business. The question short-sellers are asking is, 'Can the stock rally last forever?'"

Since it was spun off from Sina Corp. in April 2014, Weibo's stock has rallied 151 percent. Sina's ADRs gained 33 percent during the same period.

Weibo, backed by Alibaba Group Holding Ltd., has been adding video content live-streaming features to its microblogging service, which helped boost the number of monthly active users to 282 million in the second quarter, Chief Executive Officer Gaoferi Wang said in the second-quarter earnings statement last week. The company projected third-quarter revenue of as much as \$178 million, exceeding analysts' estimates of \$165 million.

The shares sell for 49 times projected earnings, above the average multiple of 42 among nine global peers, including Twitter and Facebook Inc., according to data compiled by Bloomberg. David Riedel, a president of New York-based Riedel Research Group Inc., who cut Weibo to sell from buy in May, said by e-mail last week that he's negative on the stock mostly because it's "cheaper to buy the Weibo exposure via Sina."

Other analysts from banks including Citigroup Inc. and Jefferies Group have recently raised their recommendations to buy. Weibo's second-quarter per-share earnings rose to 16 cents, compared with an estimate of 11 cents.

This is good news for KraneShares' Brendan Ahern, who has been increasing his position in the stock this year.

"There is a potential in Weibo," Ahern, chief investment officer at KraneShares, said in an interview in New York. "The company's fundamentals are solid and there is room for growth."

[\[WSJ\] Honeywell Nears \\$3 Billion Deal to Buy JDA Software](#)

Ted Mann

14 August 2016

http://www.wsj.com/articles/honeywell-nears-3-billion-deal-to-buy-jda-software-1471225879?mod=WSJ_TechWSJD_NeedToKnow

[Honeywell International](#) Inc. is nearing a deal to acquire JDA Software Group Inc., a maker of software that helps businesses manage their supply chains, according to a person familiar with the matter.

The deal would value closely held JDA at around \$3 billion, including debt, and is expected to be announced as soon as Monday, this person said. Reuters previously reported that [Honeywell was in talks to buy JDA](#).

Spokespeople for Honeywell and JDA declined to comment.

The acquisition would boost Honeywell's shift into software. The industrial conglomerate's chief executive, [David Cote](#), says about half of the New Jersey-based company's 23,000 engineers are now working on software, as opposed to the heavy goods like jet engines and building control systems for which the company is best known.

Scottsdale, Ariz.-based JDA sells software that helps hundreds of retailers such as Walgreens and Advance Auto Parts optimize their supply chains and merchandising. It also provides warehouse management software to manufacturers and consumer products companies. The company, which was founded in 1985, has more than 4,300 employees, according to its website.

JDA's majority owner is buyout firm New Mountain Capital, which took the software maker private for \$1.9 billion in 2012 and merged it with software rival, RedPrairie. In March, Moody's downgraded its ratings on more than \$2 billion of JDA debt, citing a risk of impairment without an equity infusion or reduction in debt.

Honeywell, like rival [General Electric](#) Co., is betting that software layered atop heavy machinery will help lock in long term service revenue from its customers. Honeywell is rolling out newly connected versions of equipment from its traditional business lines—like aviation power generators—to convince customers that it can better service the machines in part by harvesting data.

In July, Honeywell said it would pay \$1.5 billion to [purchase Intelligrated](#), a privately held maker of automation systems for warehouses and supply chains.

The JDA acquisition will bolster the building side of Honeywell's business, which makes gas detection monitors and thermostats. Included in that portfolio is a suite of small computer products like those used by package delivery workers, and JDA software could eventually help guide consumer goods from factories to the cash register.

[\[WSJ\] TPG to Buy RCN and Grande Communications for About \\$2.25 Billion](#)

Matt Jarzemsky and Shalini Rachachandran

14 August 2016

http://www.wsj.com/articles/tpg-to-buy-rcn-and-grande-communicationsfor-about-2-25-billion-1471227056?mod=WSJ_TechWSJD_NeedToKnow

Private-equity firm TPG has agreed to buy cable-television providers RCN and Grande Communications for about \$2.25 billion including debt, according to people familiar with the matter, in a bet that demand for new broadband services will fuel growth in the businesses.

Google Capital, [Alphabet](#) Inc.'s growth-equity investment fund, is taking a minority stake in the companies, which are currently owned by private-equity firm Abry Partners, some of the people said. The transactions could be announced Monday, they said.

RCN provides cable, phone and internet service on the East Coast and in Chicago, while Grande specializes in such services in Texas.

Demand for broadband internet service is rising and that has helped spark a wave of consolidation among companies seeking to better position themselves to capture the growth. Notable moves include [Charter Communications](#) Inc.'s agreement to buy Time Warner Cable Inc. and Bright House Networks, [Altice](#) NV's agreement to buy Suddenlink Communications and Cablevision Systems Corp., and phone giant [AT&T](#) Inc.'s purchase of satellite provider DirecTV.

Grande and RCN have shared management and other resources since Abry agreed to buy the two companies in 2009 and 2010, respectively. Their management, including Chief Executive Jim Holanda, will stay on, the people said.

TPG has done a number of deals in technology, media and telecommunications in recent years. It joined with [Goldman Sachs Group](#) Inc. in 2007 to buy Alltel Corp. and sold the telecom concern to Verizon Wireless two years later.

More recently, TPG has also been known for backing fast-growing startups such as car-hailing app Uber Technologies Inc., rental-room marketplace Airbnb Inc. and music streaming site Spotify AB. It was a bidder for [Yahoo](#) Inc., which [Verizon Communications](#) Inc. recently agreed to buy.

The firm has sought investments tied to changing consumer behavior involving online media and other digital content, investing in Ipsy, a cosmetics startup that relies on YouTube for marketing, and online-education company Lynda.com Inc., which [LinkedIn](#) Corp. bought.

Google Capital tends to focus on later-stage companies that are "harnessing long-term technology trends," according to its website—in contrast to Google Ventures, which places bets on early-stage startups.

Google Capital's investment might have relevance for Alphabet's broadband unit [Google Fiber, which is rethinking its approach](#) to building high-speed networks after its initial rollouts proved more costly and

time-consuming than expected. RCN and Grande, like Google Fiber, are “overbuilders,” meaning they’ve built networks over existing cable lines to compete against incumbent providers.

[\[WSJ\] Retail Results Will Show Amazon’s Effect](#)

Paul Ziobro

13 August 2016

http://www.wsj.com/articles/retail-results-will-show-amazons-effect-1471099314?mod=WSJ_TechWSJD_moreTopStories

Do-it-yourself chains [Home Depot](#) Inc. and [Lowe’s](#) Cos. appear to have built a retail oasis mostly walled off from the reach of online behemoth [Amazon.com](#) Inc.

Their uniqueness in the retail landscape will be driven home next week as the two chains report second-quarter earnings. Analysts project sales at existing stores will rise 4.8% at Home Depot and 4% at Lowe’s, according to data provider FactSet. That would mark the eighth straight quarter of at least 4% year-over-year growth for each company.

Such gains are the envy of other retailers. [Kohl’s](#) Corp., [Macy’s](#) Inc. and [Nordstrom](#) Inc. each recently posted ongoing sales declines amid difficulty getting more people to shop in their stores. [Wal-Mart Stores](#) Inc., which reports its fiscal second-quarter results on Thursday, is projecting a small same-store sales gain, while [Target](#) Corp., whose quarterly earnings are due Wednesday, has projected a sales dip.

The retailers that have reported earnings thus far have pointed to slightly improving trends from earlier in the year. But they also have seen their business models upended by the rise of online shopping that reduces the need to visit a store for a sweater or blender. Macy’s is responding by closing 100 locations.

Executives from the home improvement chains cite a litany of favorable housing trends for their good fortunes. New households are being formed and housing turnover remains steady. Millennials are even willing to buy homes, albeit six years later than normal, according to Home Depot. All that spurs trips to large chains to pick out appliances and paint colors, and plan projects around the home.

About two-thirds of U.S. homes are also more than 30 years old, Home Depot says, requiring more spending on upkeep. Low interest rates and rising home values—which are now just 2% below their July 2006 peak, according to S&P [CoreLogic](#) Case-Shiller Indices—make replacing a roof, or even updating a kitchen, more palatable, as homeowners view their homes as investments, not expenses.

Such trends have kept the home-improvement sector growing well above the broader retail market. Sales at home-improvement chains and similar stores are up 6.4% through July versus the same period a year ago, according to the Commerce Department. In contrast, overall retail sales are up 2.8% during the same period. Only drugstores and restaurants this year among brick-and-mortar locations are outrunning the home improvement stores.

Online sales, of course, are growing much faster, up 10.5% at non-store retailers this year, according to the same federal data. Much of that is coming from Amazon. But the e-commerce giant doesn’t have a toehold in large parts of the home improvement space, like lumber, paint and gardening supplies. Home Depot says just 25% of its business—smaller, easy-to-ship items like power drills and small hand tools—faces tough online competition.

That doesn't mean either chain is immune to Amazon. A UBS survey in June found that 11% of consumers planning a home improvement project themselves planned to buy something from Amazon. That is far behind the 36% who said they planned to shop at Home Depot and the 21% at Lowe's, but up from just 7% a few months back.

[WSJ] Google's Alphabet Shift Still Clicks

Dan Gallagher 14 August 2016

<http://www.wsj.com/articles/googles-alphabet-shift-still-clicks-1471191635>

A year ago, Google decided to become [Alphabet](#). It hasn't been your typical restructuring.

For one, the internet giant got even bigger. Alphabet hired more than 9,000 new employees in the past year, growing its head count by over 16%. And while the company has promised a more dutiful eye on spending, it has been a measured process. Operating margin as a percentage of net revenue was 32% for the 12 months ended June 30—up 1 percentage point from the same period last year.

In fairness, the Alphabet shift [was never sold as a cost-cutting move](#). Rather, the company believed setting the core Google business apart from its myriad "other bets" would help it run those disparate businesses more efficiently and establish strong leaders for them.

That is why a recent round of executive departures raises eyebrows. The past week has seen the exits of [the head of Google's venture-capital arm](#), as well as the chief technology officer of [its self-driving-car project](#). Tony Fadell, who ran the Nest home automation business, [announced his departure](#) in June.

Big, successful companies like Alphabet see executives come and go. And of the leavers, only Mr. Fadell has [publicly suggested dissatisfaction](#) with the new structure. Yet the moves bear watching, as attracting talent is key to Alphabet's long-term health.

But it is also important to note that other bets [won't be paying the bills](#) any time soon. Meanwhile, Google's core advertising business remains strong, growing 17% to hit \$73 billion for the trailing 12 months. With the stock up 21% since the Alphabet change was announced, investors rightly feel the new Google still clicks.

[WSJ] Groupon Works to Win Back Investors

Drew Fitzgerald 14 August 2016

http://www.wsj.com/articles/groupon-works-to-win-back-investors-1471216554?mod=WSJ_TechWSJD_moreTopStories

[Groupon](#) Inc. is slowly winning back the kind of bargain hunter it has sorely missed during the past three years: investors.

Months after newly appointed Chief Executive Rich Williams lamented that Wall Street "[misunderstood the online discounter's business model](#)", Groupon's stock has rebounded. Its shares are up nearly 90% this year and got a boost when its [active users surpassed 50 million globally](#) in the recent quarter. Shares closed at \$5.73 on Friday in New York.

The Chicago company acts as a marketing outlet for restaurants, beauty salons and other local businesses by selling discounted services on their behalf. The company is projected to book revenue of \$3 billion this year, but until recently its market value was half that. Rivals have struggled and Amazon.com Inc. last year shut its Groupon competitor.

Groupon this year has gone on an offensive to try to recast the company as one of the few online players able to succeed in local markets. It also has owned its past mistakes and blames itself for poorly communicating the company's story.

Mr. Williams, a former Amazon executive who has worked at Groupon since before its 2011 IPO, says the company now has a more straightforward game plan. It has retrenched globally, shedding offices in 21 countries and cutting 2,000 jobs, or 20% of its workforce. It is spending more money on customer service for the U.S. market, which contributes two-thirds of its revenue.

"We've been simplifying the strategy and being consistent in what we say," the 41-year-old CEO said in an interview. "How we discuss the strategy internally is how we discuss the strategy externally."

It also has succeeded in convincing some big investors to take the risk. Chinese e-commerce giant [Alibaba Group Holding](http://Alibaba Group Holding Ltd.) Ltd. revealed a 5.6% stake in February, when the company's stock was near an all-time low. Atairos Management LP, an investment fund launched by cable giant [Comcast](http://Comcast Corp.) Corp., followed in April, [buying convertible bonds](#) worth up to 7.5% of the company for \$250 million. At the time, Atairos said it hoped Comcast would work with Groupon to expand its reach to more customers.

Ruth Ann Francis, a 41-year-old aerospace engineer from Fort Worth, Texas, is the kind of sporadic customer Groupon would like to get spending more. She said she uses about one or two deals a year, usually for activities she wants to do anyway, like Segway tours and minigolf. "This year I've used two already, so we're on track to be a little higher," she said.

To attract new investors, Groupon has shifted its focus to driving profitability from each deal it sells and avoiding "empty calories" from deals such as electronics or high-end apparel sold through its shopping site. The plan also rests on adding users more quickly, even if doing so weighs on near-term results.

The company has posted losses in four straight quarters. Marketing spending of \$92 million in the latest quarter was at its highest level since the first quarter of 2012, and a 61% increase from a year ago. By comparison, revenue in the quarter rose just 2.4%.

"We obviously would love all this stuff to move faster, but we're happy with the basics of how customer use is changing over time," Mr. Williams said.

The company's cash position also is down. At the end of March, Groupon had its lowest cash balance since it went public, with \$688.5 million in cash and equivalents. At the end of June, that rose to \$780 million, compared with the \$1.1 billion on hand at the same point last year. A Groupon spokesman said many of the expenses that hit the company's cash flow earlier this year were temporary.

Launched in 2008, Groupon once was considered among the internet's hottest startups targeting local businesses, a notoriously tough market for Web companies to pierce. It sported a \$16 billion market value shortly after its 2011 initial public offering. Shareholders soured on the stock almost immediately as losses ballooned and "deal fatigue" set in among its user base. [Changes to Gmail](#) and other email programs made it more difficult for Groupon's daily messages to get noticed, choking off a major source

of new business. The company also earned a reputation for surprising the market with big losses, and its use of [exotic financial metrics](#) that came under regulatory scrutiny.

Groupon plans to keep spending. It already has kicked off new TV ads and is in talks with Comcast about expanding its marketing campaign. Groupon also uses push notifications and ads on Google and [Facebook](#) to remind users about restaurant deals and spa promotions.

It appeared to be an also-ran, ready to join the ranks of Myspace and Foursquare. In February, when its shares fell to an all-time low, it was worth only \$1.3 billion. That was a week before Alibaba disclosed its investment.

Groupon faces a challenge convincing more skeptical customers its discount offers are worthwhile. Macquarie analyst Tom White said the service has made strides expanding its supply of local businesses but has yet to reach its more ambitious audience goals. "As far as driving that day-in, day-out usage, it's not going to be easy," he said.

[\[WSJ\] Taiwan's Foxconn Completes Acquisition of Sharp](#)

Takashi Mochizuki

13 August 2016

http://www.wsj.com/articles/taiwans-foxconn-completes-deal-to-acquire-sharp-1470994207?mod=WSJ_TechWSJD_moreTopStories

TOKYO—iPhone assembler [Foxconn Technology Group](#) completed its \$3.8 billion deal to buy electronics maker [Sharp](#) Corp. on Friday, setting the stage for Taiwanese tycoon Terry Gou to rework the troubled Japanese company.

Osaka-based Sharp said it received a ¥388.8 billion (\$3.81 billion) cash infusion from Foxconn, formally known as [Hon Hai Precision Industry](#) Co., on Friday. In return, the Taiwanese contract electronics assembler assumed a 66% stake in Sharp.

Sharp's chief executive, Kozo Takahashi, resigned Friday, with Mr. Gou's right-hand man, Tai Jeng-wu, set to step in. Sharp's board met Saturday and named him the new chief executive.

The series of actions represented the long-delayed denouement of a deal that began to take shape early this year as Sharp teetered because of big losses. Foxconn, which prospered by assembling products such as [Apple](#) Inc.'s iPhone, saw in the century-old Japanese company a chance to expand to branded electronic goods and build a bigger business with Apple. Sharp supplies display panels for major smartphone makers including Apple.

After nearly reaching a deal in early February, last-minute hitches emerged and Mr. Gou spent a month negotiating a lower price. Then, after the sides [agreed on terms](#) in late March, they couldn't close the deal because a review by Chinese antitrust authorities dragged on longer than expected. Beijing finally gave the go-ahead on Thursday.

With the deal complete, Sharp faces changes. Mr. Gou has improved profitability at a Sharp display factory in Japan that he has operated for several years through a joint venture, and he has signaled job cuts are in store at Sharp. Also, analysts say melding the corporate cultures may be a challenge as Sharp employees come to terms with the [army-like atmosphere](#) at their new Taiwanese parent.

Sharp is known for innovative consumer-electronic products such as microwave ovens, air purifiers and, more recently, a [robot-smartphone hybrid called Robohon](#). But it ran into financial trouble as its consumer-electronics business encountered new Asian competition and as it became too reliant on the volatile display-panel business for growth. Price pressure from South Korean and Chinese rivals worsened Sharp's standing.

Foxconn hopes to leverage Sharp's assets to diversify its business portfolio, as its core electronics-manufacturing service offers razor-thin profit margins. When times are good, display panels can offer wider profit margins, and Mr. Gou has said he would accelerate Sharp's efforts to produce organic light-emitting diode, or OLED, displays.

South Korean companies have the lead in OLED displays, which could offer more flexibility and energy efficiency than today's standard liquid-crystal displays. Apple is expected to adopt OLED for some iPhones and iPads as early as next year, analysts say. Foxconn's backing of Sharp could threaten other Apple suppliers including [struggling Japan Display Inc.](#), given Mr. Gou's familiarity with the Apple business.

Sharp said it has lined up ¥150 billion in credit from its main lenders, the core banking units of [Mitsubishi UFJ Financial Group Inc.](#) and [Mizuho Financial Group Inc.](#) The commitments were requested by Foxconn as a requirement of the takeover deal.

Japan Industrial Solutions Co., a fund that had a stake in Sharp and representation on the board, sold the holding at a 12% premium to face value, said Sharp, which remains listed on the Tokyo Stock Exchange.

[WSJ] Google's High-Speed Web Plans Hit Snags

Jack Nicas 15 August 2106

http://www.wsj.com/articles/googles-high-speed-web-plans-hit-snags-1471193165?mod=WSJ_TechWSJD_NeedToKnow

Google parent [Alphabet Inc.](#) is rethinking its high-speed internet business after initial rollouts proved more expensive and time consuming than anticipated, a stark contrast to the fanfare that greeted its launch six years ago.

Alphabet's internet provider, Google Fiber, has spent hundreds of millions dollars digging up streets and laying fiber-optic cables in a handful of cities to offer web connections roughly 30 times faster than the U.S. average.

Now the company is hoping to use wireless technology to connect homes, rather than cables, in about a dozen new metro areas, including Los Angeles, Chicago and Dallas, according to people familiar with the company's plans. As a result Alphabet has suspended projects in San Jose, Calif., and Portland, Ore.

Meanwhile, the company is trying to cut costs and accelerate its expansion elsewhere by leasing existing fiber or asking cities or power companies to build the networks instead of building its own.

Google's announcement in 2010 of its Fiber project sparked high expectations at a time when telephone companies were perceived as moving slowly in rolling out faster broadband service. More than 1,000 cities applied and Google began service in [the Kansas City area](#) in November 2012. The following month,

Google Executive Chairman [Eric Schmidt](#) told a conference that Fiber “isn’t just an experiment, it’s a real business and we’re trying to decide where to expand next.”

Today, Google Fiber has reached just six metro areas, the latest example of the challenges facing digital companies seeking to move into more traditional lines of business.

“If you’re in the telecommunications industry for 150 years, there are no surprises here,” said Jonathan Reichenal, chief technology officer of the city of Palo Alto, Calif. “But if you’re a software company getting into the business for the first time, this is a completely new world.”

Mr. Reichenal said Google Fiber executives recently told him that plans to bring the service to Palo Alto and nearby cities are on hold for at least six months.

In a written statement, Alphabet said, “We’re continuing to work with city leaders to explore the possibility of bringing Google Fiber to many cities. This means deploying the latest technologies in alignment with our product road map, while understanding local considerations and challenges, which takes time.”

The delays in Alphabet’s fiber plans follow stumbles in other arenas outside the company’s core internet search and advertising business. Alphabet stopped selling the first version of its Glass wearable computer early last year amid privacy concerns, and it recently dissolved a robotics team it assembled from six separate acquisitions.

The company doesn’t disclose financial results for the Fiber unit, but consolidates them with other nonsearch businesses in its “Other Bets” unit. That unit reported revenue of \$185 million in the latest quarter, primarily driven by Fiber, home-automation firm Nest and life-sciences firm Verily, and an operating loss of \$859 million. Fiber accounted for most of the unit’s quarterly capital expenditures of \$280 million.

Alphabet hopes the investment in Google Fiber will eventually pay off with subscriber fees and, indirectly, more clicks on its search ads. Fiber costs \$70 a month for the fastest internet connection and an additional \$60 a month for TV. Analysts estimate a one-time cost for Alphabet of more than \$500 for each home the network reaches, not all of which subscribe.

Alphabet declined to disclose its number of subscribers. Based on numbers reported to the U.S. Copyright Office, research firm MoffettNathanson said in March the TV service had 53,000 subscribers total as of December.

There likely are many more subscribers for the internet service, the firm said, but “one can’t help but feel that all of this has the flavor of a junior science fair.”

Google Fiber has begun construction in five new metro areas and announced plans to reach another dozen cities in the next few years. Now, those dozen cities will be the test bed for a push into wireless technology.

Google Fiber last month bought Webpass Inc., a company that beams internet service from a fiber-connected antenna to another antenna mounted on an apartment building. The company serves roughly 820 buildings in five cities.

Webpass Chief Executive Charles Barr, now an Alphabet employee, said wireless offers an opportunity to overcome the challenging economics of building fiber networks from scratch. “Everyone who has done fiber to the home has given up because it costs way too much money and takes way too much time,” he said.

In Kansas City, Alphabet also is testing a wireless technology that delivers connections from antennas on street lamps. And the company recently applied to the Federal Communications Commission to test “experimental transmitters” for [wireless connections](#) in 24 U.S. locations during the next two years.

Google Fiber is planning a system that would use fiber for the central network and antennas to connect each home wirelessly to that network, according to a person familiar with the plans. Alphabet Chairman Eric Schmidt said at the company’s shareholder meeting in June that [wireless connections](#) can be “cheaper than digging up your garden” to lay fiber.

[AT&T](#) Inc. and [Verizon Communications](#) Inc. also have discussed using wireless technology for the “last-mile” connection to homes, but neither has deployed it widely.

Google Fiber is also trying other strategies to aid its expansion.

[In San Francisco](#) and parts of Atlanta, the company is leasing existing underused fiber and connecting apartment buildings rather than single-family homes. It chose Huntsville, Ala., in part because the city agreed to build a fiber network for Google.

In Tampa, Google Fiber is in talks with a power company to build the fiber network. It is working with real-estate firm Irvine Co. to pre-install fiber in new properties near Irvine, Calif., and it hopes to strike similar deals with other builders.

The new strategies are in response to the headaches of building a fiber network. In Kansas City, homeowners complained about destroyed lawns and ruptured gas lines. In Nashville, Tenn., and Louisville, Ky., competing telecom firms are blocking the company from stringing fiber on their utility poles.

Some analysts have long suspected that Alphabet’s primary goal was to prod other broadband firms to increase their speeds. AT&T, [Comcast](#) Corp. and Time Warner Cable, which recently was acquired by [Charter Communications](#) Inc., have done so in some competing markets.

Alphabet says Google Fiber is a real business. “We continue to see Fiber as a huge market opportunity,” Chief Financial Officer Ruth Porat told investors last month. “We’re being thoughtful and deliberate in our execution path.”

[\[NY Times\] Intel’s New Mission: Find Fresh Uses for Its Famous Paranoia](#)

Quentin Hardy 14 August 2016

<http://www.nytimes.com/2016/08/15/technology/intels-new-mission-find-fresh-uses-for-its-famous-paranoia.html?ref=technology>

Andy Grove, the [renowned chief executive of Intel](#), who died in March, coined a phrase beloved in Silicon Valley: “Only the paranoid survive.”

That sounds cool, if you like your capitalism fierce. That idea, however, turns out to have some significant downsides.

[Intel](#) is the world's biggest semiconductor company because when Mr. Grove was in charge, it dominated the personal computer industry and was an important player in the associated business in computer servers.

Today, the PC market is shrinking, hurting Intel's profits. The server-chip industry is still strong, thanks to the rise of cloud computing at companies like Facebook and Google. Cloud companies engineer server chips in ways that make very powerful and flexible systems used by millions of people.

But Intel missed joining a number of other markets that did not look like the PC business, particularly smartphones. It is scrambling for a place in sensors (or what is called the internet of things), wireless networking, autonomous vehicles and other hot areas, as computing spreads from traditional computers to nearly every machine.

"The mistake was, when you grow with great leadership and great success, your paranoia is focused on the one thing that is delivering that," Brian Krzanich, Intel's current chief executive, said in an interview.

From PC-dominated computing, he said, we are now "where computing is constantly shifting." Mr. Krzanich says he is still a strong believer in paranoia, but he must turn that vigilant anxiety in a lot of directions at once. Cloud computing may be Intel's core, but Mr. Krzanich has to feed it from chips in many markets.

The effect of those changes will be seen this week as Intel holds its Developer Forum in San Francisco. The conference is where the hard-core geeks of computing gather to hear about what's coming in the realms of processing power, memory and other technology that enables the modern world.

Giant tech trade shows like the International CES, held in Las Vegas every January, are focused on hot products. Developer events may be nerd-fests, but they say more about the technology world, and where a company hopes to be in two or three years.

At the Developer Forum, Mr. Krzanich will deliver a keynote speech, in which he is expected to dwell on topics like virtual reality, sensors and artificial intelligence, which was in the news last week when Intel bought an A.I. start-up, [Nervana Systems](#), that has technology that will be used in Intel's data center chips.

Shifting gears for the giant chip company is no easy task. "Intel has four main business lines — PCs, mobile, internet of things and servers — and it's hitting on one of them," said Patrick Gelsinger, a longtime Intel executive who is now chief executive of the software company VMware. The factories where Intel builds chips "now cost \$10 billion, at least," each to set up, he said, "and the competition is catching up."

In April, Intel announced it was cutting its work force by 12,000 people, about 11 percent of workers. About a quarter of the executives who report to Mr. Krzanich come from other companies, a big deal at a place where leaders rise through the ranks over decades.

In his speech, Mr. Krzanich may stay away from talking about wearable devices. Last month, Intel withdrew a health-monitoring watch that had some nice capabilities but sometimes burned its wearers'

skin. Even so, Mr. Krzanich said, the heart-monitoring capabilities of that watch will find their way into a device Intel plans to make with the athletics brand New Balance.

The part he is looking forward to, Mr. Krzanich said, is a one-hour question-and-answer session with 200 elite developers. "It's a much broader group" than even a couple of years ago, he said. "People writing for machine learning and A.I., networking chips, how virtual reality feeds into PCs." Even in decline, PC chips still make up half of Intel's revenue.

If these things catch on, Intel will sell more chips to those businesses and create new demand for cloud computing, because most devices are now connected to the cloud.

Even so, another pillar of the Intel mythology, the unchanging nature of Moore's Law, is getting revised. Named for the Intel co-founder Gordon Moore, it states that a chip's power doubles every 18 to 24 months without a rise in costs. Mr. Grove's paranoia championed and fed on Moore's Law, as Intel strove to achieve profit from that computing cadence.

Silicon Valley treats Moore's Law as if it is immutable, and with even more reverence than it does paranoia. But it was not a scientific law; it was always an observation about the behavior of a market for computers and software, which paid off at a rate to justify increasing investment in making chips.

[It is changing](#), Mr. Krzanich said, because phones, sensors and cloud systems develop at different rates. "It's lengthened to 24 to 36 months," he said. "The performance of the ecosystem is much more than Moore's Law."

That is why Intel is in the wireless and networking fields, and is working on a new kind of three-dimensional memory chip, which Mr. Krzanich said would be out at the end of this year, that can speed performance of big-data-type calculations sevenfold.

There would be a historical precedent to that shift. Years ago, Intel's main business was in memory chips, a market that collapsed three decades ago, leading the company to move toward making number-crunching processors for PCs. That shift, which arguably saved the company, was the lesson that led to Mr. Grove's paranoia.

[\[Tech Crunch\] Killing technology innovation in the public markets](#)

Chad Cardenas

14 August 2016

<https://techcrunch.com/2016/08/14/killing-technology-innovation-in-the-public-markets/>

In 2004, Google finally went public in a long-awaited offering, via Dutch auction, that lit the public markets on fire.

But Google's S-1 filing was probably as unusual as anything the technology markets had ever seen: The company promised to not deliver quarterly guidance to investors, and instead promised to invest over the long term to preserve the culture of innovation that the company so fiercely protected.

That culture of innovation, however, has failed to take hold in the public markets, and the IPO market has recently stagnated. Publicly listed companies have steadily declined in the United States, from 8,025 public companies in 1996 to 4,101 in 2012, according to the [National Bureau of Economic Research](#). The outlook for the IPO market has been even bleaker in the technology sector.

To address this crisis, JPMorgan Chase Chief Executive Officer Jamie Dimon convened gatherings in New York for some of the nation's leading investors and CEOs, including Warren Buffett. The meetings were held to brainstorm solutions to the deteriorating state of public companies, according to [a report in The New York Times DealBook](#).

In another event on July 28, the Committee on Capital Markets Regulation released [a number of proposed changes](#) relative to market trading problems. The committee was responding to charges that the market itself is "rigged." The actions of Dimon's group and the committee reflect a big push to restore confidence in a broken system that affects stock performance in a measurable way.

Many lumbering companies of the 20th century have become less nimble these days, just as they're facing emergent threats from disruptive rivals. As a result, many talented executives are opting to work at private firms rather than public companies, and many big private companies are putting off initial public offerings to delay taking their stocks public. Hence the recent "unicorns" buzzword, which was coined to denote private companies valued at more than \$1 billion.

Investors need to understand that short-term thinking will always kill the potential for long-term gain when it comes to technology disruption.

Deal flow in the technology sector declined by almost half last year, from 69 IPOs in 2014 to 35 IPOs in 2015. That marks the lowest annual number since 2009, according to the [2016 IPO Report](#) by WilmerHale.

The tech sector's share of the U.S. IPO market has fallen every year for the past five years, from 46 percent in 2011 to 23 percent in 2015. The majority of these listings were lost off of the NASDAQ, the tech-heavy exchange that is home to more than 90 percent of technology listings. And, so far, the tech IPO class of 2016 has been even more dismal.

Interestingly, the volume of technology-related private equity (PE) deals in Q1 2016 was up 61 percent YOY and 31 percent sequentially, ranking as the second-highest PE volume ever recorded, according to the recent [Global technology M&A report](#) from Ernst & Young.

Still other private startups are turning to private stock offerings without jumping through regulatory hoops to issue public shares. This option has led to the rise of new companies such as [SharesPost](#) and [Digital Offering](#), which offer online platforms to reach individuals and small investor groups.

All of these trends point to a need for real structural changes to streamline our public equity markets for investors and management teams alike. When it comes to technology innovation, a whole new set of rules apply — none of which are baked into the public market setup.

Related Articles

[UPDATE: Twilio's IPO and the rise of the next 100M developers](#)
[Don't buy into the myth of the "IPO window"](#)
[Why would a VC firm IPO?](#)

Investors need to understand that short-term thinking will always kill the potential for long-term gain when it comes to technology disruption. This is why so many incumbent technology providers are losing out to newer startups, and the hottest tech companies in cloud, mobile, social and big data analytics, etc., are constantly being faced with the prospect of being disrupted themselves.

Perhaps the best solution is to follow the innovation model set out by Google. That would mean doing away with quarterly guidance for institutional investors, which would go a long way toward restoring technology companies' ability to innovate and invest over a long-term horizon. Paradoxically, this would begin to restore the trust that investors have lost in the public markets. We will also need to see a recalibration of private company valuations, particularly amongst unicorns.

As long as we continue to see sky-high multiples and inflated valuations that exceed what these companies could earn under the glare of public markets, the tech IPO pipeline will likely stay dry.

Miscellaneous

[WSJ] Tiny Satellites: The Latest Innovation Hedge Funds Are Using to Get a Leg Up

Bradley Hope

14 August 2016

<http://www.wsj.com/articles/satellites-hedge-funds-eye-in-the-sky-1471207062?mod=LS1>

The latest technological innovation for data-hungry hedge funds is a fleet of five dozen shoebox-sized satellites.

A company called Planet Labs Inc. has launched a small constellation of what it calls "cubesats" that can deliver much more frequent imagery of economically sensitive spots than traditional satellites. Those spots include retailers' parking lots, oil-storage tanks or farmland.

The company, founded by three former NASA scientists, has now signed an agreement to supply data to Orbital Insight Inc., which mines satellite imagery for trading tips for hedge funds.

Until now, Orbital has relied on monthly or bimonthly imagery for its analysis. The deal with Planet Labs will give them access to weekly images at first. Next year, if Planet Labs succeeds in a plan to launch another 40 or so cubesats, Orbital will have access to daily images of every piece of land on earth.

"Almost all economic activity is change," said Jimi Crawford, a former Google executive who founded Orbital. "Once you get down to daily images, tremendous new horizons open up to being able to monitor and track that change."

Orbital counts several large hedge funds and other investment firms as clients. It declines to name them.

Orbital has offered clients "signals"—predictions on how prices will move for certain stocks—based on its automated analysis of satellite imagery since 2014. This analysis includes revenue predictions for big-box retailers such as [Wal-Mart Stores](#) Inc. and [Target](#) Corp. based on changes in the number of cars in their U.S. parking lots, or forecasts for oil inventories based on the height of floating lids in oil tanks in the U.S. In both cases, the company makes its predictions on a statistically significant sample of images.

Hedge funds and other sophisticated investors have been increasing consumption of "alternative data"—any kind of information that might affect an investment decision but isn't part of the traditional feed of market statistics and company financials.

However, such data can be difficult to use without an in-house data scientist and it can sometimes be unreliable. Data like satellite-image analysis has only recently become available to hedge funds, so there isn't much historical data to use to check its value. Some critics think the benefits of such complicated efforts to analyze companies and the economies are overblown.

Such efforts don't come cheap. Planet Labs has raised \$183 million in venture funding, allowing it to hire more than 300 employees in San Francisco, Berlin and Lethbridge, Alberta. It has more than two dozen ground stations to collect the data from the cubesats.

[\[WSJ\] Uber's Cash Service Fuels Tensions in South Africa](#)

Gabrielle Steinhauser and Alexandra Wexler

http://www.wsj.com/articles/ubers-cash-service-fuels-tensions-in-south-africa-1470994202?mod=WSJ_TechWSJD_moreTopStories

JOHANNESBURG—A new service by Uber Technologies Inc. that allows riders to pay for their trips in cash has heightened tensions with traditional metered taxis in South Africa, and some drivers for the popular car-service app say they fear for their safety after a spate of violent attacks.

Uber introduced the cash option in South Africa in late May, less than three years after launching its regular credit-card based service in Johannesburg. The goal: to lure riders who don't have credit cards or are reluctant to plug their bank details into an app, said Alon Lits, Uber's general manager for sub-Saharan Africa.

"When you see the market potential that cash unlocks, it's very hard to ignore that," he said. The Uber cash option is also available in Nigeria, Kenya and Tanzania, and markets beyond Africa, including India and Singapore.

But more than a dozen Uber drivers interviewed by The Wall Street Journal said the cash payments are making their business tougher by increasing intimidation and violence from traditional taxi drivers. They also said the risk of carrying cash in a country with one of the world's highest crime rates doesn't make up for the limited increase in business. The tensions could spell a problem for Uber in the company's largest African market, where the number of drivers operating doubled to 4,000 in the past year alone.

"Uber cash is putting our lives at risk," said Collen, who has been driving for Uber in Johannesburg for the past two years. Like most other drivers, he asked that his last name not be published since he was criticizing his employer.

During a recent drop-off at a Johannesburg light-rail station, Collen said, a group of taxi drivers smashed his windshield and stole his phone and wallet, including his driver's license. [Tensions with South African taxi drivers](#) first boiled over last summer, but Collen said things had calmed down until the cash option was introduced.

"Now that we're collecting cash, they're furious," he said. Other drivers recounted being beaten and chased by taxi drivers, who often try to damage their vehicles or steal their car keys or smartphones. One said he was threatened with a gun.

But Mr. Lits played down the safety impact of the cash option. "There is no data to suggest crime is higher now than it was before cash," he said. However, a spokeswoman for Uber said there was an uptick in incidents at popular pickup and drop-off places such as light-rail stations in Johannesburg.

To mitigate the growing risk, Uber has taken new measures in the 76 markets where it operates: deploying private-security guards around known hot spots and creating an emergency number that drivers can call if they are threatened.

Drivers, meanwhile, have developed their own coping mechanisms. Many ask riders to sit in the front rather than the back, hide their GPS when approaching dangerous drop-off spots or fix hidden pickup places with customers by phone. Others say they have stopped taking rides in areas where they know taxi drivers are hanging out.

Opposition from rivals, not to mention regulators, is something the San Francisco-based company has encountered time and again from Portland, Ore., to Paris to Beijing. In Nairobi earlier this year, several Uber cars were burned amid clashes with taxi drivers. An anti-Uber protest in Costa Rica earlier this week, blocked roads in and around the capital.

But the troubles encountered by Uber and its drivers in South Africa point to the broader challenges faced by the company as it pushes into poorer markets where fewer people have credit cards and existing operators are defending a business that has seen little competition from public transportation.

In a recent speech in Johannesburg, David Lipton, deputy managing director for the International Monetary Fund, singled out protectionism in the transport industry as an important hurdle to growth. "Taxi and bus cartels in South Africa are highly organized and deter new entrants, including with violence," he said.

Opa Sikhosana, chairman of the Johannesburg Regional Metered Taxi Association, said his group doesn't promote violence against Uber drivers. But, he said that allowing cash payments was another provocation by Uber and threatens the livelihoods of taxi drivers and minibus services.

"Before they used to say that they are targeting the middle classes, people with credit cards," said Mr. Sikhosana. "Now they are targeting everybody who is in South Africa."

Mr. Sikhosana said his association has complained about the cash option to the local government in the Johannesburg region and was waiting for a response. Until then, he said, riders would have to make their own decision over whether to still use Uber. "Unfortunately, at the end of the day, customers who are using these services will be in the crossfire," he said.

But that hasn't stop people like 26-year-old Tshenolo Koloane, who uses Uber to travel to and from social events.

"It's convenient. I use it on my app, so I don't have to pay cash," she said. "And it's cheaper."

[WSJ] Indians Spurn Snacks, Shampoo to Load Their Smartphones

Preetika Rana 15 August 2016

<http://www.wsj.com/articles/indians-spurn-snacks-shampoo-to-load-their-smartphones-1471163223?mod=LS1>

NEW DELHI—A new wave of affordable smartphones has brought hundreds of millions of Indians online for the first time, giving them access to better education, jobs and entertainment. But there is one sector that isn't thrilled with this development: consumer-goods companies.

[Nestlé](#) SA, [Coca-Cola](#) Co. and others selling consumer products to India's 1.2 billion people say that as their poorest customers [start spending on smartphone data](#), they have fewer pennies left over for snacks, sodas and shampoo. Most Indians still struggle to make ends meet, and increased spending in one area inevitably means cutbacks elsewhere, they say.

"The growing consumption of mobile data and impressive growth in the number of mobile users ... has resulted in consumers increasing their spends on phones rather than on fast-moving consumer products," said Sanjay Khajuria, a spokesman for Nestlé in India.

The evidence for this trend is largely circumstantial. Mobile-data consumption is accelerating rapidly, while at the same time sales growth at some of India's largest consumer companies has slipped to a two-year low.

"We are competing for the consumer's wallet not just with beverages and other impulse categories, but also with data services on smartphones," said Venkatesh Kini, the president of Coca-Cola in India and Southwest Asia.

Indians generally can't afford monthly data plans, and only get online when they have some spare change. For [a quick peek at Google or Facebook](#), for example, [Vodafone Group](#) PLC offers data plans for as little as 15 cents at a time, roughly the same price consumers pay for a bag of salted chips.

People buy these mini-data plans at the same mom-and-pop stores where they buy their snacks.

"There was a time when kids would come here and blow their pocket money on chips and chocolate," said Anup Kapoor, who runs a mom-and-pop grocery shop in New Delhi. These days, "they spend every last rupee on a data recharge instead."

Mr. Kapoor initially resisted the lure of data, even as rival grocers doubled up as recharge centers. But the business became so lucrative in recent years that he eventually gave in. Now, data and voice plans make for some 70% of his daily sales.

The battle for limited space in India's tiny storefronts is fierce. Cellular companies sponsor signage to make sure customers know their local mom-and-pop offers more than just a cola or candy. A Vodafone-branded billboard hangs over Mr. Kapoor's shop, while posters from three other cellphone providers are plastered across racks of [PepsiCo](#) Inc.'s Frito-Lay chips and crates of Coca-Cola's Thumbs Up cola.

Some shoppers outside the store said they had cut down on impulse purchases to finance more time online.

After buying her first smartphone last year, Lakshmi Kumari stopped spending money on hair-conditioner sachets.

"It was an added expense. Shampoo works just fine," said Ms. Kumari, who earns \$100 a month washing kitchenware in rich homes. "I can do without conditioner. But I can't do anything without my phone. I can't hear songs, I can't surf the net, and I can't chat with friends."

For consumer-product companies, the spending shift toward data is another dose of bad news. They were already grappling with a two-year drought that sapped the limited spending power of farmers in this largely agriculture-dependent economy.

Making matters worse, these companies had counted on emerging markets such as India to make up for slower growth in the West.

But while smartphones are one source of their troubles, they can also be part of the solution.

[Godrej Consumer Products](#) Ltd., an Indian company that sells everything from mosquito repellents to hair color, this year began giving consumers beauty and hair-coloring tips on prerecorded mobile calls. In return, it said, consumers who answered and listened to these calls the most would stand a chance to win a free smartphone.

[Unilever](#) PLC, the maker of Ben & Jerry's ice cream and Axe deodorant, hopes to leverage the explosion of phones in India to market its ever-expanding portfolio of personal-care products.

For the poor Indian who owns a phone but hasn't upgraded to data, the company invented a free mobile radio station that lets callers dial in to hear popular Bollywood tracks. Breaks between songs are interspersed with ads for Lux soap and Brooke Bond tea, among other Unilever products.

Last year, it began encouraging aspirational middle-class Indians, who own phones and consume data in small spurts, to sign up for a program that delivers free tips on topics including how to speak better English and dressing for an interview.

The tips are delivered by the mascots for its Rin detergent, and can be downloaded over a smartphone.

Like other consumer companies, the Anglo-Dutch giant is battling weak demand and anemic sales growth in India. Sales from its Indian unit—India's largest consumer-products company—grew just 3% in the quarter ended June 30, compared with 10% in the corresponding quarter two years ago, about the time that cheap smartphones began flooding the market.

By comparison, [Bharti Airtel](#) Ltd.—[India's largest cellular company](#)—said data consumption by its customers tripled over the same period, fueling a 45% increase in average consumer spending even as data plans have become less expensive.

Smartphones are “now the new direction in which consumers are moving,” [Hindustan Unilever](#) Ltd. Chief Executive Sanjiv Mehta told shareholders last month. “The opportunity for us is to ensure that we are winning in this world, this new connected world.”

[NY Times] [With N.F.L. Deal, Twitter Live-Streams Its Ambitions](#)

Mike Isaac 14 August 2016

<http://www.nytimes.com/2016/08/15/technology/with-nfl-deal-twitter-live-streams-its-ambitions.html?ref=technology& r=0>

SAN FRANCISCO — Last March, [Twitter](#) and Facebook, along with other tech companies, faced off over which of them would get the rights to live-stream [National Football League](#) games on Thursday nights.

Twitter, in a rare win against larger rivals, [emerged victorious](#) with the deal. The N.F.L. saw disadvantages with some of the other bids. Facebook, for example, had set tough terms, under which the social network wanted to sell all the ads that would air during the football games, essentially cutting out the sales relationship between the N.F.L. and marketers, according to two people who asked for anonymity because the discussions were private.

Twitter, in contrast, agreed to pay the N.F.L. around \$10 million to stream 10 games and to sell only a portion of the ad inventory exclusively. Twitter, which is based in San Francisco, wanted the Thursday night games because of their popularity; each game drew an average of 13 million viewers last season.

“Having that live programming every night when sports are playing — with no paywall, no logging in and directly from the source — that’s key to us,” said Anthony Noto, the chief financial officer for Twitter and formerly for the N.F.L., who helped forge [the streaming deal](#).

When Twitter streams its first N.F.L. game on Sept. 15, it will get to assess whether its vigorous pursuit will pay off — and whether live streaming can viably be a linchpin of its future.

Since April, Twitter has signed a series of live-streaming deals, including with Wimbledon, CBS News, the National Basketball Association, Major League Baseball, the National Hockey League and Pac-12 Networks. Twitter is also in discussions with other organizations, including Major League Soccer and the Professional Golfers Association, for similar agreements, according to people briefed on the talks.

Facebook declined to comment on the N.F.L. talks. In a statement at the time, the N.F.L. commissioner, Roger Goodell, said Twitter “is where live events unfold and is the right partner.” Major League Soccer declined to comment on discussions with Twitter, and the P.G.A. did not respond to requests for comment.

For Twitter, the bet on live streaming is crucial to turning itself into a mainstream internet destination after other efforts have failed. Live streaming could finally broaden Twitter’s appeal, attracting an even wider audience. And perhaps more important, live events would be another way to sell video ads. If streaming football or basketball games on Twitter’s mobile apps and on desktop computers, along with other platforms, draws viewers, the company could sell more video ads, which typically command a premium.

Twitter has directed Mr. Noto, a former Goldman Sachs banker with deep ties to the sports media industry, to lead the charge on live streaming and has assigned an engineering team to create its streaming video player. Jack Dorsey, Twitter’s chief executive, considers streaming a critical component of the company’s focus on “live” experiences, along with Periscope, its app that allows smartphone users to live-stream video.

To bolster the effort, Twitter is in talks with Apple to bring the Twitter app to Apple TV, which would potentially let millions of Apple TV users watch the streaming N.F.L. games, according to the two people briefed on the discussions.

Apple and Twitter declined to comment.

Yet even as Twitter increases its live-streaming efforts, so are many of its rivals. Snapchat and Facebook are working on deals with media companies to acquire live-streaming rights to sporting events and entertainment; Instagram is also experimenting with live products. All of the companies are fiercely

competing for video advertising dollars, as marketers slowly begin to shift money to online video promotions and away from television ads.

There are other hurdles to live streaming, especially from wary content providers who view the technology world with a dose of suspicion.

“We, as a television news organization, and the social media platforms are sort of sizing each other up, trying to figure out what the relationship is going to be,” said David Rhodes, president of CBS News, which recently teamed up with Twitter to [live-stream the Republican and Democratic National Conventions](#). “Are they distributors? Are they promotional platforms? Are they creators in their own right?”

Twitter’s push on live streaming began in late 2014 when Dick Costolo, then the company’s chief executive, called Mr. Noto to discuss how to better use content — video, text or photos — to bring people to its service. Over the next 18 months, senior executives at the company debated options. Some batted around the idea of buying Mic, a news website aimed at young audiences, according to a person briefed on the conversations. Others were bullish on video.

Eventually, video won out. Mr. Noto said that introducing premium content like sports, politics and entertainment — the types of programming people often pay to see — would entice and retain more Twitter users.

The live-streaming bet is taking on greater importance as referral traffic from a [deal made with Google last year](#) — one in which Twitter posts would appear more prominently in Google search results — has not continued to grow over time, according to three people who asked for anonymity because the numbers were confidential. Twitter declined to comment on the traffic.

Even with competition from Snapchat and Facebook, Twitter has a foundation to attract more live-streaming deals. For years, Twitter forged relationships with networks and content owners through a program known as Amplify, in which Twitter worked with TV programmers to distribute short video clips that were preceded by ads sold by both Twitter and the content owners.

Last year, Twitter struck a [multiyear deal with the N.F.L.](#) to continue that Amplify relationship. In the new live-streaming deals with Major League Baseball and the National Hockey League, all advertising will be sold by Twitter — as opposed to Twitter’s agreement with the N.F.L. Every deal is different, Mr. Noto said.

Twitter is also emphasizing its younger audience as a reason for marketers to advertise on live events. About 72 percent of the social media service’s user base is 18 to 34 years old, according to third-party data and company models, said two people who asked for anonymity because Twitter’s internal metrics were confidential.

That focus has in part enabled Twitter to land advertisers like Bank of America for the streaming N.F.L. games.

“Twitter really owns those moments that matter to everyone,” said Lou Paskalis, senior vice president for enterprise media planning at Bank of America. “As a marketer, what we can do with the context that Twitter creates is to join that shared moment.”

Mr. Noto cautioned that Twitter’s live-streaming strategy was still not fully formed and was just one part of a multipronged plan to remake the company. If live streaming works out, the plan is to make the live videos more easily accessible on Twitter — whether through notifications in the main timeline or through a mobile tab in Twitter’s app called Moments, said two people briefed on the company’s product plans.

But first comes the N.F.L. game next month between the New York Jets and the Buffalo Bills, which will be live-streamed from Buffalo.

“Our opportunity is to use these familiar platforms that people understand, like streaming video, as a window into seeing everything else we really have available,” Mr. Noto said.

[NY Times] [Is That Real Tuna in Your Sushi? Now, a Way to Track That Fish](#)

Claire Martin

13 August 2016

<http://www.nytimes.com/2016/08/14/technology/is-that-real-tuna-in-your-sushi-now-a-way-to-track-that-fish.html?ref=technology>

“Most people don’t think data management is sexy,” says Jared Auerbach, owner of [Red’s Best](#), a seafood distributor in Boston. Most don’t associate it with fishing, either. But Mr. Auerbach and a few other seafood entrepreneurs are using technology to lift the curtain on the murky details surrounding where and how fish are caught in American waters.

Beyond Maine lobster, Maryland crabs and Gulf shrimp, fish has been largely ignored by foodies obsessing over the provenance of their meals, even though seafood travels a complex path. Until recently, diners weren’t asking many questions about where it came from, which meant restaurants and retailers didn’t feel a need to provide the information.

Much of what’s sold has been seen as “just a packaged, nondescript fish fillet with no skin,” says Beth Lowell, who works in the seafood-fraud prevention department at [Oceana](#), an international ocean conservation advocacy group. “Seafood has been behind the curve on both traceability and transparency.”

What’s worse is that many people have no idea what they’re eating even when they think they do. In a recent [Oceana investigation of seafood fraud](#), the organization bought fish sold at restaurants, seafood markets, sushi places and grocery stores, and ran DNA tests. It discovered that 33 percent of the fish was mislabeled per federal guidelines. Fish labeled snapper and tuna were the least likely to be what their purveyors claimed they were.

Several years ago, Red’s Best developed software to track the fish it procures from small local fishermen along the shores of New England. [Sea to Table](#), a family business founded in the mid-1990s with headquarters in Brooklyn that supplies chefs and universities, has also developed its own seafood-tracking software to let customers follow the path of their purchases. Wood’s Fisheries, in Port St. Joe, Fla., specializes in sustainably harvested shrimp and uses software called [Trace Register](#).

And starting this fall, the public will be able to glimpse the international fishing industry’s practices through a partnership of Oceana, Google and [SkyTruth](#), a nonprofit group that uses aerial and satellite images to study changes in the landscape. The initiative, called [Global Fishing Watch](#), uses satellite data to analyze fishing boat practices — including larger trends and information on individual vessels.

From a young age, Mr. Auerbach had romantic notions about fishing, specifically the idea of catching fish to feed his family and neighbors.

“It’s cool in this day and age that people wake up in the morning and go make a living interacting with nature and feeding their community,” he said. He went into commercial fishing straight out of college, taking a job on an Alaskan salmon boat and later returning to New England to work on lobster boats and learn more about the fishing industry there.

Soon after Mr. Auerbach founded Red’s Best in 2008, he realized that a combination of government regulations and commercial fishing’s embrace of technology were effectively threatening the existence of small fishing boats. Yet smaller boats travel short distances and catch fewer fish, which Mr. Auerbach said improves their quality.

“We try to push people to eat local, traceable fish,” he said.

Like most other seafood distributors, he was relying on an antiquated, four-part carbon copy system that was so cumbersome, he was routinely shuffling paperwork until 2 a.m.

“The boat would get a copy at the point of unloading,” Mr. Auerbach said. “The government would get a copy. I’d file a copy. And then I’d write in the prices.” As for paying the fishermen: “I’d have to get checks and then match the checks to the paperwork and mail them. It was an absolute nightmare that wasn’t scalable.”

Now the Red’s Best software does that work. For instance, a company driver backs a truck down to the long wooden pier in Woods Hole, Mass., each afternoon, so that fishermen can load their bluefish, striped bass, bonito, conch, horseshoe crabs and other seafood. But instead of a thick pad of paper and carbon sheets, the driver wields a waterproof wireless computer tablet with a Bluetooth mobile printer.

“He’s putting their catch data directly onto the internet, and our whole staff all over the country can see in real time as fish is being unloaded onto our truck,” Mr. Auerbach said. When the fish arrives at Red’s Best’s Boston plant, it is instantly received into inventory and reported to the federal government.

The company affixes a traceability label on each box of fish. The label has a two-dimensional bar code that can be scanned by smartphones to reveal who caught the fish, where and how. A unique web page is automatically created for that fish. Buyers, typically high-end wholesalers throughout the country, and their customers can scan the code to learn the story behind the fish.

Mr. Auerbach, who has 100 employees, projects the company will sell 20 million pounds of seafood this year, caught almost exclusively by 1,000 small vessels.

Eventually, Red’s Best hopes to sell directly to consumers. “Like, a bluefin tuna is being unloaded right this second in Provincetown, Mass., and you buy a pound of it to be delivered to your home tomorrow,” he said. “I want that tuna sold as deep into the supply chain as possible.”

By that he means ideally the fish will travel from the company’s Boston hub directly to home cooks’ refrigerators. Currently, people can buy Red’s Best fish at its store at the Boston Public Market, at several farmers’ markets, or shipped through AmazonFresh and, starting last week, FedEx.

“I got the data,” he said. “I got the fish. I know people want it.”

Sea to Table hopes to sell fish directly to home chefs starting this year, too.

But local seafood can cost more than many Americans are accustomed to paying, which partly accounts for the rampant seafood fraud in this country.

“U.S. fisheries are very well managed and are actually growing nicely,” said Michael Dimin, the founder of Sea to Table. “But the U.S. consumer’s been trained to buy cheap food, and imported seafood is really cheap because of I.U.U. fishing.” I.U.U. stands for illegal, unreported and unregulated. The result is unsustainably fished, cheap seafood flooding American fish markets and grocery chains.

“To us, the secret is traceability,” Mr. Dimin said. “If you can shine a light on where it came from, you can make informed decisions.”

Mr. Auerbach concedes that some local fish is expensive, but he maintains that many lesser-known varieties are affordable. “Maybe halibut and scallops are for the wealthy,” he says. “But dogfish, skate, porgy and mackerel are all very inexpensive, healthy and great tasting.”

[NY Times] A Tech Mogul’s Fight to Keep Control of a Newspaper Empire

Leslie Picker and Sydney Ember

14 August 2016

<http://www.nytimes.com/2016/08/15/business/media/a-tech-moguls-fight-to-keep-control-of-a-newspaper-empire.html?ref=business>

In early summer, after the company formerly called [Tribune Publishing](#) had rejected two takeover offers from Gannett, two of its biggest investors found themselves in an escalating dispute. The investment firm Oaktree Capital Management was publicly questioning the motives of Michael W. Ferro Jr., an investor and the new chairman of the publishing company, in his decision to rebuff Gannett.

Mr. Ferro formulated his own pointed response: During a meeting in July at his estate in Lake Geneva, Wis., he suggested to top editors and executives that their journalists investigate Oaktree and Bruce Karsh, co-chairman and co-founder of the firm, according to two people with direct knowledge of the meeting.

No damaging article about Oaktree was published, but the episode provides a glimpse into the combative business style of a relatively unknown technology entrepreneur who has become one of the country’s most significant and unpredictable media moguls. Since taking a \$44 million stake in Tribune Publishing in February, Mr. Ferro has installed himself as chairman, fired the chief executive and replaced him with a longtime associate, overhauled the senior executive ranks, and reshaped the company’s board so that a majority is aligned with him.

He has also taken aggressive steps to transform one of the most storied publishers in the country, pushing a technology-driven approach to journalism that includes concepts like artificial intelligence. And most visibly, he shed the well-known Tribune name, changing it to Tronc, for Tribune online content — a move that drew instant mockery on the internet.

Mr. Ferro declined to be interviewed for this article. A spokesman for Mr. Ferro, Dennis Culloton, denied that Mr. Ferro suggested that Tronc’s papers should investigate Oaktree.

But in conversations with more than two dozen current and former employees, Chicago businessmen, and others who know him — most of whom spoke on the condition of anonymity citing fear of

retribution or continuing business connections — he emerges as an audacious businessman whose wealth of ideas can by turns impress and alienate his associates and employees.

Once a teenager who outsourced his house-painting jobs to others, Mr. Ferro, 50, has never been afraid to push boundaries. He created one of the first business-to-business internet companies, which he later sold for nearly \$300 million. Emboldened by the support of Chicago billionaires, he has made moves to buy some of the city's most iconic institutions, including the Chicago Cubs and The Chicago Sun-Times.

Over the last six months, he has appeared intent on keeping Tronc, whose papers include The Los Angeles Times and The Chicago Tribune, away from Gannett, but his resolve has continued to vex Oaktree, the publisher's third-largest shareholder. In a sign of the growing distrust between Oaktree and Mr. Ferro, the firm is now conducting a review into whether he has been acting out of self-interest rather than doing what is best for shareholders.

At the same time, Mr. Ferro must contend with anxious employees who are stuck in ownership limbo as Gannett continues to circle the company, with a potential deal looming in the next few weeks.

A Golden Ticket

Born in 1966 in Merrick, N.Y., Mr. Ferro displayed an entrepreneurial spirit from a young age.

He graduated from high school in Naperville, Ill., and attended the University of Illinois at Chicago. In his early 20s, he started a company called Chem-Roof that made coatings to treat wood, which he sold to the Pettibone Corporation, a supply and equipment company, when he was 25.

Things soured, however. In 1995, after Mr. Ferro had left Pettibone, the company sued him, saying he had not repaid a \$31,000 loan. Mr. Ferro filed his own complaint, arguing that the chairman of Pettibone's parent company had falsely accused him of stealing cases of thigh cream. The suits were ultimately settled.

In 1996, Mr. Ferro founded Click Commerce, which used the internet to streamline buying and selling between businesses. He took the company public in 2000, at the height of the dot-com bubble, and sold it six years later to Illinois Tool Works for \$292 million. The transaction was Mr. Ferro's golden ticket: His new wealth gained him entry into a group of Chicago business elites who were enamored with Mr. Ferro's idea to turn the city into the next Silicon Valley.

"Chicago is founded on older-school businesses," said Matt Maloney, a friend of Mr. Ferro's and a founder of GrubHub, the Chicago-based online food-ordering service. "There's an element of respect in our community for the technologists because I think it's more novel here than in other places."

When Mr. Ferro started a fund called Merrick Ventures to invest in tech companies, he attracted millions of dollars from Chicago business stalwarts, including John Canning, a founder of the buyout firm Madison Dearborn Partners, and Andrew McKenna, chairman emeritus of McDonald's.

"I have a great deal of trust in him," Mr. Canning said. "It's never a smooth ride with Michael, but it usually ends up successfully."

Among the fund's first investments was a stake in Merge Healthcare, a struggling medical imaging company. In a pattern that presaged his actions at Tribune, Mr. Ferro became chairman of Merge and

replaced almost half the board. He also installed as chief executive his colleague Justin C. Dearborn, who would later become the chief executive at Tronc. (IBM bought Merge last year for \$1 billion.)

In late 2011, Mr. Ferro and other members of the Chicago community, including some who were investors in Merrick, formed a holding company to buy The Sun-Times and about 40 other media properties for roughly \$20 million.

Boyish, with thick-rimmed glasses and a fondness for model trains, Mr. Ferro knew little about the media business, but he did have a barrelful of ideas.

Shortly after the new management took over, Mr. Ferro held a meeting in the newsroom and said he wanted to create a game room and outfit the office with couches to make it seem more like a start-up, according to several former employees. He brought in candy dispensers and his own pool table and told some reporters he wanted the paper to focus more on celebrity coverage.

Plans for The Sun-Times under Mr. Ferro were ambitious, but several failed to gain much traction. He created a weekly business magazine called Grid, for instance, that closed about a year later. A culture and lifestyle magazine that he started, Splash, endured. The Sun-Times introduced a daily newscast video that was discontinued after only a few months. Around the same time, the newspaper laid off all of its photographers, saying the move was part of a restructuring as the company focused more on digital video. It later hired several of them back.

“He seemed to have a management style of throwing everything against the wall and seeing what sticks,” said David Roeder, a former business reporter and columnist at The Sun-Times who worked at the newspaper from 1996 to 2013.

Several former employees said they thought Mr. Ferro had influenced the newspaper’s coverage to align with his personal agenda. The Sun-Times, for example, ran a front-page obituary of the chief executive of Illinois Tool Works, the company that had purchased Click Commerce. The paper also ran a photo of Mr. Ferro’s family attending a Cubs game. Mr. Culloton, Mr. Ferro’s spokesman, acknowledged that Mr. Ferro had encouraged the obituary, but he said that Mr. Ferro did not instruct the paper to run the photo.

Remaking Tribune

When Mr. Ferro’s fund, Merrick Ventures, invested \$44 million in Tribune Publishing in early February, he received a stake worth nearly 17 percent and the title of nonexecutive chairman, traditionally an honorary role. (To assuage antitrust concerns, he donated his stake in The Sun-Times to a charitable trust.)

A news release announcing the investment originally quoted Mr. Ferro saying how excited he was to work with Tribune’s chief executive, Jack Griffin, and his management team, according to two people briefed on the drafting process. An hour before the announcement, however, Mr. Ferro requested that Mr. Griffin’s name be removed, and instead he was quoted saying that he was “excited to be working with the company’s award-winning brands.”

Mr. Culloton said any changes Mr. Ferro suggested would have been made “after consulting with his advisers to communicate a strong message to the market.”

Less than three weeks later, Mr. Griffin was fired and replaced by Mr. Dearborn. Mr. Ferro assumed the position of chairman and was running the company.

Tronc has since rejected both takeover offers from Gannett — the latest, in May, at a 99 percent premium. Mr. Ferro brought on another investor, Patrick Soon-Shiong, a billionaire doctor in Los Angeles, to help fend off its suitor.

Mr. Ferro's vision for Tronc has excited some and befuddled others at the company, several current and former employees said. He has combined the role of editor and publisher across his newspapers, blurring the lines between the traditionally separate business and news sides. He said in June that he wanted Tronc to produce 2,000 videos a day, a staggering number for a newspaper publisher, using artificial intelligence.

Some current and former employees said they were impressed by his enthusiasm. "He's got a lot of energy and a lot of ideas," said Anne Vasquez, chief digital officer at Tronc. "That excitement — I can feed off that excitement. The sparks begin to fly. You start to think about the possibilities as opposed to the obstacles."

Tronc also purchased the domain name LA.com for \$1.2 million, a regulatory filing shows. The site, according to an editorial plan reviewed by The New York Times, would "use social influencers as contributors" and "harness viral talent." It would also publish profiles of celebrities and influencers, but "they must agree to push out via their social channels to be featured."

A mock webpage for LA.com featured an image of a woman bending at the hip and sucking a red lollipop, overlaid with the words "Suck it." An email sent on Feb. 29, reviewed by The Times, said that the site was going for a "stylish, young, fun vibe" and that "Michael has approved this image." Two people who received the email confirmed its contents.

Mr. Culloton said Mr. Ferro did not approve the image. Plans for LA.com have been paused.

At Odds Over a Suitor

Even as he has pushed ahead energetically with initiatives at Tronc's publications, Mr. Ferro's actions have mystified and irritated executives at Oaktree.

Oaktree had been a large shareholder in the Tribune Company when it emerged from bankruptcy in late 2012, and retained a significant stake after Tribune Publishing was spun off two years ago. Saddled with \$350 million in debt and experiencing steep drops in print advertising, Tribune Publishing's stock dropped 65 percent from the time it was spun off to the day before news surfaced of Gannett's bid.

Gannett, long known for cost cutting but seeking to expand its national footprint, had somewhat remarkably emerged as a lifeline for struggling newspapers.

When Gannett began its pursuit of Tribune, Oaktree urged Tribune to seriously consider what it perceived to be a generous offer. Now, concerned about Mr. Ferro's resistance, Oaktree has hired two law firms to conduct a review of Tronc's nonpublic documents, including minutes from board meetings and proof of Mr. Ferro's qualifications, including his academic and work history.

In a [filing with the Securities and Exchange Commission](#) in June, Oaktree questioned the price at which Mr. Ferro purchased his shares, his failure to signal plans to overhaul the board and top management,

and the company's decision to reject Oaktree's recommendation that it form a committee to evaluate Gannett's offer.

Oaktree declined to comment for this article.

Mr. Ferro has remained committed to his plans. An [employee video](#) released in June described how Tronc would use artificial intelligence and machine learning to "allow journalists to do their jobs more efficiently."

"The role of Tronc," the video said, "is to transform journalism, from pixels to [Pulitzers](#)."

The video received widespread attention online, though perhaps not in the way Mr. Ferro had hoped: It was [viciously mocked](#) for its self-importance.

[The Hill] [Tech mobilizes to get out the vote](#)

David McCabe

13 August 2016

<http://thehill.com/policy/technology/291321-tech-mobilizes-to-get-out-the-vote>

Tech's biggest names are using their vast consumer reach to bring voters to the polls this November.

Their efforts range from getting voters registered to giving their own employees time off to cast ballots.

The push comes as tech is getting more comfortable engaging in politics and as industry-watchers closely look for any hints of political bias.

Tech's efforts are taking a number of forms, as companies nudge the public to register in time.

Last Saturday, Airbnb celebrated the anniversary of the Voting Rights Act with a message on its U.S. website, encouraging visitors to "Join us in celebrating this historic day by registering to vote."

"Airbnb hosts and guests are engaged in the communities they call home and we believe that everyone should be able to participate in the crucial conversations that will shape the future of our country," the company [said](#).

Google, meanwhile, [added voter registration](#) information, including registration deadlines and step-by-step directions, directly to their search pages this summer.

Several companies — including Airbnb, Lyft and Salesforce — have made a "nonpartisan, long-term commitment to increase voter participation" as part of the new "TurboVote" challenge. Rock The Vote has also partnered with Microsoft, Twitter and dating app Tinder.

Matt Mahan, the CEO of Brigade, which develops social networking applications for voters, praised the efforts of companies to get involved in civic life.

"I think that's a really positive development and its high time," he said.

Alongside registration efforts, a growing movement is pressuring tech companies to give their employees time off to vote.

Hunter Walk, a venture capitalist who is a supporter of the cause, said the hope is companies will view providing time off to vote as an important cause rather than a legal requirement, as it is in some states.

He said he hopes executives will come to say, "Hey, this matters, we're going to remind you and make it more of a norm rather than just trying to accommodate those of you who wish to participate." "

This line of thinking is gaining traction. Spotify US, Twilio and TaskRabbit are among more than 175 companies who have signed on.

"Unfortunately, Election Day is not a federal holiday in the United States, making it difficult for many people to take time off from their jobs to vote," payments company Square said [in a post](#) last week. "That's why we're making Election Day a company holiday."

Politics have always been a complicated business for tech companies — and the new voter participation efforts come at a time when questions about ideological bias in Silicon Valley are increasingly common.

Earlier this year, Facebook moved quickly to address allegations its "Trending Topics" feature discriminated against right-leaning views, with CEO Mark Zuckerberg sitting down with prominent conservatives. Google has been similarly aggressive about quashing any claims of bias.

But the voter participation efforts are also a part of tech companies' new openness to political action.

Major technology companies spend handily on advocating for favorable policies around the country. Google's parent, Alphabet, spent more than \$16 million last year on federal lobbying and Facebook spent almost \$10 million, according to data compiled by the Center for Responsive Politics.

Companies have similarly become more comfortable with civic engagement. Google launched an application programming interface with information on elections and government ahead of the 2012 election and Facebook has for years reminded users to vote at the top of their News Feeds.

Registering voters may have once been seen by companies to be a political act — and therefore off limits — but those views are changing.

"I've been doing this for twelve years, it's never happened," said Maria Theresa Kumar, the president of VotoLatino, about corporations aggressively looking to partner with her group. "I usually have to knock on the door and make the case."

Noah Theran, a spokesman for the Internet Association, said getting involved with voter participation was in line with the mission of many tech companies.

"The democratization of information is a core mission of internet companies, and efforts to help voters get to the polls reflects this commitment," he said in an email.

Political outcomes can often have a real impact on a company's financial success. Many Silicon Valley companies — including Airbnb, Lyft and Uber — now find that they have to overcome tough political and regulatory challenges by mobilizing their users.

But several people interviewed rejected the idea that tech companies' voter engagement efforts were simply motivated by their own political goals.

Jen Tolentino, who leads Rock The Vote's technology efforts, said that their intent wasn't to help those companies mobilize voters for their own political fights.

Walk said the efforts to boost civic involvement are linked to the growing political activity at tech companies, but aren't a cover.

"I guess, in my mind, they're certainly related — but it's an embrace of the need to engage with the political system in general rather than sort of [saying] 'Let's get all these people engaged under the guise of an election and then if a politician messes with us we'll turn these people loose on their office,'" he said.

The debate is unlikely to be resolved any time soon, as the role of tech companies in daily life grows and the industry's political efforts expands.

Mahan said if companies could boost civic participation in a "nonpartisan and quote unquote safe way," Silicon Valley could take bolder steps to turn people out to vote.

"Then I think we can get creative," said Mahan. "I think we can put voter registration forms in peoples' onboarding packets. We can put registration and voting deadlines on the company calendar."

[Politico] [How Silicon Valley's Palantir wired Washington](#)

Elen Mitchell

14 August 2016

<http://www.politico.com/story/2016/08/palantir-defense-contracts-lobbyists-226969>

When a little-known Silicon Valley software startup began vying for national security contracts, it went up against an entrenched bureaucracy and opposition from major contractors skilled in the Washington game.

But quickly, Palantir began pulling pages from the defense industry's own playbook — bulking up on lobbyists, challenging the Pentagon's contracting rules and getting members of Congress to sprinkle favorable language into defense legislation. Seven years later, the secretive firm has landed \$1.2 billion worth of federal business, and critics say the legislative favors it has secured will give it a leg up on billions more.

Story Continued Below

Representatives of the firm — founded by venture capitalist and prominent Donald Trump supporter Peter Thiel — insist it remains an outsider in a Washington culture deeply wedded to the status quo.

But a review of public documents and interviews with key players shows the company is no stranger to Beltway politics and influence. Its lobbying expenditures more than tripled to more than \$1 million in a few short years as it enlisted lawmakers such as Republican Sens. [John McCain](#) of Arizona and [Tom Cotton](#) of Arkansas to help it compete against established players like Raytheon and Northrop Grumman. Now, about 40 percent of Palantir's business comes from government clients, and it appears to be winning a fight with the Army over a \$3 billion program to build a new battlefield intelligence network.

"The other companies were asleep at the switch," said an industry consultant who works for one of Palantir's competitors, speaking on condition he not be identified.

“It’s a company that couldn’t win a contract and now doesn’t want another company to win,” added a congressional aide who has seen the operation up close but is not permitted to speak publicly. “It happens all the time. They’re just being more aggressive about it than normal.”

Palantir, which has repeatedly declined to speak publicly, got an inside track soon after its inception in 2004. (Its name comes from the magical crystal balls in the “Lord of the Rings” trilogy.) Thiel, the co-founder of PayPal, got the Central Intelligence Agency to invest \$2 million through In-Q-Tel, the agency’s venture capital arm. That granted Palantir access to the inner workings of government contracting — and it quickly learned how the game is played.

Palantir hired a series of power players in 2010: At lobbying firm Patton-Boggs, they included former Sens. John Breaux (D-La.) and Trent Lott (R-Miss.) and a group of their former congressional aides who lobbied on “funding for intelligence analysis tools” and defense appropriations bills and advocated before a variety of agencies.

Also hired to influence the defense appropriations process was Alexander Silbey of ATS Communications, who spent several years on Capitol Hill, including as a senior policy adviser to Rep. [James Clyburn \(D-S.C.\)](#), a member of the House Democratic leadership. At Kadesh and Associates LLC, it was Mark Kadesh, former chief of staff to Sen. [Dianne Feinstein \(D-Calif.\)](#), and Christian Kierig, who was a legislative assistant for Feinstein.

While still a fraction of what the Pentagon’s biggest contractors spend, Palantir’s lobbying expenditures grew from \$300,000 in 2010 to over \$1 million by 2015.

The company’s federal business also steadily grew. Since 2009, the company has landed contracts worth at least \$1.2 billion from the Marine Corps, Defense Intelligence Agency, Department of Justice, FBI, State Department, CIA, Internal Revenue Service, Immigration and Customs Enforcement, Department of Homeland Security and the National Center for Missing and Exploited Children, according to a former lobbyist for the firm.

The government has bought Palantir’s data-crunching technology to help locate roadside bombs and to pick up signs of insider trading, credit card fraud, disease outbreaks and even missing children. Most recently, the firm in May snagged a five-year, \$222 million contract from the U.S. Special Operations Command.

In its latest fight, Palantir representatives claim the Army is purposely shutting out innovation, despite evidence that the company’s solution for a new battlefield intelligence network is more effective than the initial version that was developed by Raytheon, Northrop Grumman and other contractors.

Indeed, the company honed its approach to federal contracting when it began to aggressively take on the Army’s lucrative Distributed Common Ground System program in 2010. In that fight, the Army declined to purchase the company’s software, even though some units were clamoring for it — and only grudgingly allowed limited use of its platform.

In 2011, Palantir hired retired Marine Corps Brig. Gen. Terry Paul of Cassidy & Associates as a lobbyist. Paul, who did not respond to several requests for an interview, previously served for a decade as the Marine Corps’ liaison with the Senate before overseeing all of the service’s legislative interactions.

Paul is also a close friend of an influential political family in the defense world: the Hunters of Southern California. Duncan Hunter Sr. is a former Republican chairman of the House Armed Services Committee, and his son [Duncan Hunter Jr.](#), a Marine Corps Reserve officer, currently sits on the panel.

Paul served as the master of ceremonies when the senior Hunter's official portrait was unveiled in 2009 and recalled how the chairman asked him at the last minute to stump for him in South Carolina during his short-lived 2008 presidential campaign. Paul recalled that, when he asked whether the candidate had prepared remarks for him to deliver, Hunter replied: "No, I don't really have anything. You are pretty familiar with my position on things; just go with that."

The younger Hunter has since emerged as Palantir's biggest supporter on Capitol Hill — after he was introduced to Palantir officials by Paul, who still lobbies for the firm, according to the former company lobbyist. In 2013, Hunter got the Army to review its strategy for developing the battlefield intelligence network.

The company more recently got the support of Cotton, a former Army Ranger, and briefed him on its technology last year, according to a staffer who said the Arkansas Republican senator had picked up frustrations with the Army's approach to the intelligence system when he was in the House in 2013.

Hunter and Cotton this year have helped Palantir immensely in its push to gain access to the Army contract.

Language offered by Hunter in the House fiscal 2017 National Defense Authorization Act would halt the Army from further developing the next version of DCGS if it is found "such capability is available for purchase in the commercial market."

Hunter's spokesman, Joe Kasper, insists that Paul is just one of a number of officials who have influenced the congressmans views.

"General Terry Paul is a long-time friend, and is one of several lobbyists working Palantir's issues," Kasper wrote in an email. "What specifically and to what extent, I have no idea."

He also said Hunter's concerns about the Army project "first arose via the 82nd Airborne Division and its urgent request" for Palantir's software. "Years ago; 2012, I seem to recall."

The pro-Palantir language in the Senate defense bill, crafted by Cotton and McCain, the Senate Armed Services chairman, more pointedly directs the Army to swap out the software already fielded as part of the Distributed Common Ground Station with a "commercial alternative."

One of Palantir's current lobbyists, who like the others was unwilling to associate publicly with the company's marketing campaign, described the firm's maturing Washington strategy in recent years aimed at winning a piece of the Army program.

"When you're an outsider, you're trying to navigate the bureaucracy," he said. "You get experts in the process to bridge the gap between Silicon Valley and the Pentagon. Once a few members of Congress realized the problems with DCGS, and Palantir started telling their story in terms the Hill understands, things started to click."

“They provided good, policy-based arguments and the pendulum swung, forcing the Army to defend the program, which had a history of problems,” he added. “With commercial products to fill the void, the pressure really built.”

But some in Congress are pushing back on the language in the proposed Defense Authorization Act, deriding it as a “forced procurement” of commercial software over the solutions offered by defense contractors.

In a recent [letter](#) to the leaders of the House and Senate Armed Services Committees, three senators and three congressmen voiced their “serious concerns” with the two provisions, asserting that such language would “unduly limit competition.”

The congressional aide agreed. The language “shuts down the program that’s fielding upgrades with money Congress has already authorized and appropriated,” he said. “Congress should probably do something about the program to encourage the Army [to] keep fixing it, but what they’ve proposed is just way, way too much.”

Spokespeople for Raytheon and Northrop Grumman declined to discuss their tussle with Palantir. Other Palantir boosters liken the company’s struggle to SpaceX, the commercial space launch company that fought for years to gain entry into the military market and successfully opened the competition by taking the Air Force to court.

The Army’s leaders and its longtime contractors are smarting from Palantir’s recent move to sue the service to block a planned \$206 million contract to build the second increment of the DCGS system.

Palantir’s suit claims the Army “issued a solicitation that makes it impossible for Palantir to compete for the new DCGS contract.” The firm also asserts that the Army for years covered up and falsified data that would have portrayed the company’s software favorably over DCGS. Palantir has hired the same legal team used by SpaceX, according to court documents.

Palantir brought the lawsuit against the Army after losing a protest with the Government Accountability Office. The company contends the Army should be using a “phased approach” that would allow providers of existing commercial software to bid for prime contracts for certain aspects of the larger system, rather than having one prime contractor be the architect of the system.

But the lawsuit is sure to be a battle as the Army, in a new [report](#) to Congress this week, reaffirmed its plan to use a single vendor as the “system architect, developer and integrator,” with other contractors that could bid to sell software. In the report’s appendix, the Army lists commercial software products that could satisfy certain requirements of the larger system, but does not mention Palantir or its Gotham software.

While the lawsuit makes its way through the court system, Palantir is keeping up the momentum. In the first two quarters of 2016, Palantir has spent \$530,000 on four lobbying firms to sway Congress and the Pentagon in its favor.

The defense industry consultant who works for a Palantir competitor marveled at the firm’s effectiveness.

“Palantir knew what they wanted at the beginning of the year and lined up members to support them in case the other side came in to try to reverse it or offer an amendment to kill it,” the consultant said.

[Washington Post] How video conquered the Web

Drew Harwell

14 August 2016

https://www.washingtonpost.com/business/economy/how-video-conquered-the-web/2016/08/14/21f13bf4-49e5-11e6-bdb9-701687974517_story.html

SANTA MONICA, Calif. — With the solemnity of a priest, Tastemade programming chief Oren Katzeff paces near his TV-grade studio kitchen and assesses his media giant’s latest creation: apple-pie latkes, baked on camera for five seconds of Snapchat fame.

In four years, his video network has transformed food porn designed for digital natives into a global juggernaut. But the competition is fierce — and the demands are endless — if he wants Tastemade to stay one of the most-watched media empires on the Web.

“There is something about being maniacal, right?” Katzeff says outside the soundstage during one of the day’s half-dozen recipe shoots. “We are so laser-focused on all this stuff. We don’t sleep that much.”

Short, viral videos have become more than digital-age curiosities. They are a central economy of the Web and a serious business on which future media fortunes will be gambled, won and lost.

Autoplay recipe videos on Facebook are inescapable, and they all seem to follow the same basic steps. We break down how one gets made. (Jayne Orenstein, Randolph Smith, Kara Elder/The Washington Post)

Many leading the charge aren’t traditional TV media giants. Instead, they’re start-ups such as Tastemade, which since launching as a tiny YouTube food network has exploded to become the fifth-most-watched video publisher on Facebook. In June, Tastemade racked up more than 700 million views — three times the online audience of its rival, the Food Network, according to data from video analytics firm Tubular.

Pumped out cheaply and quickly, most Web and mobile videos make a fraction of the money of a Hollywood film. But they also carry a fraction of the risk: For their makers, a flop doesn’t break the bank — and a hit can mean everything.

“In terms of eyeballs and time spent, there’s an increasing war for your time and attention,” said Rich Greenfield, a media analyst with investment firm BTIG. “Web video, mobile video, is still in its infancy, but I wouldn’t mistake being early for being wrong. In 1980, basic cable was really early, too.”

‘Slacker milkshakes’

Web video’s rise has sparked a growing tension for media’s most established players, who must retool and compete for a new generation of viewers on an increasingly insatiable Internet. In June, a Facebook vice president called video “the best way to tell stories in this world” and said that the world’s biggest social network, with 1.6 billion users, would be “probably all video” within five years.

The players are fighting over billions of screens in people’s pockets, where advertisers are moving en masse. Spending on digital ads in the United States is expected to surpass TV ads this year for the first

time, research firm eMarketer said. Web-video ad spending grew to \$10 billion this year, having doubled since 2014.

Two years ago, the “Ice Bucket Challenge,” which raised money for amyotrophic lateral sclerosis research, proved that simple social video could bloom into a cultural phenomenon. Producers, networks and news organizations have been racing to publish more videos, because advertisers will pay more to sponsor them than digital offerings such as banner ads.

The companies on Web video’s front lines do not have the reliable channel placement, traditional audiences or big commercial payouts of TV’s goliaths. Many, including Tastemade, are not profitable or keep their revenue under wraps.

Yet their growth has been enough to encourage alliances that a few years ago would have seemed far-fetched. In December, Tastemade secured \$40 million in investments led by Goldman Sachs. Backers included the venture arm of Comcast, the world’s biggest cable company, as well as TV giant Scripps Networks, owner of the Food Network.

Tastemade specializes in short, colorful cooking segments of quinoa burgers, Nutella cheesecakes and other millennial-bait cuisine. Unlike traditional food TV, many of its videos are delightfully un-gourmet: Tastemade’s most-watched recipe on YouTube involves blending seven ice cream sandwiches into a “[slacker milkshake](#).”

Many of the old hallmarks of television’s craft don’t apply. Celebrity cameos, high production values and long stories are out, while colorful sets, simple ideas and short, “snackable” moments are in.

(Tastemade/YouTube)

The videos are built to go viral, not to win awards, so volume is paramount, and long-accepted signatures of traditional video are ignored. Many videos are shot not wide-framed but vertically to fit how younger viewers see the world: through cellphone screens. The videos’ sound is deemed less important; many viewers watch them muted, anyway.

On Facebook, Tastemade has become an unstoppable force, with more “likes” from loyal subscribers than the New York Times and Washington Post combined. Even so, Tastemade is a traffic underdog to Tasty, BuzzFeed’s competing food-video giant.

In August, Tastemade was added to Snapchat’s top media-company lineup, Discover, putting it a swipe and a tap away from every user on one of the fastest-growing social apps on the planet. Coca-Cola was one of the firm’s first sponsors.

7 billion views and counting

Founders Steven Kydd, Joe Perez and Larry Fitzgibbon launched the network in 2012 after meeting at Demand Media, a Web “content farm” whose business depends on getting clicks from Google searches. But within three years, Tastemade had become one of the rare additions to Snapchat’s heavy-hitters list that was not a household name. Its neighbors include CNN, ESPN and People magazine.

The pressure was on: A month earlier, Tastemade’s more-established peers, including Warner Music Group and Yahoo, had been booted from Snapchat’s invite-only Discover rankings on the thought that they had not been pulling their viral weight.

But the company has become a veritable video factory: 7.1 billion views of 3,739 videos and counting, with no signs of slowing down. In December, Tastemade pledged to publish three original videos a day, every day. This spring, the company aimed even higher, saying it would produce more than 100 cooking shows, recipe guides and travelogues every month exclusively for Facebook's live-video streaming service.

Key to Tastemade's success are its "tastemakers," the 1,000 or so global freelancers who contribute recorded shorts or recipes. None are traditional celebrities, although their followings can be robust, and Tastemade invests heavily in winning their allegiance.

One of Tastemade's three dozen online job openings [seeks](#) an "unflappable" Influencer Acquisition Representative — known internally as a "treasure hunter" — working to recruit from within YouTube's amateur army of popular chefs and quasi-stars.

Julie Nolke, a 25-year-old "tastemaker" in Toronto, started making movie-inspired food videos for YouTube while working a desk job at an investors' association. With her short red hair, easy laugh and oddball acting, she became like a Lucille Ball of the food-video Web, and she signed on with a Tastemade "partner manager" to get help optimizing and sharing her videos while splitting ad revenue.

(Julie Nolke/YouTube)

A year ago, after Tastemade's demands heated up, the firm signed her and other top tastemakers up directly. She and her boyfriend quit their jobs to make videos full time: They shoot and edit three videos a week, produce show ideas and work on "branded content," including a series sponsored by Starbucks.

Tastemade pays the couple \$1,000 a video — good money, she says, considering that they earned far less relying solely on ad revenue. But "everything we were doing before has entirely revved up," she said: Every short video — from grocery shopping to food prep to video editing — takes about 14 hours to make. The couple work from 8 a.m. to 7 p.m., seven days a week.

Fans ask Nolke for pictures on the street — an odd feeling for an acting-school graduate who struggled during auditions to land traditional roles. But now, she finds herself dealing with a new kind of stardom.

"I literally make videos in my house. I don't know if I talked to anyone else today but you," Nolke said. "This is not what the celebrity life looks like. This is a whole other brand of thing. But it's really, really cool."

Web video has not supplanted the titans of TV and film, but its early successes have shown what kinds of content best resonate on an always-on platform free from traditional length, style and cost constraints.

"TV has all the money, and the TV ecosystem has an older consumer," said Laura Martin, a senior analyst at Needham & Co. "But the data you can get online — on younger audiences, short-form programming — is really important, too. [They can show] how certain verticals are making it work."

To cash in, Web-video giants still rely on TV's classic moneymakers, including riffs on product placement and regularly scheduled commercial breaks.

Tastemade's revenue has come from "brand integrations" with corporate sponsors, including Google, Grey Goose and REI, some of whose executives said they have paid "seven figures plus" to insert their

products onscreen. Hyundai sponsored a pork-and-pigskin feature, “The Grill Iron,” that programming chief Katzeff defined as “auto meets college football meets tailgating, but not in a ‘bro’ sort of way.”

The executives acknowledge the natural tension between a hip, Web-friendly food network seeking to expand into a corporate trough. But they say they offer advertisers an irresistible deal: Young viewers bored by or disinterested in the behemoth of prime-time TV.

“The audience that’s not watching TV, the audience that’s not watching commercials,” Katzeff said, “is the audience that’s looking at Tastemade content every day.”

[Washington Post] Tim Cook, the interview: Running Apple ‘is sort of a lonely job’

Jena McGregor

<http://www.washingtonpost.com/sf/business/wp/2016/08/13/2016/08/13/tim-cook-the-interview-running-apple-is-sort-of-a-lonely-job/>

On a sleek white coffee table in Apple CEO Tim Cook’s fourth-floor office in late July, beneath framed posters of Robert F. Kennedy, the Rev. Martin Luther King Jr. and Jackie Robinson, a rose gold iPhone 6s sits in its original box.

Earlier that morning, Cook had stood in front of employees at Apple headquarters and held up the phone, which a staffer had hand-delivered from a store in Beijing to commemorate a notable occasion: Apple had sold its billionth iPhone. That celebratory milestone — Cook laughs when asked by a reporter if he’ll stop counting, as McDonald’s did with its hamburgers — aptly coincides with another big moment for the technology giant’s chief executive.

A few weeks later, Cook would mark the fifth anniversary of what has been the most closely watched transition of power in corporate history: On Aug. 24, 2011, just six weeks before his death, Apple’s iconic founder, Steve Jobs, permanently handed his chief operating officer the reins. “It’s been a blur in a lot of ways,” says Cook, who had filled in for Jobs during medical leaves. “It feels like it was yesterday in some respects.”

It is fitting that these two milestones arrive so close together. That’s because the iPhone, launched by Jobs, has been the biggest driver of Apple’s massive growth during Cook’s tenure. It led the company to soaring valuations and accounted for nearly two-thirds of Apple’s revenue in the past year. Just the tally on iPhone sales, almost \$141 billion over the past four quarters, is more than the annual sales figures of Cisco, Disney and Nike — combined.

But the iPhone has also been a source of recent disappointment, too. In its most recent quarter, iPhone sales fell 23 percent from a year ago, contributing to a 14.6 percent drop in overall revenue. It was Apple’s second straight quarterly drop in sales after 13 years of growth.

THE WASHINGTON POST

Just after Apple disclosed those results, Cook sat down with The Washington Post to discuss his first five years in one of Corporate America’s most glaring spotlights. In two sprawling and highly self-reflective interviews — one in his office and another by phone just before he left for vacation in Yellowstone and Grand Teton National Parks — Cook described why the visibility of the job has been “shocking,” how

he's learned to deal with the scrutiny, and who he's turned to for advice at pivotal moments (Warren Buffett, on his decision to return cash to shareholders, and Anderson Cooper about publicly disclosing he is gay).

He spoke in candid terms about the mistakes he's made on the way, such as his first hire to run Apple's retail stores ("that was clearly a screw-up"). He fiercely defended Apple's tax policies. He touched on succession planning and the importance of grooming internal candidates. He was at his most spirited when talking about privacy and the long-term future of Apple and the iPhone — calling Apple's big presence in the smartphone industry "a privilege, not a problem" — and quieted considerably when talking about Jobs's memory. "I know this sounds probably bizarre at this point," he said, "but I had convinced myself that he would bounce."

Cook, 55, chooses his words carefully, taking long pauses and speaking with a slight Alabama drawl. Though he has favorite phrases — many things are "deep," and Apple's mission is always its "North Star" — he eschews the jargon many CEOs use. And while he's quick to trumpet Apple, he is also unassuming, quickly noting, after saying his job can be "lonely," that "I'm not looking for any sympathy. CEOs don't need any sympathy."

That reflects how Cook's imprint on Apple has often been described — making it more systematic, more transparent, more team-oriented, more humble. He has engaged on social issues more than most CEOs, writing op-eds on legislation that limits gay rights and making the extraordinary decision earlier this year to oppose the FBI's request to unlock the San Bernardino killer's phone.

As CEO, he gets high marks for managing the company's growth, keeping margins high and expanding further into markets such as China (Apple had four retail stores in China five years ago. Today it has 41.) He has pushed into the enterprise market, grown Apple's product lineup and positioned Apple to make more money off the devices it's already sold: Its services business, which includes things like iTunes, iCloud and a mobile payments service, is projected to be the size of a Fortune 100 business next year — all on its own. Apple remains the most valuable and most profitable company in the S&P 500 index.

Yet as the company deals with declining sales in its major device categories and in markets like China, critics and some investors have fretted about Apple's innovation mojo under Cook. The first all-new device during his tenure, the Apple Watch, is not yet a mega hit. The iPhone juggernaut faces a saturated smartphone market, growing competition from low-cost upstarts in China and longer upgrade windows from consumers. Rumored big concepts behind the curtain — such as a reported car project — appear to be years away.

Some analysts say such impatience is shortsighted, and that the long-term potential for things like services, augmented reality and even a possible car could ultimately transform the way Cook's tenure is viewed. "Investors are so finicky that they lose track of the big picture," says Gene Munster, an analyst at Piper Jaffray who covers Apple. "I think the wisdom and legacy of Tim Cook is going to be determined by what happens in the next five years."

In the conversation below, Cook looks back as well as ahead at those next five years — hinting at augmented reality but refusing to comment about a car project, saying Apple believes people love a surprise. It has been edited for length and clarity.

Your first day in this job, you sent a memo to employees that said, “I want you to be confident that Apple is not going to change.” Five years later, it has to have changed. What qualities of Apple are immutable, in your view?

The DNA of the company is really what I was talking about there. The North Star has always been the same, which for us, is about making insanely great products that really change the world in some way — enrich people’s lives. And so our reason for being hasn’t changed.

Other things change. But that’s the thread that ties everyone together.

\$10.3 million

The value of Tim Cook’s compensation in 2015

\$376 million

The value of restricted stock grant awarded to Cook in 2011 (to vest over 10 years)

65

The number of companies Apple has acquired since early 2013 \$3 billion

What Apple paid for Beats, it’s largest acquisition ever

And what has changed?

The obvious things are we have more employees in the company. The company is four times larger [by revenue since 2010]. We’ve broadened the iPhone lineup. That was a really key decision, and I think a good one. We’ve gone into the Apple Watch business, which has gotten us into wellness and in health. We keep pulling that string to see where that takes us. Lots of core technology work has been done.

Are there ways the culture has evolved?

We have stepped up our social responsibility. We have talked about things and been more transparent about what we’re doing — not on products: We try to be as secretive as we’ve always been on products, although it’s increasingly difficult to do that.

The real test is: Are you creating a ripple that helps other people as well? An example of that is the environmental work. We’ve had environmental work going on at Apple for decades, but we didn’t talk about it, and we didn’t set aspirational kind of objectives. We used the same philosophy we do with our products, which is you unveil them when you’ve finished. But we stepped back and re-evaluated that and said, “You know, if we wait until you do that, we’re not helping anyone else get there, too.”

You’ve said you don’t want to be a traditional CEO. What do you mean by that?

I think of a traditional CEO as being divorced from customers. A lot of consumer company CEOs — they’re not really interacting with consumers.

I also think that the traditional CEO believes his or her job is the profit and loss, is the revenue statement, the income and expense, the balance sheet. Those are important, but I don’t think they’re all that’s important. There’s an incredible responsibility to the employees of the company, to the communities and the countries that the company operates in, to people who assemble its products, to

developers, to the whole ecosystem of the company. And so I have a maybe nontraditional view there. I get criticized for it some, I recognize. If you care about long-term shareholder return, all of these other things are really critical.

You've got the billionth iPhone on the table here. One thing that has changed is that in 2011 about 44 percent of the company's sales came from iPhone. Now it's close to two-thirds. How can Apple move forward when so much of its business is tied up in the iPhone and an industry that's cooling off?

This is actually a privilege, not a problem. Think about this: What other products do you know where the ratio of people to the product, for a consumer electronics product, will be one-to-one over the long haul? I don't think there is another one.

Meaning?

The global sales of PCs each year are about 275 million right now. That number's been declining. The global market for smartphones is 1.4 billion. Over time, I'm convinced every person in the world will have a smartphone. That may take a while, and they won't all have iPhones. But it is the greatest market on earth from a consumer electronics point of view.

Think about it: Families have a TV. Some families are fortunate enough to have multiple TVs. But if you looked at all the TVs in the world, it's not one-to-one, and it's not going to be one-to-one.

Look at the core technologies that make up the smartphone today and look at the ones that will be dominant in smartphones of the future — like AI. AI will make this product even more essential to you. It will become even a better assistant than it is today. So where you probably aren't leaving home without it today — you're really going to be connected to it in the future.

That level of performance is going to skyrocket. And there is nothing that's going to replace it in the short term or in the intermediate term either.

I realize that the people who are focused on this 90-day clock say, "Oh, my God, the smartphone industry only grew by 1 percent or decreased by 6 percent." You know, the global economy's not that great right now. But if you're in it for the long haul, this is the best market on earth.

I see enormous opportunity [in India]. There are still a fair number of people in this country who don't have smartphones. They're using flip phones or a feature phone. There are a lot of people switching from Android to iOS, and that's huge for us because they have a lot more market share than we do, from a unit point of view. Our goal has never been to make the most. It's always been to make the best.

So to those who ask where's the next big, world-changing category for Apple — it's sitting on this \$231.5 billion pile of cash — are you saying there's nothing like the smartphone?

Technology is one of these industries where every week there's a new shiny object that people are skating to. Netbooks — look back, everybody was writing like netbooks were this unbelievable thing, everyone was asking us, "Why aren't you making one?" Same thing with the PDA. Remember what happened with the PDA? Up and down. It was like the hula hoop. Technology is full of those.

I'm not saying we're not going to do anything else. I'm saying this is still an unbelievable product category to be in, and not just for this quarter, year or for years. So I would not want anybody to think this, oh, this "better days are behind us" thing.

Some analysts have said that.

And it doesn't bother me. Because honestly, they were saying that about Apple in 2001. They were saying it in 2005. They were saying it in 2007 — 'this stupid iPhone, whoever dreamed up this thing?' Then they were saying that we peaked in 2010, then it was 2011. We got to \$60 billion [in revenue], and they said you can't grow anymore from this. Well, last year we were \$230 billion. And, yes, we're coming down some this year. Every year isn't an up, you know. I've heard all of it before. And I don't subscribe to it because it's traditional thinking in a lot of ways: You can't get large because you are large.

How the past five years looked to investors

Over Tim Cook's five years as CEO, the stock saw a big climb and then hit some head winds. Apple's total return to shareholders, which includes stock appreciation and dividends, has been 121 percent since Cook took the job on Aug. 24, 2011, according to data from S&P Global Market Intelligence.

How do you make the case that Apple is still a long-term growth company?

In today's products we have services [iCloud, App Store, Apple Pay and the like], which over the last 12 months grew about \$4 billion to over \$23 billion [in sales]. Next year we've said it's going to be a Fortune 100 company in size.

What else? iPad. The iPad Pro. What we saw in this past quarter is that about half of the people who are buying one are using it at work. We have an enormous opportunity in enterprise. Last year we did \$25 billion or so in it around the world. We're collaborating much better with key partners because it's important, if you're making a decision to use our products or anybody's products in the enterprise, that they work well together. And so we're working with Cisco because they're incredible with the network infrastructure. We're working with IBM, who's written a number of apps. We're working with SAP because they own the back of the house, in terms of the processing. They own three-quarters of the world's transactions, in terms of it running on their products.

And then, of course, the markets. We have done fairly well in China. India is fast growing, but our base there is smaller. One of the big things that has held India back is the cellular infrastructure. They have two major carriers putting in a lot of investment to bring 4G. You can imagine if you didn't have 4G today. You can't enjoy video on a 3G. Periodically you can, but not consistently. This is a game changer. In India, there's no fixed line to home. So they're a mobile society. China's very much like that as well.

And so I look at it and say: markets? Enterprise — huge. Geographies? India is one, but there are others. Products? We purposely don't talk about that one. But you can imagine. Step back and say what's Apple so great at? Apple is the only company that can take hardware, software and services and integrate those into an experience that's an "aha" for the customer. You can take that and apply to markets that we're not in today. There's not a limitation that we can only do that in the smartphone area or in the tablet or Mac or watch area.

Do you feel any frustration with investor impatience?

We welcome all investors, regardless of whether their horizon is short or long. But we try to be very clear that we are making our decisions based on long term. I think for investors that are focused on the long term, if you look at how we've done in the past five years, our total shareholder return is over

100 percent. That's a pretty good number. And I think most people that have been in the stock for that period of time are probably pretty happy.

"To me, Steve's not replaceable. By anyone. He was an original of a species. I never viewed that was my role."

—Tim Cook

You succeeded one of the icons of American business. What does it feel like to step into those shoes?

To me, Steve's not replaceable. By anyone. [Voice softens] He was an original of a species. I never viewed that was my role. I think it would have been a treacherous thing if I would have tried to do it. When I first took the job as CEO, I actually thought that Steve would be here for a long time. Because he was going to be chairman, work a bit less after he came back up the health curve. So I went into it with one thought, and then weeks later — six weeks later, whatever —

Quickly.

It was very quickly. [The day he died] was sort of the worst day ever. I just — I had really convinced myself. I know this sounds probably bizarre at this point, but I had convinced myself that he would bounce, because he always did.

What did you think you knew about leading Apple that turned out to be wrong?

There's nothing like sitting in the chair, so to speak. I was reminded that customers have a really deep love for the company. I started just getting an avalanche of customer mail. I don't mean complaints. Email. Positive. Negative. Points of view. Not the 'hey, this broke, I'm mad.' Largely not that kind of stuff. Things much deeper than that. Moved by how they were treated in a store. Lots of people have written me about FaceTime and how they could be near their mother's or father's bedside before they died only because of it.

Tim Cook: 'The job itself is a lonely job' | On Leadership

Apple CEO Tim Cook talks about when it's important to seek out advice, and who he turns to when he does.

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But what about in terms of running the company?

I learned that the scrutiny was much higher than I thought. Media interest and scrutiny — social networking was taking off at that time — and so a lot of the "love," so to speak, and interest from customers, I think transfers to media interest as well. And so there's a lot of visibility on the company. We can do very few things without it being reported somewhere.

You and Alan Greenspan or Janet Yellen would probably have a lot to talk about. It seems like every word you say is scrutinized. How do you get used to that?

You don't. You're both praised and criticized, and the extremes are wide — very wide. And that can happen all in a day. You build up — my skin got materially thicker after August 2011. And I don't mean in

a bad way. I don't mean that I'm callous and don't care. I think I'm a bit better today about compartmentalizing things and not taking everything so personally.

That was just downright shocking to me, honestly. I thought the visibility went with Steve, not the company. And so I thought with a different CEO, with me, that would instantly change. It didn't.

\$47.8B

Apples profit over last 12 months (Berkshire Hathaway was No. 2 at \$25.5 billion)

\$231.5B

Apple's cash and marketable securities -- bigger than the GDP of most countries, including Portugal, Qatar and Hungary

1.4M

number of people who work in jobs related to the iOS/app economy in the United States

You've been more outspoken on social issues than any other CEO of a company your size. Do you think companies have a responsibility to publicly take on such issues as civil rights and climate change?

I think everybody has to make their own decision about it. Maybe there are compelling reasons why some people want to be silent. I think for us, though — for a company that's all about empowering people through our products, and being a collection of people whose goal in life is to change the world for the better — it doesn't sit right with me that you have that kind of focus, but you're not making sure your carbon footprint isn't poisoning the place. Or that you're not evangelizing moving human rights forward. I think every generation has the responsibility to enlarge the meaning of human rights.

I do view that a CEO today of Apple should participate in the national discussion on these type of issues.

Who were you thinking about when you decided to write the op-ed where you publicly came out as gay?

I was thinking about kids. I was getting notes from kids who knew I was gay, or assumed I was, because of something they had read on the Web. And they were kids who were distraught. Some had been pushed out by their families. They thought they couldn't achieve anything. They couldn't do anything. They were seeing the national discourse around it and feeling isolated and depressed. And I just thought — I've got to do something.

And you speaking out would do what?

I thought it would minimally say you can do pretty good in this world and be gay. That it's not a limiter. It's okay to be. That it's okay to be honest about it. I figured if I could help one person, it would be worth it.

It had been planned for quite a long time. It was not something that was done in a moment, by any means. It was probably a year. Just thinking through what to say, how to say it, where to say it, how to do that in a way that advanced what I was trying to do.

I wanted it to be in a business [publication]. That's what I know, that's who I am. There was a lot of work there. I visited people. I talked to Anderson Cooper at length — multiple times. Because I thought that the way that he handled his announcement was really classy. I was getting advice from people who I thought were really great people who had really deeply thought about it.

There are few jobs in corporate America that have the same scope, breadth and size as yours. Geopolitics. National security. Consumer retail. Global supply chains. The entertainment industry. It's mind-boggling. Where do you turn to for advice?

Whoever I think can help me. When I was going through [the question of] what should we do on returning cash to shareholders, I thought who could really give us great advice here? Who wouldn't have a bias? So I called up Warren Buffett. I thought he's the natural person, and so I try to go through that process on everyone. That doesn't mean I always do what they say. But I think it's incumbent on a CEO to not just listen to points of view but to actually solicit them. Because I think, if not, you quickly become insular. And you're sort of living in the echo chamber.

Who else?

For the hearing [before the U.S. Senate's Permanent Subcommittee on Investigations about Apple's tax practices in 2013], I've never testified in front of Congress before. So I called up [Goldman Sachs CEO] Lloyd Blankfein, because I looked back to say who's done this before? I knew Lloyd and thought he'd be honest with me. I called up President Clinton. He knows a lot about the politics. I'd not met him through a political connection. I'd met him through the foundation. I went to Laurene, Steve's wife. Laurene has the lens of knowing me and deeply understanding Apple.

And so, obviously, I get a lot of advice internal to Apple. But I think it's important on these things that are also new to the company to solicit some people outside, even if you conclude to not do what they say.

With the fight with the FBI, did you have any idea what you were getting into?

We knew it was going to be very, very difficult. And that the cards were stacked against us. But we spent a lot of time on "what is right here?" People who were really key on this decision are folks like [SVP of software engineering] Craig Federighi. This at its heart is a deep, deep technical question. You first have to understand that to do anything else.

The lightbulb went off, and it became clear what was right when we did the first piece of work: Could we create a tool to unlock the phone? After a few days, we had determined yes, we could. Then the question was, ethically, should we? We thought, you know, that depends on whether we could contain it or not. Other people were involved in this, too — deep security experts and so forth, and it was apparent from those discussions that we couldn't be assured.

The risk of what happens if it got out, we felt, could be incredibly terrible for public safety.

We knew the positioning on the outside would not be public safety. It would be security vs. privacy — security should win. But we went through the deep, deep, deep discussions on that. It became clear that the trade-off, so to speak, was essentially putting hundreds of millions of people at risk for a phone that may or may not have anything on it, and that likely didn't, because of other things that we knew about. We thought this actually is a clear decision. A hard one, but a clear one. Then it became more of a

matter of how do we explain this. Because this is not easy. You can imagine. You just hear: locked phone. Terrorist. People dead. Why aren't you unlocking this?

Milestones during Tim Cook's tenure

Did the FBI fight change how you view the mandate of your job?

Customers should have an expectation that they shouldn't need a PhD in computer science to protect themselves. So I think they depend on us to do some things on their behalf. So with that responsibility comes an obligation to stand up. And, in this case, it was unbelievably uncomfortable and not something that we wished for, wanted — we didn't even think it was right. Honestly? I was shocked that they would even ask for this. That was the thing that was so disappointing that I think everybody lost in the whole thing. There are 200-plus other countries in the world. Zero of them had ever asked this.

You've talked about privacy being part of Apple's values. How personal is it for you? You're known as a very private person. You grew up gay in a red state. Did those early years have an impact on how you lead Apple and on your public stances about privacy?

Undoubtedly, your childhood and your upbringing is a constant across your life in terms of the things you learn and your point of view.

But in terms of privacy, I wouldn't link the two. There's a broader thing in play. Privacy, in my point of view, is a civil liberty that our Founding Fathers thought of a long time ago and concluded it was an essential part of what it was to be an American. Sort of on the level, if you will, with freedom of speech, freedom of the press. The other thing is how all this data sits out there in different places. I do worry about people not really understanding deeply about what kinds of things are out there about them. So it's really both of those — not really the growing up in the South.

Back in 2009, you said, "We believe in saying no to thousands of projects." Name one product or project in the past five years you have put on the shelf.

[Laughs]. I don't know if I want to do that, because it gives competition some heads-up about things. But be assured that we have. More than one. Because the wonderful thing about Apple is there are many ideas about doing things. We have resources to do a few, but you can only do a few things deep and well, and so you have to say no and have debates about what things are in versus out. So more than one big thing has left the page.

"My skin got materially thicker after August 2011. And I don't mean in a bad way. I don't mean that I'm callous and don't care. I think I'm a bit better today about compartmentalizing things and not taking everything so personally."

—Tim Cook

Everyone's always wanting to know what's next. The car. The TV. You spoke about artificial intelligence and augmented reality. How do you make sure great ideas surface in such a big organization?

Great people surface great ideas. We're a believer in small teams versus monolithic huge teams. The product teams are horizontal, where people from hardware and software services can all work together.

We don't have divisions. We've elected not to do what business school, and I think every other larger company, does: They break down their company into smaller divisions. They give each division a P&L, and each division does their own marketing and communications and operations.

We always re-challenge ourselves on this question. But we keep coming back to what the customer wants from us is a user experience that is seamless. They want to start working on whatever they're working on from their iPhone. And then they want to go to the Mac, and they want it to be absolutely seamless. The only way to assure that is to do things once.

That means the top of the company must work together incredibly well. Think about if you were the CEO of a company with a lot of divisions — I'm going to exaggerate a little bit — it would almost be like you're a holding company CEO. That is the model for most companies. But that's not what customers want from us. You can't have a weak link. You can't have people who don't get along. It has to be people who have great respect for one another and who work as a team.

When you look back, are there mistakes you've made that you've learned something from?

Maps was a mistake. Today we have a product we're proud of. [But] we had the self-honesty to admit this wasn't our finest hour and the courage to choose another way of doing it. That's important. It's the only way an organization learns. The classic big-company mistake is to not admit their mistake. They double down on them. Their pride or ego is so large that they can't say we did something wrong. And I think the faster you do that, the better — change gears to something else. If you're honest, people will give you the benefit of the doubt. But if you have your head stuck in the sand and you just keep doing it, I think you lose your employees and your customers as well.

What else?

I hired the wrong person for retail [former Dixons CEO John Browett] initially. That was clearly a screw-up. I'm not saying anything bad about him. He didn't fit here culturally is a good way to describe it. We all talked to him, and I made the final decision, and it was wrong. We fairly quickly recognized it and made a change. And I'm proud we did that. A lot of companies would have said, "Oh, he hasn't been here very long." But when you're looking at more time with [then] 50,000 people in retail — that's a lot of people that you're effecting in the wrong way. That was a mistake. I probably have a long list.

It's sort of a lonely job. The adage that it's lonely — the CEO job is lonely — is accurate in a lot of ways. I'm not looking for any sympathy. You have to recognize that you have blind spots. We all do. Blind spots move, and you want to not just have really bright people around you, but people who will push on you and people to bring out the best in you. People that amplify whatever you're good at. And then also the people who plug the parts that you're not and may never be.

What are you reading?

I have two books going right now: One is the Bobby Kennedy book [["Bobby Kennedy: The Making of a Liberal Icon,"](#) by Larry Tye] that just came out. The other is quite an old book. It's a Gandhi book [["Mohandas K. Gandhi, Autobiography: The Story of My Experiments With Truth"](#)] that I got interested in because we went to the Gandhi museum when we were in India recently. I tend to like nonfiction and particularly reading about people and how they lived and how they fought, and what motivated them and their philosophy and so forth.

When Steve handed you the reins, he said Apple had never had an orderly transition of CEO, and he wanted that to happen. What are you doing now to make sure the next transition, whenever it happens, is orderly?

At the end of every board meeting, I discuss succession with the board because I might step off the wrong curb or something. We have the good discipline to do that. Then my role is to make sure that the board has great candidates to pick from internally. And I take that role extremely seriously. Look around at the great people I get to work with — there's some really just superb talent in the company.

Tim Cook says Steve Jobs was 'heat shield' for Apple | On Leadership

Apple CEO Tim Cook describes how co-founder and former CEO Steve Jobs acted as cover for Apple, taking both praise and blame for the company.

You've made more acquisitions at Apple, including the purchase of Beats, which was its largest ever, at \$3 billion. At its current size, does Apple need big acquisitions like that to grow?

Do we need them? No. But we always are looking for companies that have really talented people and great intellectual property, and when we find them we do acquire them. To put that into context, we've acquired 15 to 20 companies a year for the last four years.

Do you think there will be more at that size going forward?

I think we'll continue to acquire companies. If you're asking me would we do another one the size of Beats —

Or bigger? You certainly could.

We clearly are capable of doing it both from a management-depth point of view and a financial point of view. But we'd only do it if it were great for Apple strategically. We don't acquire for revenue. So the essential for us is the talent and/or [intellectual property]. Those are the things that we optimize around. Now with Beats, we also got revenue. But it wasn't the purpose of it. The purpose was that we were going into streaming — we'd already made a decision to do that. And we looked around at people who might be able to help us.

I think we got Apple Music out probably a little sooner than we would have otherwise. It's infused some great talent on the team.

How do you think about content being part of the services business going forward?

We are producing radio shows for Beats. We are producing some original content on video. We started that with a concert kind of video with Taylor Swift. We've got "Planet of the Apps," kind of a cool show. We've got a few things that are focused on Apple Music. Over time we may broaden that. We do view that the future of TV is apps. And if there's a way we can be a catalyst into that happening faster or better, then that would interest us in content.

Sales in greater China were down 33 percent in the most recent quarter. Low-cost competitors like Huawei are getting into building premium phones. Let's talk about China. How much are you worried about competitive and regulatory threats there?

We make our investment decisions based on long term. We have to report every 90 days because that's the rules, but it's not how we run the company. So as I look in the long term, I think China is an unbelievable market — not only from a demand point of view and the revenue potential there, but also as a great source of talent. We have over a million and a half developers there. The reach is unbelievable. There are, sort of, speed bumps now with the economy. In a year-ago quarter, we were up 112 percent. So I think you have to back up and put it in perspective. If you look at it over a two-year basis, we were up over 50 percent in the quarter.

We were talking about getting advice from people before your first testimony on Capitol Hill. That hearing focused on the corporate taxes Apple pays. Apple is now awaiting a European Union ruling on whether you owe billions in back taxes, and corporate tax reform is a big election-year issue. Does either a Trump or a Clinton campaign give you or the company any hope that there could be corporate tax reform anytime soon?

I think it's in the best interest of the U.S. to have corporate tax reform, regardless of which political party is in charge of the White House. Because if you look at it, the U.S. rules today are that international companies like us and many others can keep their earnings that they earn overseas overseas, and then when they bring them back it triggers the tax liability.

What I've always felt should happen is that every dollar should be taxed immediately with no deferral. But as a consequence of doing that, you should have free flow of capital. What would happen is if a system like that were put in place, it should have more investment going into the United States. We're the only major country in the world that has a system like this. It's not good for the U.S., it's not good for the economy, it's not good for jobs, it's not good for investments.

I think there's wide agreement to that in both parties, by the way. There's a difference of view with different people about how to fix it, but I think everybody agrees the current system isn't working. So I'm optimistic that, in 2017, there will be some sort of corporate tax reform. The U.S. needs to invest more in infrastructure — so what would be great is, if they take the tax proceeds of a corporate tax reform and invest it in infrastructure and roads and bridges and airports.

What do you say in response to Nobel economist Joseph Stiglitz's comments on Bloomberg [television], where he called Apple's profit reporting in Ireland a "fraud"?

I didn't hear it. But if anybody said that, they don't know what they're talking about. Let me explain what goes on with our international taxes. The money that's in Ireland that he's probably referring to is money that is subject to U.S. taxes. The tax law right now says we can keep that in Ireland or we can bring it back. And when we bring it back, we will pay 35 percent federal tax and then a weighted average across the states that we're in, which is about 5 percent, so think of it as 40 percent. We've said at 40 percent, we're not going to bring it back until there's a fair rate. There's no debate about it. Is that legal to do or not legal to do? It is legal to do. It is the current tax law. It's not a matter of being patriotic or not patriotic. It doesn't go that the more you pay, the more patriotic you are.

And so what we've said — we think it's fine for us to pay more, because right now we're paying nothing on that and we leave it over there. But we — like many, many other companies do — wait for the money to come back.

In the meantime, it's important to look at what we do pay. Our marginal rate, our effective rate in the U.S. is over 30 percent. We are the largest taxpayer in the United States. And so we're not a tax dodger. We pay our share and then some. We don't have these big loopholes that other people talk about. The only kind of major tax credit that we get is the R&D tax credit, which is available to all companies in the United States. That's important to know. The second thing I would point out is we have money internationally because we have two-thirds of our business there. So we earn money internationally. We didn't look for a tax haven or something to put it somewhere. We sell a lot of product everywhere. And we want to bring it back, and we've been very honest and straightforward about that.

How long are you willing to keep unrepatriated income overseas?

Honestly, I believe the legislature and the administration will agree that it's in the best interest of the country and the economy to have tax reform. So I don't think I have to make that decision. I'm optimistic that it will take place next year.

Do you feel picked on by the E.U.?

You know, they haven't ruled yet. I don't know how they will rule. I hope that we get a fair hearing. If we don't, then we would obviously appeal it.

It's important for everyone to understand that the allegation made in the E.U. is that Ireland gave us a special deal. Ireland denies that. The structure we have was applicable to everybody — it wasn't something that was done unique to Apple. It was their law.

And the basic controversy at the root of this is, people really aren't arguing that Apple should pay more taxes. They're arguing about who they should be paid to. And so there's a tug of war going on between the countries of how you allocate profits. The way tax law works is the place you create value is the place where you are taxed. And so because we develop products largely in the United States, the tax accrues to the United States.

Let's jump to Apple's future. You made some statements in the earnings call about artificial intelligence that got a lot of attention. Can Apple catch up with the AI efforts from companies like Facebook, Google and Amazon?

Let me take exception to your question. Your question seems to imply that we're behind.

Let's take a look at that. We've been shipping Siri since 2011, and Siri is with you all of the time. Which I think most people would want an assistant with them all the time, whether they're at work or at home or in between or on the soccer field. You don't think of your to-do list, so to speak, only when you're in your kitchen. And the breadth of Siri is unbelievable. Increasingly, Siri understands things obviously without having to memorize certain ways to say things. The prediction of Siri is going way up. What we've done with AI is focus on things that will help the customer. And we announced in June that we're opening Siri to third parties, so third-party developers can now use Siri. So a simple example with that, whatever kind of ride-sharing app you might use, Uber or Lyft in the United States, you could just — using your voice — order the car. So third-party developers are writing tons of those that will be available to the public in the fall. And that's how we're broadening Siri in a huge way.

But there are other things in there, like if you're typing in mail, the prediction capability of the next word or next phrase that you will use has just — Siri has gotten a lot smarter about that. I've been using it for

a while, but if you haven't used it you should try it. The ability to recognize faces in photos and put those into the modern equivalent of a photo album — we call this product Memories. It's just unbelievable, it'll really tug at the heartstrings, with family photos and friends. The simple things, like do you drive to the airport? I haven't done that in a little while, but when I did, I always forgot where I put my car.

I just take a picture of the sign on the wall.

But you don't even have to do that anymore because Siri will know where you parked. And so things like this really make a difference to people — we do all of that while protecting your privacy. Instead of passing all that information to the cloud, where we're maintaining it all, we do a lot of it on the device itself. So you're in control of your own data.

Do you have a concern about privacy as you push into AI?

No. I think that talented people can come up with fantastic ways of using AI without violating privacy. There's a new technology called differential privacy which essentially looks at large data sets to predict user behaviors and requests without going to the precise individual, which might violate privacy.

Now there are some things that we do look at — like if you buy songs, it's a reasonable expectation that we know what songs you buy because you buy them from us. And we use that information with machine learning to recommend other songs you might like.

What about augmented or virtual reality?

I think AR [augmented reality] is extremely interesting and sort of a core technology. So, yes, it's something we're doing a lot of things on behind that curtain that we talked about. [Laughs.]

You mentioned earlier about how much more difficult it is to keep things secret. There's been a number of reports about Apple's car project — the people who are being hired or moved into place to lead it. It gets enough attention that it almost seems like an open secret. Why not say something about it?

I can't answer a question about something we haven't announced. [Laughs.]

But there's just constant attention about it. Is it tempting to share any kind of details?

We've always viewed that people love surprises. We don't have enough anymore in our lives.

Sometimes it seems like Silicon Valley companies are all blending together — everyone's converging on the same big race. Self-driving cars, AI, Google is reportedly building a smartphone. In a tech industry where companies are trying to be "all things to all people," how does Apple's longtime philosophy of simplicity, and being very focused, move it forward?

It's as important as it ever was. We're a bit larger today, so we can do a bit more than we could do 10 years ago or even five years ago. But we still have, for our size, an extremely focused product line. You can literally put every product we make on this table. That really is an indication of how focused it is. I think that's a good thing. Regardless of who you are, there's only so many things that you can do at a very high-quality and deep, deep level — personally and in business. And so we're not going to change that. That's core to our model and way of thinking.

Apple has really ramped up spending in research and development. One analyst noted your R&D spending is now greater than what the 14 largest automakers spend, combined. What's the most exciting technology out there to you right now?

That one I don't want to answer, because it would give too much of an insight into the things we're doing. But we have ramped up R&D because we are heavily investing in the future — both in current product lines and things that aren't visible as well, including in services. In due time, some of those things will be visible. But there will always be other things that will replace those things that are invisible.

Any final reflections on your tenure? Moments that stuck out at you?

I've got the best job in the world. I think about my day and weeks and months and years — I put them in three buckets: people, strategy and execution. I sort of move between those on a daily basis as to where I put my time. I always think the most important one of those is people. If you don't get that one right, it doesn't matter what kind of energy you have in the other two — it's not enough.

[WIRED] [A Lot of People Are Saying Trump's New Data Team Is Shady](#)

Issie Lapowsky

15 August 2016

<http://www.wired.com/2016/08/trump-cambridge-analytica/>

DONALD TRUMP CONSIDERS POLITICAL data “overrated.” He said so in May, when he [told](#) the Associated Press, “Obama got the votes much more so than his data processing machine, and I think the same is true with me.”

There is some truth in that. During the primaries, cable news, print media, and social media pundits made sure everyone heard Trump's message. But with the pressure of the general election rising and Trump's poll numbers falling, his campaign is embracing political data to reach voters.

Trump's team has hired Cambridge Analytica, which claims to target voters based upon their psychological profiles. The National Review first [broke the news](#), citing an unnamed Trump campaign official, and WIRED has confirmed the development. “In something so big, we want to bring in multiple data sources,” a Trump aide says, “to make sure we have the best opportunities to find the most persuadable voters and get people out to vote.”

As with all things involving Trump, this is not without controversy. Although Cambridge Analytica worked with Senator Ted Cruz and Ben Carson during the primaries, several Republican operatives tell WIRED they question the firm's methodology, willingness to collaborate, and claims of involvement in major projects like Brexit. And the fact that Robert Mercer, a major GOP donor, is an owner of the company leaves some wondering if nepotism plays a role in any contracts the company lands.

But with few Republican vendors willing to work with the Trump campaign, some say they may have had few other options. “They're the only ones who wanted to do it,” says Scott Tranter, whose data firm Optimus worked with the Marco Rubio campaign.

Is There Any There There?

The British number-crunchers and PhDs started working with down-ballot candidates in the US two years ago, and came to prominence this year touting its “psychographic targeting.” The

approach supposedly builds on traditional ad targeting metrics like demographics (age, race, income) and behavior (voting, spending, online habits) by adding a person's psychological profile.

To generate models, Cambridge, which employs data scientists and psychologists, draws on personality surveys it has conducted by telephone, email, and social media since 2013. It uses those samples to predict the personality traits of voters—traits like, say, neuroticism. Candidates can use those findings to tailor their message to a specific audience.

Cambridge CEO Alexander Nix claims his company's data models "absolutely, indefatigably" raised Cruz's poll numbers. "Every decision of the campaign—where to spend the money, who to target, how to target them, what to speak to them about, what channels of communications to use, what messages to send—was all driven by our data," says Nix, who was among those included in WIRED's [Next List](#) of business leaders.

Those who have worked with Cambridge say the company's data minds are strong. "I think their data scientists are some of the best, most talented I've ever worked with," says Chris Wilson, who was director of research, analytics, and digital strategy for the Cruz campaign.

But not even Nix, can say for certain whether Cruz's strong primary showing was due to behavioral modeling or traditional demographic and polling data. "We didn't take one ingredient out of the cake and say, 'Which one performed better?'" he says.

Critics call the company's lofty psychological targeting claims hype at best and snake oil at worst. One operative deemed it "most egregious." Another said, "The general tone of folks who have worked with them is that there's not a lot of there there." And Sasha Issenberg [noted last year](#) that Cambridge Analytica's approach yielded a wildly different assessment of him than methods favored by the University of Cambridge Psychometrics Centre.

Nix discounts Issenberg's claim, saying, "It is not possible to assess the accuracy of a model from a single prediction."

Competitive Spite?

Detractors point to other problems. Apparently, Cambridge went on strike during the Cruz campaign and refused to share data with another vendor. That's problematic, because decisions about advertising, messaging, and other matters depend upon such information. "That's abnormal for campaigns," said a source familiar with the situation. "You're always going to have other people who do what you do, but these are tactics I've never really come across." By April, the Cruz campaign [had reportedly](#) stopped using Cambridge.

It's important to remember that politics is a ruthless sport, and for Republicans shut out of the campaign, it can be maddening to see a newcomer play so prominent a role. Nix, who worked in finance before joining Cambridge's parent company, denies that Cambridge went on strike or that the Cruz campaign stopped working with the company, pointing to a [tweet](#) by campaign manager Jeff Roe saying as much.

But he does admit that Cambridge hesitated to share info. "We're not going to give away any part of our data that can be reverse-engineered such that competitors can understand the intellectual property

behind what we do and reconstruct or in any way copy what we do.” And he attributes much of the criticism to competitiveness and the fact that people don’t grasp what Cambridge does. “I’m sure not everyone has fully familiarized themselves with the methodology,” he says. “People sometimes are afraid of what they don’t understand.”

The Brexit Story

That doesn’t explain people’s confusion over the role Cambridge played in Britain’s “Leave” campaign. Headlines like “[Will Brexit Masterminds Work for Trump?](#)” and “[Donald Trump Campaign Hires the Firm Behind ‘Brexit’](#)” suggest it was instrumental in Britons’ voting to abandon the European Union.

But Cambridge Analytica played little role, according to a source who cited conversations with well-placed operatives within the company. An agreement [announced](#) late last year collapsed under budgetary constraints, the source says. That hasn’t stopped journalists from crediting Cambridge with working on Brexit, nor has it prompted the company to set things straight. “We’ve never perpetuated anything positive or negative about our involvement,” Nix says.

Detractors call the evasiveness typical. “They’re perfectly talented at what they really do, but they take credit for things they don’t do,” says one source. “That’s why the people who do what we do for a living are really put off. That’s a weak term for what I’m trying to say, but I’m trying to be nice.”

Part of Trump’s Plan

The Trump campaign isn’t interested in what people think, the campaign aide tells WIRED. It’s interested in results. The aide says the firm played a key role in identifying donors who helped the campaign raise \$80 million in July—exceeding expectations and nearly matching Hillary Clinton’s haul. “They have shown us the value we have to pay them is worth a value to us,” the aide says.

The campaign sees other advantages. Lessons learned from the models Cambridge Analytica built for Carson and Cruz could help Trump. And Cambridge has bolstered its ranks of digital operatives, drawing from Governor Scott Walker’s campaign in particular. Still, the Trump aide says data gleaned from Cambridge is “one cog in a very large engine” fueled by information from the Republican National Committee and other vendors.

Although the Trump campaign has embraced data, it continues operating under a familiar motto. “Content is king,” the campaign aide says. “I believe the right message is as important or more important than who you give it to.” Cambridge Analytica is tasked with helping deliver that message. Whether it hits the target remains to be seen.

[\[Watchdog\] Did Google employees-turned White House appointees violate Obama’s ethics pledge?](#)

Johnny Kampis 15 August 2016

<http://watchdog.org/266198/google-obama-ethics/>

Some former Google employees-turned Obama administration officials may have violated the president’s own ethics policy in meeting with their former colleagues.

GOOGLER: Megan Smith met with former Google colleagues several times within the first year of her appointment as U.S. chief technology officer.

Four White House staffers who previously worked for Google met with their former co-workers within a year of transitioning from the company to the Obama administration.

Google Transparency Project, the work of Campaign for Transparency, [lists the staffers and number of meetings on its website](#).

Megan Smith, now the nation's chief technology officer, and Mikey Dickerson, U.S. digital service administrator, held meetings with their old running mates at Google less than a month after moving over to the White House. Smith met 10 times with Google employees, in total, while Dickerson held five meetings with his former colleagues.

Alex McGillivray, deputy chief technology officer, and Nicole Wong, former deputy chief technology officer, also each had one meeting with Google employees.

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All four worked for Google immediately before moving into government work at 1600 Pennsylvania Avenue. The timing of their meetings raises questions about a policy Obama implemented a day after taking office.

On January 21, 2009, Obama issued an executive order titled "[Ethics Commitments By Executive Branch Personnel](#)," which has a "revolving door ban" clause that says:

"I will not for a period of 2 years from the date of my appointment participate in any particular matter involving specific parties that is directly and substantially related to my former employer or former clients, including regulations and contracts."

While each executive agency appointee must sign an ethics pledge, the "Executive Order allows for a waiver when the literal application of the Pledge does not make sense or is not in the public interest," the White House website says. [The site lists the people on that list](#), but Smith, McGillivray, Dickerson and Wong are not on it.

As he entered office, Obama said he aimed to create "[the most open, efficient and accountable government in history](#)."

While White House visitor logs show that those onetime Google employees met with former colleagues, they do not reveal the substance of the conversations.

Obama's White House door has certainly proven to be open to Google. As Watchdog.org previously reported, company officials have visited the White House an average of more than once a week since Obama took office. And there are more than 250 instances of Google employees going to work for the federal government or vice versa during that span.

Campaign for Accountability, which is compiling the Google Transparency Project, said the meetings between ex-Googlers and their former colleagues "raise questions about President Obama's commitment to keep business interests from exercising undue influence on his administration."

Silicon Beat, the tech blog of the the San Jose Mercury News, [reported in July](#) that Campaign for Accountability is part of the New Venture Fund, which is heavily funded by the Bill & Melinda Gates Foundation and the Flora Hewlett Foundation. Silicon Beat also reported "there's nothing to suggest

either the Gates or Hewlett foundations had any knowledge that their beneficiary was attacking Google.”

The White House media affairs office didn’t return Watchdog.org’s call seeking comment on the meetings between ex-Google employees and their former colleagues.

This isn’t the first time the Google-White House connection has been ethically questioned.

[Andrew McLaughlin](#), deputy chief technology officer at the White House Office of Technology and Science Policy from July 2009 to January 2011, [was reprimanded in 2010 for using his Gmail account](#) for professional email exchanges and for violating restrictions on emailing his former colleagues at Google.

MCLAUGHLIN: The former Google and White House employee got reprimanded for using person email for government business.

McLaughlin had conversations with Alan Davidson, Google’s director of U.S. public policy, on how Google should best respond to negative press.

[Rep. Darrell Issa, R-Calif., pressed McLaughlin on the issue then](#), saying the former Googler’s account on the social network Buzz indicated he remained in contact with “more than two dozen individuals currently employed by Google, Inc., including a number of senior lobbyists and lawyers.”

In a letter to McLaughlin, Issa said the use of the personal email account for official White House business showed a lack of transparency.

“The American people have a right to expect that White House employees are working to advance the public interest and not the interests of the lobby shops who formerly employed them,” Issa wrote. “The use of a Gmail account to communicate with lobbyists and evade transparency laws is at odds with President Obama’s promises to limit the influence of lobbyists.”

Consumer advocate [John M. Simpson](#) obtained about 120 McLaughlin emails through a Freedom of Information Act request in 2010, but those records showed that McLaughlin mostly ignored emails from his former colleagues or asked to be excluded from the conversations.

Simpson said the White House meeting data appears to “show flat-out violations of the ethics policy.”

“Given Google’s close relationship with the Obama administration it’s not surprising at all, unfortunately, and somebody needs to call them out on it,” Simpson told Watchdog.org. “The White House owes the public an explanation.”

[\[Venture Beat\] Silicon Valley has China backwards](#)

Hagai Tal

14 August 2016

<http://venturebeat.com/2016/08/14/silicon-valley-has-china-backwards/>

We live in a global economy, but the way we understand our world is still colored by national bias. Case in point: In Silicon Valley, people ask when China, the world’s largest consumer market, will open up fully to embrace tech giants like Apple, Google, and Facebook. But those inside China’s tech industry are focused on a different question: How can Chinese tech companies crack Western markets?

Over the past few years, [Chinese firms have been on a spending spree](#), investing in, or buying, firms across all economic sectors. Technology companies are now the [third most likely target for Chinese investors](#). But the press in Silicon Valley tends to view those deals in terms of acquisitions designed to bring Western technology to Chinese markets.

When a Chinese firm took a stake in Grindr, for example, the [press focused on the potential market for dating apps aimed at China's gay community](#). What gets less attention is Silicon Valley's growing interest in replicating successful Chinese products, [despite the challenges that strategy presents](#). Clearly, there's a disconnect in the way Silicon Valley sees China's technology industry. But the view looks very different from Israel, which has had a front row seat for Chinese expansion since the 1990s.

China is Israel's third largest trading partner, and the total [economic activity between the two countries reached \\$11 billion last year](#) (that's a significant figure for Israel, which has a GDP approaching \$300 billion). In the past, China bought our technology because it lacked domestic development capacity. Not anymore. Today, China is developing its own technology and [working hard to export that tech](#).

The current gap is in business and culture, not tech

Writing about a recent visit to China, a tech journalist remarked that it [might be time to stop looking for the WeChat of the West](#). Like anyone who has spent a lot of time in China, I had to nod in agreement. On my own trips to China, I've used WeChat to authenticate my identity at public WiFi spots, pay for food, hail a taxi, book domestic travel, schedule meetings, and, yes, chat with friends and colleagues. The technology behind WeChat is good, but the real breakthrough is that, from a market standpoint, the app already does what dozens of Western firms are still *trying* to accomplish — bundle an array of consumer services into a single app and scale that app to win market share.

When I travel to Silicon Valley — where the [mobile payment wars are just beginning](#) — people ask why firms like Facebook and Google haven't brought a successful alternative to the market. But isn't it better to ask why Tencent, which owns WeChat, hasn't brought its solution to the U.S.?

The answer, to be frank, is that WeChat doesn't have the business and marketing expertise it needs to compete with the likes of Google and Facebook in Western markets (one could say the same about the ability of those tech giants to compete in the Chinese market). There is a cultural barrier, one that can't be overcome solely through technology, because cracking culture is about working with people who have unique local knowledge. The technology that makes mobile payments work is universal, but convincing an American that her phone is her new wallet is a totally different proposition to making that same case to a Chinese citizen.

How to bridge the gap

Increasingly, the Chinese business community looks to Israel as a bridge to Western markets. Both nations have seen dramatic development in the past few decades, and as a result, we have a lot in common. Equally important, Israel's tech industry, which was [built on the foundation of public sector defense programs](#), provides a useful model for Chinese firms navigating the often-complex relationship between state intervention and the free market. Put simply, we speak the same language, but compared to China, we have a longer, arguably more successful, history of doing business in the U.S. Not surprisingly, Israel is seen as the third part of a [global technology triangle](#) along with the U.S. and China.

Our Chinese partners often tell us they admire the Israeli can-do attitude. Of course, Chinese firms can hire Israelis with that attitude, and many Chinese firms are doing just that. But acquisitions are often a faster and more effective way to bridge the cultural gap because the buyer gets a proven business unit and the local expertise that comes with it. Not surprisingly, the Chinese who come to Israel these days aren't asking only about our engineers and developers; they want to know about our sales and marketing teams and how we do business in both Europe and the U.S. After all, trade between Israel and China is \$11 billion, but that's only a fraction of the [\\$45 billion we trade annually with America](#). Given our small local market, Israeli entrepreneurs have always had to think in terms of exporting to global markets; today, we're actively sharing that expertise with Chinese partners.

Chinese investors are seeking growth in Israel

One predictable byproduct of China's emergence as a technology leader is the fact that a boom often brings the [challenge of overvaluation](#). The fundamentals of the Chinese technology industry remain strong, but overvaluation underscores the need for Chinese firms to seek growth opportunities abroad, [especially in Israel](#). After all, Israel has an [incredibly high percentage of unicorns](#) for such a small nation, and it's worth noting that [Israelis have also had success creating billion-dollar startups in Silicon Valley](#), which only furthers the Chinese perception of Israel as a bridge to other Western markets.

Over the next few years, Chinese investors will find the growth they crave in Israel, but over the long run that investment will displace the idea that all technology revolves around Silicon Valley. When that happens, the world will see the Chinese technology industry for what it really is: a competitor and collaborator that participates on equal terms, while bringing unique attributes to the global innovation conversation.

[Tech Crunch] [China is disrupting global fintech](#)

Joshau Bateman

15 August 2016

<https://techcrunch.com/2016/08/14/china-is-disrupting-global-fintech/>

In China, the abacus was mentioned by the Eastern Han Dynasty (25-220 A.D.). During the Song Dynasty (960-1279), the Chinese were the first to use [paper money](#).

In late 2013, many Chinese raved about Yú'é Bǎo, [余额宝](#) ("leftover treasure"), a money market fund offering roughly double the interest rates banks did. Launched by [Alipay](#), an Alibaba subsidiary, the fund attracted 150 million clients and \$93 billion within 18 months, a phenomenal feat.

A confluence of factors puts China at the financial technology ("fintech") forefront: economic advancement, investor behavior, mobile technology, big data, financial industry liberalization, and regulatory acquiescence.

Chinese consumers have readily adopted fintech services such as online banking, currencies, money transfers, payments, crowdfunding, lending, investing, and insurance.

At the 2016 Fund Forum Asia conference in Hong Kong, industry experts discussed the impact of fintech in China.

Jonathan Ha, CEO of Shanghai-based research firm [Red Pulse](#), spoke about the next frontier in Chinese finance: “It’s no longer the banks. I think the future depends on the disruption of those banks and mobile banking is one option for disrupting them.”

Porter Erisman, former Alibaba Vice President and author of “[Alibaba’s World](#),” lived in China in the 2000s when paying rent required waiting 45 minutes in a bank. He said, “By definition, any company that has 20 seats in a waiting room is not servicing its customers.” Today, he asked, “Why even go to the bank? Especially when you can use your cell phone to transfer money.”

A unique variable spurring demand for services such as remittance transfers is China’s rural migrant workers, numbering [277 million people](#) according to the National Bureau of Statistics.

And China’s fledgling financial markets lack legacy preferences that are evident in many developed markets. In the West, for example, consumers and investors veer toward well-known, traditional brick-and-mortar institutions that have higher assumed levels of safety and expertise than online companies.

This mentality is not ingrained in China, where first-generation savers and investors have no qualms entrusting online retailers, search engines, travel agencies, social media networks, smartphone providers, and start-ups for financial services.

In developed markets, many financial products including mutual funds, mortgages, and insurance plans involve intermediate marketing steps and fees. The Chinese happily skirt these steps. Erisman said, “Especially in China, people will do anything to get around the middleman.”

Additionally, traditional financial services are geared toward the wealthy. Technology, however, enables scaling, making it economically feasible to address the masses, particularly China’s vast geographically-remote markets.

According to Barry Freeman, co-founder of Beijing-based fintech company [PINTEC](#), mobile is now “the entry point for client acquisition strategies.” PINTEC’s wholly owned subsidiaries include Dumiao, Xuanji, Yidian Fund, and Jimubox.

China has almost [1.3 billion mobile phone users](#), many on 3 or 4G networks. According to reports, by 2020, the government plans to invest more than \$320 billion in broadband internet infrastructure, benefiting rural areas that lack established banking networks.

Freeman recognizes the value in strong financial brands, but said, “We believe the market will be won by internet businesses or businesses with internet DNA.” Especially with the bǎilínghòu and jiǔlínghòu, ’80s and ’90s generations, “The market is quite difficult to attack from offline to online,” he remarked.

Online users expect different cultural, branding, marketing, functionality, cost, customization, engagement, and service experiences. Freeman said, “It’s very difficult to customize traffic-based selling. It’s fraught with challenges”

Beyond automated transaction services, companies like PINTEC provide more advanced investment management services, dubbed roboadvisory, digital wealth, or digital advisory services. Although in the early stages, they aim to incorporate big data and artificial intelligence to provide appropriate, affordable solutions.

These accounts often blend investment recommendations from the roboadvisor with some client decision-making, which is especially well-suited for Chinese investors who value lower fees and being involved in the process. Jeroen Buwalda, Partner at [EY](#), said, “Asian entrepreneurs have faith in themselves, not fund managers.”

Chinese clients also desire to invest over the next hour or minute, not next week after meeting with a financial advisor. In conjunction with China’s economic growth, demand for financial services is increasing.

When addressing the market, one advantage online companies have is access to voluminous client and prospect data, which traditional financial services companies lack. Alibaba, for example, has more than [420 million customers](#) who have provided the company with behavioural data for years.

Erisman spoke about using data and said Alibaba’s leadership thought, “Alipay could become much bigger than just online payment. We always thought Alipay could actually grow to become a huge financial institution.” It has. Spun off from Alibaba, Alipay now falls under Ant Financial, a full service financial services enterprise, which analysts have valued at approximately [\\$60 billion](#).

Following this success, other online companies, start-ups, and traditional financial services companies are contemplating how to enter this mushrooming sector.

At the conference, Simon Hopkins, CEO of [Milltrust International](#) said, “In terms of the evolution of fintech, we’ll see lots of new businesses run by technologists coming into this space before we see the investment management world really understanding the way the world is changing.”

Although tech companies are leading the initiative, traditional Chinese financial companies are developing fintech solutions in-house or are acquiring them, enabling them to reach new clients, improve service, and increase internal efficiency. This quarter, *Reuters* [reported](#) that Chinese regulators are easing restrictions that currently hamper commercial banks’ investment into technology enterprises.

For Hong Kong-based [Harvest Global Investments](#), for example, fintech can improve client communication and eliminate fees associated with marketing products through traditional bank channels. Jeff Lim, Executive Director, said, “Roboadvisors, the online platforms and such, those are essentially new ways to reach out to your end investors or customers...That gives us a way to reach our clients directly.”

Sometimes, clients won’t realize new technology was implemented. Fintech eliminates non-client-facing, middle- and back-office jobs in risk management, compliance oversight, report generation, trading execution, transaction settlements, and other operational functions.

Buwalda was more bullish on the adopters, such as banks and asset managers, than the technology providers. “I think the money is going to be made not by the robot technology solutions companies, but by the people who employ them,” he said.

According to Buwalda, one roboadvisory support staff can service more than 10K clients. And robots can cost one-tenth as much as some full-time employees while working break-free, 24/7. “In five years time,” he believes, “it will already look quite different than it is today.”

He also spoke about value from blockchain. Blockchain is an open, distributed database or ledger that reduces the need for third-party intermediaries, decreasing transaction costs and execution times.

Going forward, declining technology costs and China's inexpensive labor market will ensure it remains a fintech axis.

Regulations are also supporting the industry. Appropriately regulating financial services is challenging. If policies are too lax, investor risk increases. Too stringent, innovation is stifled.

Unlike developed markets where regulations were instituted prior to technologies being invented, Chinese regulators are relatively young and are evolving with fintech. They do not need to re-write existing regulations, an arduous task.

Going forward, declining technology costs and China's inexpensive labor market will ensure it remains a fintech axis.

In an [EY report](#), Douglas Arner and János Barberis wrote, "China is formalizing this harmonious relationship between banks and fintech players by creating a tiered regulatory regime...China is increasingly at the forefront of regulatory developments within fintech, signaling a dramatic change in the origin of where regulatory standards may emerge from."

Although regulatory scrutiny is increasing, Chinese officials have thus far been more liberal than other markets.

Yú'é Bǎo, for example, was bottom-up driven with Alipay addressing a market need and subsequently managing regulatory concerns. Erisman said, "Our view was always, run ahead, do it, prove to the government that it will in the long run benefit the Chinese economy, and then ask for forgiveness later."

In contrast, on a "60 Minutes" segment, Lesley Stahl spoke of issues fintech in the U.S. faces. She said, "While it's still a small slice of the financial industry, the powerful and rich old guard is fighting back. Its lobby already pushing for more regulation to curb the newcomers."

Erisman did acknowledge that China's fintech regulations could tighten: "The only limit to it is how much the government will allow. Ultimately, [fintech] could destabilize the banks in China if it happened too quickly."

Although more stringent regulations could temper growth, the trend is toward greater fintech adoption in China, driven by technology companies.

At many traditional institutions, inertia dominates, slowing adoption. In a room of approximately 350 investment management professionals, one conference speaker asked, "Who has traded via roboadvisory?"

Four people raised their hands.

Erisman stressed urgency for traditional companies to embrace fintech: "This is something that can't really wait. Because very soon it will move online with these e-commerce companies."

TT Clips August 16, 2016

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Broadband/Broadband Access

[Washington Post] ‘Wireless fiber’ could give us gigabit Internet speeds with no cables at all

Brian Fung 15 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/15/the-next-generation-internet-technology-that-could-supercharge-your-home-a-cold-calculating-look-at-the-reality-of-wireless-fiber/>

So, you're on the hunt for a new home-Internet provider. The one you like seems to offer fast, reliable service, but its footprint ends just short of where you happen to live — and there aren't many other options in your area. Too bad: Looks like you'll be sticking with slow speeds and lackluster customer support while your luckiest neighbors get to surf without interruption.

For many Americans, this isn't hypothetical. It's reality. In Tennessee, for example, one city-run provider has spent years fighting to reach people who are literally [a tenth-of-a-mile](#) off its network. The reason for delay is somewhat bureaucratic — the answer involves state laws — but the point is that for those would-be customers, a better Internet connection has remained [tantalizingly out of reach](#).

Until now, there weren't many ways around this problem. But thanks to a technology some Internet service providers (ISPs) expect to roll out next year, Americans dreaming of better, faster broadband may actually be able to get it.

To understand how, let's start with key concepts about how Internet service works. Most residential broadband today runs over cables that are laid in the ground or strung on telephone poles, that then branch off and tunnel directly into your house. Laying these cables is costly, which is why many Internet providers expand slowly — or not at all, if they're worried the returns can't justify the outlays.

Cellular Internet is a little different. Cell towers are expensive, too, but they create a one-to-many connection that serves thousands of mobile devices wirelessly — rather than creating a dedicated pipe to a single, fixed destination such as a home or business. The speeds aren't quite as fast on mobile data as what you get with fixed broadband, but for basic Web browsing and video, it's good enough.

Now, imagine if you could take the convenience of cellular data and combine it with the superfast download speeds associated with fixed, wired broadband. What might that look like?

Internet providers such as Verizon and AT&T are beginning to experiment with precisely this idea. Telecom geeks call it "wireless fiber," because it provides a fixed location (again, such as a home or business) with all the capacity of a Google Fiber or Verizon Fios connection but without the need to plug a cable directly into the building.

The result may be a much cheaper way for Internet providers to extend their networks. Much like slapping a range extender or WiFi router on your home network, carriers will effectively use wireless fiber as a way to push the boundaries of their service footprints, serving more people at the edges of their territory and densifying their existing coverage areas.

For people who live at the borders of an ISP's service area but not within it, this might mean gaining access to another choice of Internet provider. Still, don't expect to buy one of these Internet plans anytime soon: Despite the marketing, analysts say a truly widespread commercial product is about five years off.

"You've got to start working this stuff and planning this stuff," said Harold Feld, a senior vice president at the consumer group Public Knowledge, "and it takes a while for the industry to adopt standards. But once they've got them in place, things roll out pretty quickly."

Austin may be one of the first markets to get a taste of this technology. AT&T expects to conduct field tests there later this year; it promises ultimately to provide multi-gigabit speeds that represent an orders-of-magnitude improvement over today's typical home Internet services. It's also planning outdoor trials in Middletown, N.J. The company has said users of wireless fiber can expect speeds that are 50 to 100 times greater than what mobile users currently get on 4G LTE.

Google also appears to be getting on board. The company has [asked the government](#) for permission to experiment with high-frequency airwaves as part of its Google Fiber project — potentially paving the way for Google to offer fast wireless broadband.

Verizon plans to conduct its own tests, too, in and around its facilities in South Plainfield, N.J., Framingham, Mass., and Euless, Tex. It's even going so far as to rent out entire apartments and filling them with HD televisions and other electronics, the better to simulate performance in an actual household.

"If you're going to kick the tires on a technological revolution, you want to put it into a real-world scenario as fast as you can," said Adam Koeppe, Verizon's vice president of network technology planning.

While Koeppe declined to say whether the economics of wireless fiber would let Verizon keep growing its Fios network — the company said in 2010 that it would stop building more of it — he did say consumers should expect Verizon to provide the technology in areas outside its existing Fios footprint.

In February, Verizon announced it had [purchased the fiber optic assets](#) of XO Communications for \$1.8 billion, opening the door for Verizon to expand into dozens of new markets. The deal also gives Verizon access to some wireless airwaves in those markets that it plans to use for wireless fiber testing.

"We're in the process of going through those spectrum holdings and identifying the markets that best fit that profile for the available spectrum and customer base," said Koeppe.

Internet providers are looking to deploy new, faster solutions for wireless Internet access as more Americans choose to compute on mobile devices rather than from stationary PCs that remain tied to a desk. That's one reason many analysts widely expect Comcast to start offering cellular-style Internet service for smartphones someday, and why cellular carriers are increasingly turning to WiFi as a safety valve to ease the pressure on their highly trafficked proprietary networks.

What this amounts to is a convergence among Internet providers, where wireless companies are becoming much more like fixed broadband operators and vice versa. And that potentially means a bit more competition in Internet access, perhaps resulting in lower prices or better service.

"It's intriguing that these industries were almost separate realms just a few years ago, the mobile industry and then the home-Internet business," said Michael Calabrese, director of the Wireless Future Project at the New America Foundation's Open Technology Institute. "Now, both sets of companies can cross over."

[\[UT Daily Beacon\] Internet Access possible determinant of voter turnout](#)

Ravi Patel

15 August 2016

http://www.utdailybeacon.com/news/internet-access-possible-determinant-of-voter-turnout/article_13c9fb6c-6324-11e6-ba3e-db1a4ca45a18.html

Voter turnout may be affected by a group's internet access, according to a new research project.

Using data from the Bipartisan Policy Center and World Internet Stats, [Highspeedinternet.com](#) has developed a map correlating the percentage of internet users in each state and their voter participation

rate from the 2012 presidential cycle. The HSI map suggests that states with a high percentage of internet users tend to have a high voter participation record.

“We were looking at the digital divide and how it affects poorer areas,” Jack Frey, who worked on the project, said.

The digital divide is the social and economic inequality associated with those that have readily available access to computers and the internet and those that do not. A report published by the Council of Economic Advisers shows a strong positive correlation between median income and internet use.

National voter turnout is still low, and according to the Bipartisan Policy Center only 57.5% of the eligible population casted a ballot in 2012. Broadband access has been shown to be correlated with educational opportunities and helps low-income Americans thrive in a technology-fueled economy.

“Internet access is associated with income, education and other indicators of socioeconomic status,” which is a main factor when predicting who will show up at the polls Nathan Kelly, an associate professor in the Department of Political Science, said.

President Obama launched the ConnectED initiative in 2013 aiming to provide 99% of American students with access to broadband. While the majority of the United States is connected to the internet, less than 40% of schools have the broadband access required to effectively teach using technology.

“It’s interesting that in the South, there are low voter internet user and low voter turnout while in the North, there is a lot of voter internet users and high voter turnout,” Frey said.

Tennessee is currently ranked as #46 in voter participation and #39 in internet users. According to the HSI map, this low rank in internet users is similar to several other states with poor voter turnout rates such as West Virginia (50, 51) and Texas (48, 44). While the number of internet users does not fully determine voter turnout, it can be valuable as a demographic tool to further analyze voting patterns similar to socioeconomic level and unemployment rate.

Five of the worst ranking states for internet access also had the highest unemployment rates in the country according to the Bureau Labor of Statistics. Many of these states (including Tennessee) also scored in the top ten for poverty rate. It is undeniable that internet access brings limitless opportunities and access to virtually all of the knowledge known.

Though it’s true that primarily rural areas are affected by the lack of connectivity, states such as Maine and New Hampshire have shown that it is possible to still connect these populations despite the geographical divide. Tennessee and many other states in the rural South contain counties with some of the lowest internet adoption rates in the country.

“The important thing is to mobilize local officials, because that will get the local community involved,” Frey said.

Privacy Shield

[Computer Weekly] Slow response to Privacy Shield EU-US data transfer programme
<http://www.computerweekly.com/news/450302513/Slow-response-to-Privacy-Shield-EU-US-data-transfer-programme>

<http://www.computerweekly.com/news/450302513/Slow-response-to-Privacy-Shield-EU-US-data-transfer-programme>

In the two weeks since the EU-US [Privacy Shield](#) data transfer certification process officially opened, applications by US companies has been slow.

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Only 40 US companies have been certified since the US Department of Commerce began accepting applications on 1 August 2016, according to the agency.

The agency said that around 200 applications are currently being processed, but that is well below the [4,000 companies](#) certified under the former [Safe Harbour agreement](#) for transatlantic data transfers, according to the *Wall Street Journal* (WSJ).

The European Commission adopted the framework for certifying US companies as being compliant with EU data protection regulations to enable data transfer between the EU and the US.

Privacy Shield was developed in consultation with the US to replace Safe Harbour after it was declared invalid by the [Court of Justice of the European Union](#) (CJEU).

Despite the framework's adoption by the European Commission, many companies looked to the [Article 29 Working Party](#) (WP29) of European privacy regulators for assurance.

Although the WP29 approved the framework in late July, providing some comfort, the regulators indicated that concerns remain about the commercial aspects and the access by US public authorities to data transferred from the EU.

"The first joint annual review will therefore be a key moment for the robustness and efficiency of the Privacy Shield mechanism to be further assessed," the regulators said.

"When participating in the review, the national representatives of the WP29 will not only assess if the remaining issues have been solved, but also if the safeguards provided under the EU-US Privacy Shield are workable and effective."

This means that while the regulators will let the process run for the next year, the first review of the framework may bring changes.

Slow uptake of Privacy Shield

Uncertainty about how the framework may change, as well as concerns that Privacy Shield may yet be challenged by privacy advocates in the same way that the Safe Harbour agreement was challenged, has resulted in relatively few companies rushing to apply for certification.

However, privacy experts expect applications for Privacy Shield certification to [grow steadily in the coming months](#), according to the WSJ, especially if European companies begin to favour Privacy Shield certified companies in competitive bids.

Another reason there has been no rush to apply for certification is that many US companies waited for Privacy Shield to be adopted and approved before starting work on changing their data handling processes to comply with the new framework.

As this work is completed, more US companies will be in a position to apply and join the early adopters, which include Microsoft, Workday and Salesforce.com.

Microsoft applied for Privacy Shield certification on 1 August 2016, according to the WSJ, but is also using [standard contractual clauses](#) (SCCs) to strengthen Microsoft's competitive position.

Most US companies have relied on SCCs and [binding corporate rules](#) (BCRs) to carry them through the post-Safe Harbour period.

However, SCCs and BCRs – like Privacy Shield – could potentially face legal challenges by privacy campaigners.

In approving Privacy Shield, the WP29 also warned that the results of the first joint review regarding access by US public authorities to data transferred under Privacy Shield may also affect SCCs and BCRs.

Eduardo Ustaran, partner and European head of privacy and cyber security at law firm [Hogan Lovells](#), said the WP29 statement means businesses will have to take a view on whether Privacy Shield is robust enough, knowing there is not 100% certainty.

“However, taking everything into account, a degree of consensus is likely to build up in favour of Privacy Shield as a valid mechanism for transfers of data to the US,” Ustaran told Computer Weekly.

All in all, the uncertainty about the long-term acceptance of Privacy Shield is set to be prolonged, he said. “But on a positive note, the EU regulators appear willing to work with all the parties involved to make it work,” he added.

ICANN

[\[The Detroit News\] Editorial: Keep the internet under U.S. control](#)

15 August 2016

<http://www.detroitnews.com/story/opinion/editorials/2016/08/15/editorial-keep-internet-us-control/88814492/>

The Obama administration seems determined to undermine one of the United States' most critical assets and responsibilities — the internet — before the president leaves the White House. But the ramifications of that on free speech globally would be enormous.

Since the 1990s, the U.S. has controlled top-level domain naming and root zone filing — whether an organization is designated .com, .gov, .uk, etc. — through the National Telecommunications Information

Administration, an arm of the U.S. Commerce Department. It has maintained a contract with a private California nonprofit, the Internet Corporation for Assigned Names and Numbers (ICANN), to do so.

Though other countries are involved in the governance, the U.S. has always had the ultimate say over changes at the most basic levels of internet functionality. This has kept the internet largely open and free from censorship by authoritative regimes.

Now countries like Russia and China could control ICANN, if Congress doesn't step in. At the end of September, the federal government is set to allow the ICANN contract to expire, and turn instead to a global, multi-nation governing structure, including some countries that don't care very much for free speech or the free flow of ideas.

The plans proposed thus far for how this new governing structure will work offer few assurances for free speech, much less consistency with how the internet functions.

Russia, China and other bad actors would receive greater influence, gaining for the first time the power to vote on changes to bylaws, removing members from the board, and other critical governance questions.

The new version of ICANN would be a board with little influence over the behavior of its member nations. Russia has already signaled it wants a role "more meaningful than just advisory," once the U.S. surrenders control.

Private companies such as Disney, NBC Universal and 21st Century Fox have expressed concerns over the new plan for internet dominance, and noted in a letter to Congress that "significant questions remain regarding" the new organization's readiness to take over.

Feeble leadership by the United States will threaten intellectual property and domain name piracy and embolden criminal organizations or even terrorist groups to manipulate the internet.

For two years, Congress has blocked the administration's attempt to unilaterally make this transition. It's forbidden for taxpayer dollars to be used for disbanding the old structure and creating a new one.

The House will try to do so again this month. Several members of Congress also have introduced legislation to require explicit congressional approval before the administration can change control of the authority.

Congress must stay vigilant in blocking this ill-conceived effort by the Obama administration. The current system has kept the internet free, and that's the way it should remain.

[\[Daily Signal\] Coalition Urges Congress to Sue Obama Before He Gives Away Control of Internet](#)

Philip Wegmann

15 August 2016

<http://dailysignal.com/2016/08/15/coalition-urges-congress-to-sue-obama-before-he-gives-away-control-of-internet/>

Arguing that internet freedom and the constitutional power of the purse are at risk, a coalition of more than two dozen civil society groups and activists are calling on Congress to lawyer up and sue the Obama administration.

The Commerce Department has violated federal law, the [coalition of groups](#) argued in an Aug. 10 letter to lawmakers, by finalizing plans to relinquish U.S. control of the Internet Assigned Numbers Authority.

Though led by digital specific interest group TechFreedom, the coalition includes a number of different organizations like Heritage Action for America and Americans for Tax Reform. And they all argue that more than just internet regulation is at issue.

In policy riders attached to two separate spending bills, Congress prohibited the executive branch from using taxpayer funding to surrender control of the internet. By using government resources to prepare to hand off control this September, the coalition argues that the administration violated the spending directive and federal law. Now they want Congress to sue.

“We agree that internet governance should work from the bottom up, driven by the global community of private sector, civil society, and technical stakeholders,” the coalition wrote. “Without robust safeguards though, internet governance could fall under the sway of governments hostile to freedoms protected by the First Amendment.”

A California nonprofit is invested with what’s called Internet Assigned Numbers Authority, IANA, allowing it to curate a registry of the world’s websites.

That body, the Internet Corporation for Assigned Names and Numbers, or ICANN, has operated under direct supervision of the National Telecommunications and Information Administration since 1998.

But the Obama administration announced two years ago that it intended to transfer that stewardship to a “global multi-stakeholder community.” Though Congress has acted twice to stop that effort, the administration moved forward with the transition plan.

U.S. supervision of ICANN and IANA is set to expire Sept. 30 and government officials argue that Congress only prohibited them from completing the transaction before that deadline.

After consulting “informally with both the House and the Senate” last year, a National Telecommunications and Information Administration administrator, Lawrence Strickling, concluded that Congress had not intended to leave the agency “like our hands are tied.”

“That’s not how our system works,” The Heritage Foundation’s Brett Schaefer, who also signed the Aug. 10 letter, told The Daily Signal. “Because there are check and balances, Congress has exercised a check by adopting that appropriations rider and the president signed it into law.”

Now Schaefer accuses “the administration of trying to circumvent the law” by moving forward with the transition.

Republicans have made similar arguments before. The party’s 2016 platform accuses President Barack Obama of “throwing the internet to the wolves” by sanctioning the transition. And several Republican senators and representatives publicly oppose it.

Rep. Bob Goodlatte of Virginia and Sen. Chuck Grassley of Iowa, who chair the House and Senate Judiciary committees, respectively, came out in opposition to the transfer this June, citing unanswered legal, constitutional, and human rights questions.

“The U.S. has served as a critical and responsible backstop against censorship and threats to openness and free speech on the internet. As a result, the internet has thrived,” Goodlatte told The Daily Signal.

“The future of the internet as a medium for free speech, the flow of ideas, and global commerce is at stake, and must be protected.”

But under the Obama administration’s plan, Goodlatte said he’s “extremely concerned” about the future of the World Wide Web.

To halt the transition, the TechFreedom-led coalition urged congressional leaders to file suit against the White House like Republicans did in 2014 while challenging provisions of Obamacare.

“Suing to enforce the appropriations riders and extending it through [fiscal year] 2017 are amply justified by the extraordinary importance of the constitutional principle at stake,” the coalition letter said.

Berin Szóka, president of TechFreedom, argued that that inaction could do irreparable harm to Congress and the Constitution.

“If they don’t stand up for themselves here, they will regret it in the future,” Szóka told The Daily Signal. “Future congresses will find that the power of the purse has been diminished and there’s one fewer restraint upon the power of the imperial presidency.”

Encryption

[Forbes] French official begins anti-encryption campaign

BI Intelligence 15 August 2016

<http://www.businessinsider.com/french-official-begins-anti-encryption-campaign-2016-8>

A French official plans to begin mobilizing a global effort — starting with Germany — against tech companies encrypting their messaging apps, [according](#) to Reuters.

Messaging apps, such as Telegram and WhatsApp, that promote end-to-end encryption, are used by terrorists to organize attacks in Europe, the minister said. Although individual governments have previously explored seeking mandatory backdoors from tech companies, this is the first attempt to unify the case across countries. If successful, it could make it more difficult for these companies to resist the requests.

The debate over the use of end-to-end encryption in chat apps recently made headlines after it was revealed that terrorists might have used secure chat apps to coordinate a slew of attacks in France. Law-enforcement officials argue that the highly secure tech impedes their ability to carry out investigations relating to crimes that use the chat apps.

Tech companies argue that providing backdoor access to their apps, even to governments, creates a potential vulnerability that can be targeted by malicious players seeking access to users’ personal data. To add weight to this argument, it was revealed last week that a “golden key” built by Microsoft for developers was accidentally leaked. And while the company has sent out patches for a majority of its devices, it’s unlikely to reach those potentially affected.

[BI Intelligence](#), Business Insider's premium research service, has compiled [a detailed report on messaging apps](#) that takes a close look at the size of the messaging app market, how these apps are changing, and the types of opportunities for monetization that have emerged from the growing audience that uses messaging services daily.

[Gizmodo] Researchers Find Another Flaw in Apple's iMessage Encryption

William Turton 15 August 2016

<http://gizmodo.com/researchers-find-another-flaw-in-apples-imessage-encryp-1785290727>

Cryptography researchers at John Hopkins University have [found](#) another flaw in the encryption used by Apple's iMessage. The good news? The flaw has already been patched; you just need to update iOS.

Apple has been criticized before by the computer security community for not making the details of how it encrypts messages open source. While iMessage does encrypt messages, pictures, and videos end-to-end by default, Apple's critics have said that because the code isn't open and easily reviewable, security bugs may go unnoticed. The John Hopkins researchers even went as far as to say that Apple should replace its encryption methodology.

Apple differs in a big way from the tech world here. Google and Facebook recently adopted the open source Signal encryption protocol—widely viewed as the gold standard for encrypted messaging—for some of their messaging products. By contrast, Apple cooks up its own method of encrypting messages that is kept largely secret.

The bug discovered by the researchers allowed a sophisticated attacker, say a nation state like the United States or China, to decrypt stored iMessage data. The attack wouldn't be able to be executed by a 15 year-old in mom's basement; rather, it would require advanced hacking skills that would probably involve breaching Apple's servers or stealing authentication certificates. But once executed, the "chipertext attack" would be able to fully decrypt some older iMessages. This is particularly relevant as iMessage backs up to Apple's iCloud.

Attacks from nation state hackers are going to become more and more prevalent. Previously, normal folks like you and me didn't need to worry much. What would Russia or China want from me? But as we've seen in the leak of Democratic National Committee emails, private Americans can have their information released by nation state hackers. Sure, Russian hackers probably breached the DNC using unsophisticated methods like phishing, but more than ever, normal people are being targeted by high-profile hacks.

From the paper:

Despite its broad deployment, the encryption protocols used by iMessage have never been subjected to rigorous cryptanalysis. In this paper, we conduct a thorough analysis of iMessage to determine the security of the protocol against a variety of attacks. Our analysis shows that iMessage has significant vulnerabilities that can be exploited by a sophisticated attacker.

The best way for you to protect yourself is by regularly updating your software so that you can get the latest and most relevant security updates. Apple, for instance, patched this bug before it was even widely known. This isn't just true on iOS, but on all software that you use.

[Reason] DNC Hacks and Leaky Government Make Encryption Restrictions Look More Foolish Than Ever

JD Tuccille

16 August 2016

<http://reason.com/archives/2016/08/16/dnc-hacks-and-leaky-government-make-encr>

How telling is it that in the summer of the hacker, when politicians have been repeatedly (and entertainingly!) humiliated by unauthorized access to information, FBI Director James Comey is still wagging his finger at the American public, chastising us for our insistence on protecting privacy by encrypting our gadgets and communications.

"In the first 10 months of this fiscal year, our examiners received 5,000 or so devices from state and local law enforcement asking for our help, with a search warrant, to open those devices. About 650 of them we could not open. We did not have the technology. We can't open them. They are a brick to us," he [told the American Bar Association](#) annual meeting.

Well, yes. That's the whole idea of encrypting things, as well as of locking doors, and hiding valuables—so that strangers can't get to them without our permission.

This should be an obvious point to Comey, who recently excoriated former Secretary of State Hillary Clinton for her sloppy handling of classified emails. In a now-famous July [press conference](#), Comey stopped short of recommending the current presidential candidate's prosecution, but took her and her staff to task for being "extremely careless in their handling of very sensitive, highly classified information." He went on to admit "hostile actors gained access to the private commercial e-mail accounts of people with whom Secretary Clinton was in regular contact" and that "it is possible that hostile actors gained access to Secretary Clinton's personal e-mail account."

How could that be? In part, because "for the first 3 months of Secretary Clinton's term, access to the [email] server was not encrypted or authenticated with a digital certificate," [according](#) to cybersecurity firm Venafi. During that time she [traveled to countries](#) including China, Egypt, Indonesia, Israel, Japan and South Korea where her messages were relayed through networks controlled by foreign officials. Even after that time, only server access was encrypted—not the email itself.

Since then, of course, the Democratic National Committee also found itself on the receiving end of hackers' curiosity—with the results released for public edification. The Democratic presidential nomination convention, expected to be a somnolent coronation, was much enlivened by the release of a [treasure trove](#) of communications revealing the allegedly impartial party apparatus [colluding with the Clinton campaign](#) (and [friendly journalists](#)) to defeat rival Bernie Sanders.

It's all very amusing for the public at large, but it's also a fiasco that could have been prevented had the DNC implemented basic security measures.

"Encrypt everything! I'm here to preach the gospel of encryption," [commented](#) Jamie Winterton, director of strategy for Arizona State University's Global Security Initiative. "While of course I'm not standing up for unethical, immoral or illegal activities being hidden by encryption, the DNC could have avoided it by encrypting their files and communications."

But they didn't. And now the FBI—headed by Comey—is investigating the incident.

And today roughly 200 members of Congress are screeching over the [unauthorized release](#) of their email addresses and phone numbers which, *shudder*, might allow constituents to actually contact them. This comes as the result of a hack of the Democratic Congressional Campaign Committee which is *also* [being investigated by the FBI](#).

Y'know, a different FBI might recommend that government officials, political parties, businesses, and the world at large should take security more seriously and implement measures such as encryption to prevent data breaches. But Comey's FBI has bigger worries—it's afraid that pawing through our text messages and emails is going to become too difficult. It might have to ask for them instead of browsing at will.

Actually, asking for them is the traditional way. As Comey acknowledges in his ABA speech, "We have never had absolute privacy in this country. ... Any one of us, in appropriate circumstances, can be compelled to say what we saw. Our communications with our lawyers, with our clergy, with our spouses, are not absolutely private. They can be pierced in the appropriate circumstance."

But that hasn't changed. If you have an encrypted phone, the government can seek a court order to compel you to decrypt it. If you refuse, you can be punished. The government might not get the information it seeks, but you'd face the consequences for concealing it—just as you would, for example, if you refused to produce financial documents that you'd hidden away, or refused to testify about facts that only you know.

True, "we have never had absolute privacy" guaranteed by law in this country. But it's also true that the government has never had an absolute guarantee that it could find everything it looked for—sometimes all it can do is penalize noncompliant people.

And that's a hell of a lot safer than entrusting the power to curb privacy protections or require backdoor access to communications to officials who continue to leak sensitive information a year after losing personnel files on [every single federal employee](#), including [extremely personal details](#) on intelligence officers, to hackers allegedly sponsored by the Chinese government (also investigated by the FBI, by the way). The keys to the hobbled encryption Comey plans to allow us are the one type of sensitive information the geniuses in Washington, D.C., will keep safe? Really?

And that's assuming benign intent on the part of government officials—that their inevitable fumbling of our privacy will be accidental, not malicious. But Comey started his ABA speech by conceding that the United States government has sometimes abused its power. He described an open-ended application for authority to wiretap Martin Luther King submitted by FBI legend J. Edgar Hoover and signed by Robert F. Kennedy. "Then they were off, bugging and wiretapping King without limitation, without constraint, without oversight," he said.

Comey tells the story to underline his desire for balance, which in his view requires limits on state authority, but also compromises when it comes to personal privacy. But that balance, arguably, already exists in the power of the courts to compel people, through appropriate process, to produce information and to punish people who refuse. The authorities won't always get what they want, but they'll get most of it if they follow the rules. Meanwhile, the rest of the population remains reasonably secure.

Compromising everybody's privacy while hoping that the likes of Hoover and Kennedy never reappear and that government officials will start demonstrating a level of competence that has hitherto remained far beyond their reach isn't a considered effort to reach balance at all—except maybe in the sense of a high-wire act, without a net.

James Comey and his colleagues say we need to learn from the past in "forcing constraint and oversight into all of our lives." Maybe he'd be better off learning from the investigations his own agency has undertaken in recent months and see that encryption, unhampered by meddling officials, is more important than ever.

Cybersecurity

[\[Politico\] Cybersecurity firm doing entire restructuring of DNC management systems](#)

Daniel Strauss

15 August 2016

<http://www.politico.com/story/2016/08/dnc-cybersecurity-breach-russia-227039>

The cybersecurity firm CrowdStrike retained by the Democratic National Committee is doing a complete "restructuring and rebranding" of the committee's management systems in response to a recent breach by suspected Russian hackers, according to interim DNC Chairwoman Donna Brazile.

Brazile shared that information with top DNC officials and state party chairs during a private conference call Monday night. She praised the cybersecurity firm for its work and stressed that the committee is taking the hack very seriously.

Story Continued Below

"I'm pleased to tell you that CrowdStrike — which was retained back in May — is doing a fabulous job and not only restructuring and rebuilding our entire management systems, but they have monitored our systems 24/7 over the past few weeks and I can tell you we are stronger, we're very well protected," Brazile said during the approximately one-hour call.

"Our wall is holding firm and we have not had any additional security breaches," she added.

Brazile also said that top DNC officials, including Vice Chairman Ray Buckley, Finance Chairman Henry Muñoz, and Tom McMahon, who's running the DNC's transition team, met with federal officials to discuss the hacking after the party's convention in late July.

[Russia-linked hacker leaks House Democrats' cell phones, emails](#)

By CORY BENNETT

"We met with federal officials to get an update on the status of the cyber breach that occurred here within our party," Brazile said. After that meeting, the DNC [created](#) and announced a new four-member advisory board in charge of cybersecurity.

Brazile, in the call, also stressed confidently that the hack was not done by a lone digital thief — the self-named “Guccifer 2.0” — but instead by a hacking group working for Russian intelligence services. Guccifer 2.0 has been gradually leaking digital documents stolen from both the DNC and the Democratic Congressional Campaign Committee, which acknowledged its own breach several weeks after the DNC.

“CrowdStrike — the cybersecurity firm hired by the DNC, the DCCC and other organizations — confirmed that this is a Russian state-sponsored attack, based on its investigation and the forensic evidence that has been collected,” Brazile said during the call. “The Russians are engaging in a disinformation campaign, and we do know someone purporting to be a Romanian hacker and calling himself Guccier 2.0 has claimed responsibility for the hack. But these claims have been discredited by experts as a Russian disinformation campaign.”

Democratic leaders, as well as Hillary Clinton’s campaign, have argued that Russian President Vladimir Putin orchestrated the digital assault as part of an effort to undermine Clinton’s White House bid. Moscow has repeatedly denied any involvement in the breaches.

The Obama administration is investigating the intrusions, and intelligence officials [reportedly](#) have “high confidence” that Russia is behind the digital campaign. But the White House has yet to officially blame Moscow.

[\[Fast Company\] Inside The Secret World Of Code-To-Code Combat](#)

<http://www.fastcompany.com/3062790/inside-the-secret-world-of-code-to-code-combat?partner=rss>

Imagine a burglar breaking into your house and living undetected inside your home—for *months*. That’s the current state of cybercrime.

According to [root9B](#), a startup in Colorado Springs, Colorado, a hacker who infiltrated a computer network on Jan. 1 would typically operate unnoticed until now. That is, until August 17—229 days on the inside, stealing data and spying. This sort of ongoing breach may sound like a plotline from the paranoid realm of *Mr. Robot*, but the real-life corporate victims know otherwise. Just ask [Sony](#), Target, Home Depot and the [Democratic National Committee](#).

Clearly, the conventional approach of building automated digital walls isn’t adequate. This failing explains the rise of root9B, the No. 1 firm on Cyber Security 500’s [annual ranking](#) of innovators—ahead of IBM, Cisco, and other tech giants. The five-year-old company relies instead on “manned information security.” Its analysts engage in code-code-code combat with cyber attackers inside corporate and government networks.

Staffed by elite former military and intelligence experts at the National Security Agency and other federal agencies, root9B identifies and shuts down hackers in action, usually within days of a breach. Because root9B’s analysts are invisible as they patrol a client’s network, the unwitting “adversaries,” as the company refers to them, are caught unaware.

The company’s war lingo is appropriate, not simply because of its military ties, but also because of how root9B views its work. “I would put cyber security as the No. 1 threat to the United States of America,” says CEO Eric Hipkins.

That threat—that battle—is constantly changing. The attackers try new tactics, pushing the defenders to keep adapting as well. “To be a successful cybersecurity professional, there needs to be a creative side,”

says John Harbaugh, root9B's COO. "You have to be able to look at a problem and see different solutions, things that nobody else sees."

[Tech Crunch] LinkedIn sues anonymous data scrapers

Kate Conger

15 August 2016

<https://techcrunch.com/2016/08/15/linkedin-sues-scrapers/>

LinkedIn is trying to lock down its exclusive relationship with its users.

The professional networking company filed suit against 100 unnamed individuals last week for using bots to harvest user profiles from its website. The lawsuit is a preliminary step to revealing the identities of the scrapers — LinkedIn intends to ask the court to reveal the true identities behind the scrapers' IP addresses — and a way to maintain its exclusive hold on users' resumes.

But LinkedIn's lawsuit also raises questions about how to police bot use. The company, which was recently [snapped up by Microsoft for \\$26.2 billion](#), has invoked the controversial Computer Fraud and Abuse Act (CFAA) in its suit against the unidentified scrapers, claiming that collecting user profiles from the site amounts to hacking.

"During periods of time since December 2015, and to this day, unknown persons and/or entities employing various automated software programs (often referred to as 'bots') have extracted and copied data from many LinkedIn pages," the lawsuit claims. "To access this information on LinkedIn's site, the Doe Defendants circumvented several technical barriers employed by LinkedIn that prevent mass automated scraping, and have knowingly and intentionally violated various access and use restrictions in LinkedIn's User Agreement, which they agreed to abide by in registering LinkedIn member accounts. In so doing, they have violated an array of federal and state laws, including the Computer Fraud and Abuse Act."

The CFAA allows companies like LinkedIn to bring cases against anyone who gains "unauthorized access" to a "protected computer." The law has been criticized for essentially criminalizing Terms of Service violations, and Representative Zoe Lofgren and other lawmakers have pushed unsuccessfully for CFAA reform.

LinkedIn's case accuses the anonymous scrapers of building a massive botnet and circumventing the restrictions LinkedIn uses to prevent profile collection by undesirable third parties.

The lawsuit details several of LinkedIn's automated tools that prevent data harvesting. Dubbed FUSE, Quicksand and Sentinel, these tools monitor the web traffic of LinkedIn users and limit how many other profiles a user can view, and how quickly a user can view those profiles. This tracking is intended to prevent scrapers from signing up for fake LinkedIn profiles and then vacuuming up vast amounts of data. The company also uses a tool called Org Block to block IP addresses it suspects of scraping and uses Member and Guest Request Scoring to track page requests.

But paradoxically, LinkedIn doesn't want to prohibit scraping altogether. Search engines like Google use bots to index websites and turn up relevant results — and LinkedIn wants to allow this type of scraping to occur.

“LinkedIn ‘whitelists’ a number of popular and reputable service providers, search engines, and other platforms so as to permit them to query and index the LinkedIn website, without being subject to all of LinkedIn’s security measures,” the company explains in its suit. The scrapers targeted in the lawsuit circumvented LinkedIn’s bot-blocking tools by sending their requests through one of these ‘whitelisted’ entities, a third-party cloud service provider.

A LinkedIn representative declined to comment on how the company differentiates between good and bad scraping, referring TechCrunch to the complaint, which does not discuss how the company makes that determination.

It’s also not clear what kind of behavior LinkedIn is trying to prevent, since the lawsuit doesn’t specify what the scraped data is being used for. Does LinkedIn want to squash a competitor? Or is it targeting a research project like [ICWATCH](#), which archives the resumes of individuals in the intelligence community?

LinkedIn likely defines ‘bad’ scraping based on the scrapers’ effort to circumvent the company’s preventative measures. While it gives special access to search engines and other friendly bots, LinkedIn obviously didn’t give permission to the data harvesters it’s suing.

Similar CFAA lawsuits, like [Craigslist’s against 3Taps](#) and [Facebook’s against Power Ventures](#), have been favorable to the plaintiffs, so LinkedIn has a good shot at shutting down its scrapers. Twitch filed a comparable [CFAA lawsuit against view-bots](#) earlier this summer, in which the live stream site alleged that using bots to inflate a channel’s view count amounts to an unauthorized access of Twitch’s ‘protected computers.’ However, Twitch’s complaint also claims a number of other violations, including trademark infringement.

Clearly, companies are interested in stamping out certain kinds of bots. But other scraping, like that done by search engines and web archiving services like the [Wayback Machine](#), is welcomed. That dichotomy could create an anti-competitive business atmosphere, the Electronic Frontier Foundation argues.

“If you make it illegal for bots to access websites, you’ve given existing search engines a monopoly,” EFF staff attorney Nate Cardozo told TechCrunch. “Google and Bing got started by crawling the entire web. That’s essentially what LinkedIn is talking about here. To call scraping a CFAA violation is extremely anti-competitive. Using the CFAA to stifle innovation is certainly not what it was intended for.”

But LinkedIn says that fighting some bots and allowing others is essential to protecting its members. The case is scheduled to be heard in U.S. District Court in San Jose.

[\[WSJ\] Group Claims to Have U.S. Government Hacking Tools for Sale](#)

Robert McMillan

15 August 2016

http://www.wsj.com/articles/group-claim-to-have-u-s-government-hacking-tools-for-sale-1471309022?mod=WSJ_TechWSJD_NeedToKnow

A previously unknown hacking group claims to have broken into a cyberespionage organization linked to the National Security Agency and is offering to sell what it says are U.S. government hacking tools.

The group, calling itself the “Shadow Brokers,” said in an internet post on Saturday that it had access to a “full state sponsor tool set” of cyberweapons. To back up its claims, the group posted what appears to be attack code that targets security software on routers that direct computer traffic around the internet.

In a post written in broken English, the Shadow Brokers offered to sell a complete trove of tools to the highest bidder. The group said if it is paid one million bitcoin, valued at roughly \$568 million, it will release the tools publicly.

Security experts doubt the group has access to the hacking treasure trove that it boasts, but several said the code it released appears to be legitimate. It affects routers built by three U.S. firms— [Cisco Systems](#) Inc., [Juniper Networks](#) Inc. and [Fortinet](#) Inc.—and two Chinese companies—Shaanxi Networkcloud Information Technology Co. and Beijing Topsec Network Security Technology Co.

A Cisco spokeswoman said her company was investigating the incident, but “so far, we have not found any new vulnerabilities.”

A Fortinet representative didn’t have a comment. Juniper, Topsec and Shaanxi Networkcloud didn’t immediately respond to requests for comment.

The Shadow Brokers’ claims are still being analyzed by security experts. If true, they would reflect an unprecedented breach of a computer-espionage outfit dubbed the “Equation Group.”

In [a report last year](#), Russian computer security firm Kaspersky Lab ZAO said the Equation Group launched hacking efforts against governments, telecommunications companies and other organizations in countries such as Russia, Iraq and Iran. Kaspersky didn’t name any U.S. agencies in its report, but it appeared to detail the kind of work typically conducted by the NSA.

The NSA didn’t return messages seeking comment. In the past, the agency has neither confirmed nor denied involvement with the Equation Group.

[an internet post](#) In [an internet post](#), the Shadow Brokers rail against “wealthy elites.” The Shadow Brokers didn’t respond to email and [Twitter](#) messages seeking comment.

Security experts who have examined the code published by the hackers said it appears to contain genuine NSA programs that could manipulate or redirect computer traffic as it passes through a router.

“The more we look at it...it looks more and more like a tool kit from the NSA,” said Matt Suiche, the founder of Comae Technologies FZE, a computer-security startup based in the United Arab Emirates.

“It looks genuine,” said Nicholas Weaver, a researcher with the International Computer Science Institute, a nonprofit research center affiliated with the University of California, Berkeley. Mr. Weaver said that, in addition to the router-attack programs, the code includes tools that would be available only to someone with access to NSA computers and tools that appear to interact with NSA software described in documents leaked by former NSA contractor Edward Snowden.

However, security experts questioned the ransom demand, saying it was unlikely anyone would pay millions for the promised tools, sight unseen. Mr. Weaver believes the bitcoin auction scheme was most likely a distraction to obscure whoever obtained the documents.

“Whoever stole the data wants the world to know that they stole it,” he said in an email message. “The suspect list is almost certainly short—Russia or China, and given the recent espionage troubles between the U.S. and Russia, probably the former.”

The Shadow Brokers say that they obtained their code via hacking. However, the origin of the documents remains unclear, said Oren Falkowitz, the CEO of Area 1 Security Inc., and a former NSA analyst.

“We don’t know what hacking means,” he said. “Did some guy just walk in and steal it?”

Ben Johnson, co-founder of Carbon Black Inc. and a former NSA computer scientist, cautioned that the Equation Group hasn’t been definitively linked to the NSA and that it is unclear how much data was taken.

“People should not be thinking that the NSA has been hacked,” he said. “Certainly there’s been some effort put into [the Shadow Brokers’ data], but I’m by no means convinced that this is a full toolset of a nation state.”

[\[The Hill\] Hackers claim to auction NSA source code](#)

Joe Uchill

15 August 2016

<http://thehill.com/policy/cybersecurity/291470-hackers-claim-auction-of-software-from-famed-group-rumored-to-be-nsa>

Hackers calling themselves Shadow Brokers are auctioning off what they claim is the source code to a vaunted, likely state-sponsored hacking group many believe is affiliated with the National Security Agency.

There is no definitive proof the auction is genuine, but files released to prove authenticity appear valid enough to have piqued the interest of many in the security community.

The cybersecurity firm Kaspersky Labs raised eyebrows last year with a report on a hacking operation it was calling the Equation Group, which had managed to operate without being noticed for 14 years.

That is an uncommonly long time for a state group to stay under the radar given the resources they are normally up against.

Kaspersky noted similarities from Equation to attack methods discussed in leaked NSA documents and other suspected U.S. intelligence malware. The computer code used jargon common to the NSA and time codes in the Equation Group’s wares appeared to match a North or South American workday.

The Shadow Brokers are auctioning source code purportedly from the Equation Group.

“Attention government sponsors of cyber warfare and those who profit from it,” writes the Shadow Brokers in an auction notice, which journalist Brian Krebs [said "reads like a script."](#)

“How much you pay for enemies cyber weapons? Not malware you find in networks... We find Equation Group source range. We hack Equation Group. We find many many Equation Group cyber weapons.”

The notice goes on to describe an unusual auction method. Rather than traditional bidding, all interested parties will send their max offer in bitcoin. The group will keep all the funds, and says it will send the highest bidder the code.

In a question-and-answer section in the auction notice, Shadow Brokers addresses concerns they can't be trusted.

“Q: Why I trust you? A: No trust, risk. You like reward, you take risk, maybe win, maybe not, no guarantees. There could be hack, steal, jail, dead, or war tomorrow. You worry more, protect self from other bidders, trolls, and haters.”

The auction notice ends with a prolonged diatribe against “wealthy elites,” warning them against the danger they might face if government-built spyware ends up in the wrong hands.

“We know what is wealthy but what is Elites? Elites is making laws protect self and friends, lie and [screw] other peoples. Elites is breaking laws, regular peoples go to jail, life ruin, family ruin, but not Elites. Elites is breaking laws, many peoples know Elites guilty, Elites call top friends at law enforcement and government agencies, offer bribes... Reporters (not call journalist) make living say write only nice things about Elites, convince dumb cattle, is just politics, everything is awesome, check out our ads and our prostitutes. Then Elites runs for president,” the note reads.

While it can't be ruled out that the auction is a scam, some security experts see evidence the files might be authentic.

“The code in the dump seems legitimate, especially the Cisco exploits (Most of the dump contains Firewall exploits), and those exploits were not public before,” said Matt Suiche, via electronic chat. Suiche is the founder of United Arab Emirates-based cybersecurity start-up Comae Technologies and has been actively analyzing the source code portions released as proof.

While in high school, student body candidates for President asked Ashleigh Axios to design their posters and campaign materials. Several years later, the White House called on... [Read More](#)

Particularly interesting, said Suiche, are references to code names listed in the NSA Advanced Network Technology Catalogue, a listing of the agencies cyber warfare capabilities.

If the action raises 1 million bitcoin — about half a billion dollars — Shadow Brokers promises to put even more files out for sale.

The files were initially posted to the code sharing site GitHub, which has since disabled access.

[\[Wired\] Hackers Claim to Auction Data They Stole From NSA-Linked Spies](#)

Andy Greenberg

15 August 2016

<https://www.wired.com/2016/08/hackers-claim-auction-data-stolen-nsa-linked-spies/>

THE NSA'S ELITE teams of hackers have for years made it their mission to silently compromise computer systems around the globe. Now one group of anonymous hackers claims to have executed a counter-hack with none of the same discretion: They've brazenly announced the theft of a collection of files they say belonged to an NSA-linked spy group. And they're auctioning those files off to the highest bidder.

On Monday an anonymous group calling itself the Shadow Brokers posted a [page to Tumblr](#) claiming to have breached computer systems used by the Equation Group, a team of highly sophisticated cyberspies [that the security firm Kaspersky](#) found last year was hacking targets around the world and has been tied to the NSA based in part on evidence from the leaks of Edward Snowden. The Shadow Brokers released a sample of the stolen data, as well as another encrypted file whose decryption key they're offering for sale in a bitcoin auction.

"How much you pay for enemies cyber weapons?" reads a [message on the site](#). "We hack Equation Group. We find many many Equation Group cyber weapons. You see pictures. We give you some Equation Group files free...But not all, we are auction the best files." The group brags lower on the page that the unreleased code for sale is "better than Stuxnet," the NSA's notorious malware targeting Iranian nuclear facilities that was discovered in 2010.

Despite the group's unverified, over-the-top claims and comically broken English, researchers who downloaded the sample posted by the group say it does include intriguing data, such as 300 megabytes of code that match up with actual exploits used by the NSA. "It looks very much as if the NSA attacked someone, and that someone managed to source the origin of the attacks, and counter-hacked them," says Claudio Guarnieri, a researcher at the University of Toronto's Citizen Lab who specializes in state-sponsored malware analysis.

It's too early to say for certain that the code and other data can be attributed to the Equation Group or any other NSA-linked hacker team, Guarnieri cautions. But he says the code does corroborate several of the exploits named in [a catalogue leaked by Snowden](#) in 2013 that lists tools used by the NSA's elite Tailored Access Operations hacking team. "The content is credible enough and properly reflects what we know of some of the program names in there," Guarnieri says.

Or, as University of California at Berkeley researcher Nicholas Weaver puts it on Twitter:

Among the sample files released by the group are exploits that target equipment sold by companies including Cisco, Juniper, Fortigate and Topsec, a Chinese network security firm, according to Matt Suiche, founder of UAE-based incident response and forensics startup Comae Technologies. Suiche says those exploits attack older versions of the equipment and don't use "zero-days"—previously undiscovered flaws in target software or hardware. But he believes they had nonetheless remained unpublished until now and hadn't been included in public collections of exploits like the tool Metasploit.

All of that weighs against any theory that the leaked data is a mere scam to score a few quick bitcoins. "To create [all this evidence] from scratch, it's very unlikely but not impossible," says Suiche. "It seems pretty legitimate to me, and I'm not the only one."

On the other hand, the Shadow Brokers group certainly doesn't seem to be running its auction in a very professional fashion. They require bidders to send cryptocurrency blindly to their bitcoin address, with no hope of getting their coins back if they don't submit the winning bid. "Sorry lose bidding war lose bitcoin and files. Lose Lose. Bid to win!" the message reads. But it also promises a "consolation prize" to all bidders and adds that if bids reach the ludicrous sum of one million bitcoins, they'll publicly release another trove of high quality data.

"Why I trust you?" reads another question in their FAQ. "No trust, risk. You like reward, you take risk, maybe win, maybe not, no guarantees."

The Shadow Brokers' page ends with a long message to "wealthy elites," arguing that the tactics of hackers like Equation Group could put their control of global politics at risk, and suggesting that they too should bid on the stolen files. "We want make sure Wealthy Elite recognizes the danger cyber weapons, this message, our auction, poses to their wealth and control," the Shadow Brokers' message reads.

The haphazard auction and political message present a jarring disconnect: Any hackers capable of compromising the Equation Group or another NSA hacker team would likely have to be extremely sophisticated; the Equation Group, after all, went not only uncompromised, but undetected for 14 years, a remarkable track record of stealth and operational security for a team believed to have attacked targets from Russia to Belgium to Lebanon. Anyone capable of finding NSA hackers' infrastructure, not to mention penetrating it, would likely have to possess government-level resources and talent.

That disconnect has led security researchers to speculate that the leak is some sort of deceptive operation meant to confuse anyone trying to get to the bottom of the supposed compromise. Some researchers are already speculating that the leak is somehow connected to the alleged Russian hack of the Democratic National Committee, an operation that was also [obscured by the perpetrators' attempt to make it appear to be the act of a lone Romanian hacker](#).

For now, it's likely too early to pin it on any of the usual cyberintrusion suspects. But the splashy leak, real or fraudulent, is sure to at least have gotten the NSA's attention—and likely that of a few dozen other intelligence agencies, too.

[\[The Hill\] Thousands of Soros docs released by alleged Russian-backed hackers](#)

Justin Hattem

15 August 2016

<http://thehill.com/policy/national-security/291486-thousands-of-soros-docs-released-by-alleged-russia-backed-hackers>

Hackers believed to be backed by Russia this weekend publicly released more than 2,000 documents connected to billionaire Democratic donor George Soros and his Open Society Foundations.

[The documents](#) detail the ins and outs of Soros's groups, which have funded a slew of public health, human rights and education programs around the globe, while also mounting opposition to hard-right conservatives in the U.S.

"Soros is an oligarch sponsoring the Democratic party, [Hillary Clinton](#), hundreds of politicians all over the world," the hackers posted on the website DCLeaks this Saturday when they released the documents.

"This website is designed to let everyone inside George Soros' Open Society Foundation and related organisations," they said. "These documents shed light on one of the most influential network operating worldwide."

The hackers, who describe themselves as "American hacktivists who respect and appreciate freedom of speech, human rights and government of the people," have been linked to the same group that exposed emails from Democratic Party leaders in the days before that party's national convention last month. The group this weekend also [posted messages](#) from Republican state officials and national politicians, including Sen. [Lindsey Graham](#) (R-S.C.).

Cybersecurity firm [ThreatConnect](#) has called DCLeaks “another Russian-backed influence outlet” based on similarities with the previously identified Russian hackers, nicknamed Fancy Bear.

The documents released over the weekend are grouped into sections relating to the U.S., Europe, Asia, the World Bank and other topics.

The material offers a look behind the curtain of one of the nation’s preeminent nonprofit groups. Soros’s staunch focus on electoral processes around the globe has been a target of critics, and the wide net of activities is likely to inspire their outrage.

Included in the trove are drafts of fact sheets, calendars, memos, funding reports and similar materials, as one might expect from a major nonprofit group.

Some documents in particular are likely to stir ire on the right, where Soros is regarded as something of a nefarious mastermind trying to exert his influence across the globe.

A [2011 document](#), highlighted by [The Daily Caller](#), details the foundations’ efforts to encourage criticism of hard-line opponents to Muslim radicalism, such as controversial personalities Frank Gaffney and Pamela Geller, who memorably organized a “Draw Muhammad” event last year.

While in high school, student body candidates for President asked Ashleigh Axios to design their posters and campaign materials. Several years later, the White House called on...[Read More](#)

Another [document](#) details the multiple organizations that have received millions in funding to challenge “Israeli laws and discriminatory practices against Israel’s Palestinian minority.” Opponents claim those activities undermine Israel’s democratic government and security.

Soros and the influence he wields among American liberal organizations have long been a target of scorn from conservatives, much as the billionaire Koch brothers are on the political left.

He has reportedly committed to giving more than \$25 million to Clinton, the Democratic presidential nominee, and other Democrats, including a [\\$6 million contribution](#) to pro-Clinton super-PAC Priorities USA.

[\[The Hill\] Australia hacked Americans in child pornography probe](#)

Joe Uchill

15 August 2016

<http://thehill.com/policy/cybersecurity/291452-australia-hacks-americans-in-child-pronography-investifation>

Australian law enforcement caught 30 Americans in a child pornography investigation using controversial techniques some liken to hacking.

The sting is raising controversial questions about jurisdiction in online investigations and the techniques used to catch the Americans involved.

The role of Australian officials in bringing the matter to the attention of American law enforcement was first [reported by Motherboard](#).

The probe came to light in court documents after one of the Americans pleaded guilty in the United States to accessing child pornography online.

Seth Piccolo pleaded guilty in late July and was later sentenced to five years in prison for accessing the Australian site “The Love Nest.”

The Love Nest was a site accessible from the Tor network’s anonymous browser. After Australian authorities seized control of the site, they uploaded a link to a video off-site that circumvented Tor’s privacy safeguards, which was then used to catch visitors to the website.

Many of those caught in the sting were from outside Australia. Australian officials reported 30 U.S.-based suspects to American authorities.

While in high school, student body candidates for President asked Ashleigh Axios to design their posters and campaign materials. Several years later, the White House called on...[Read More](#)

The case highlights two controversies over investigation techniques used to short circuit the Tor browser’s anonymity systems.

As online investigations pick up more steam, there are also complex questions about jurisdiction. In most circumstances, Australia would not have the ability to issue a warrant in the United States unless the government first granted permission.

Also, depending on the U.S. court, a user's IP address may or may not be protected when using Tor. Judges have been mixed over whether tricking computers into coughing up IP addresses is a violation of Fourth Amendment rights.

Net Neutrality

[\[Tech Crunch\] On the EU’s net neutrality law](#)

Ed Vaizey

15 August 2016

<https://techcrunch.com/2016/08/15/on-the-eus-net-neutrality-law/>

Understatement of the day, month, year, decade: net neutrality is a controversial issue.

As U.K. tech minister, I was involved in the issue for the six years I held the post. Just recently the European Union adopted its first net neutrality law.

It’s widely seen as doing the opposite of what it’s supposed to — effectively ending net neutrality as true believers see it. I don’t agree, but nor do I necessarily think it was a sensible move. A bit of a contradictory position, but I will try to explain what I mean.

First things first — there’s no clear definition of net neutrality, and it’s definitely seen differently between Europe and the U.S.

The U.S. effectively has a telecoms duopoly, so without strong regulation, there’s a fear the two big telcos could sow things up. That’s why net neutrality features in U.S. presidential elections, but doesn’t register big over here.

Europe has much more competition between telcos, so if one company tries to manage traffic unfairly, it’s likely to lose out with consumers (at least the savvy ones).

In the U.K., we introduced a code of conduct for net neutrality, which all the ISPs signed up to. That was a good solution. It was light touch and flexible.

The regulator had powers it could use to intervene, and we stood ready to give it more if it needed them. The code struck a balance between the need for legitimate traffic management and the necessity to stop anti-competitive practices.

So why do we now have a law? For some years now, there's been a lot of agitation for a European net neutrality law. The Dutch passed their own. The Baltic states, given their cyber focus, wanted their own. The European Parliament made it a major issue.

The momentum was pretty unstoppable — and the law was linked to another telco issue which we badly wanted: mobile roaming.

Tech regulation on the whole is a bad thing.

There are a lot of public policy issues in tech, but many can be solved by co-operation between industry and governments. Agreements maintain flexibility, and allow us to bring in changes when they're needed, or act quickly on unintended consequences.

So I would have preferred to avoid a law. But I don't think this law will be as bad as anyone says, and it in effect follows the principles we set out in the U.K. code of conduct. It does enshrine the principle of net neutrality. It carves out exceptions — but that is what they are: Departures from the norm that need to be justified by telcos, and which can be acted on by regulators.

Certainly, we need to ensure innovation and the room for startups to grow. But we also need to acknowledge legitimate traffic management, and the need for infrastructure investment.

Data Breach

[LA Times] [Hotels in Pasadena, San Diego among those hit in data breach](#)

AP 15 August 2016

<http://www.latimes.com/business/la-fi-hotel-hacks-20160815-snap-story.html>

An undisclosed number of people who used credit cards at 20 Hyatt, [Sheraton](#), Marriott, Westin and other hotels in California, nine other states and the District of Columbia may have had their cards compromised as a result of hack of the hotels' payment system.

According to the hotel operator HEI Hotels & Resorts, malware put into place in at [least 20 locations](#) — including five in California — may have collected names, payment card account numbers, card expiration dates and verification codes.

Data from customers may have been collected from early December through late June. At some properties, HEI said, data collection may have begun as early as March 2015 where people bought food or drinks.

"We are treating this matter as a top priority, and took steps to address and contain this incident promptly after it was discovered," HEI said in a press release.

The affected California hotels, it said, are the Westin Pasadena, Renaissance San Diego Downtown Hotel, San Diego Marriott La Jolla, Hyatt Centric Santa Barbara and Le Meridien San Francisco.

Customers can visit www.heihotels.com/notice for a list of affected hotels nationwide and additional information about the incident.

HEI said that once it found out about the problem it transitioned payment card processing to a stand-alone system that's completely separate from the rest of its network. It disabled the malware and is in the process of reconfiguring various components of its network and payment systems to make them more secure.

The company says the breach has been contained and customers can safely use cards at all its properties. It said it continues to cooperate with the law enforcement investigation and is coordinating with banks and payment card companies.

Anyone who used a card at HEI hotels in the given time frame should review their account statements and look for discrepancies or unusual activity, both over the past several months and going forward, the company said. Customers who notice anything out of place should contact their credit or debit card issuer.

As with any breach, consumers are not liable for fraudulent charges on their credit cards. And once a breach such as this is disclosed, as a precaution, banks will often automatically issue new cards to any of their customers that could be affected.

Retailers and other companies that deal with large numbers of credit cards have become popular targets for hackers looking to make a quick buck by collecting and selling the information on the internet in bulk.

A couple of years ago, massive breaches involving the thefts of millions of card numbers at retailers such as Target, [Home Depot](http://www.homedepot.com) and Neiman Marcus grabbed headlines.

Among hotel chains, Hilton Worldwide, Trump Hotel Collection and Starwood Hotels & Resorts have all confirmed payment-system breaches within the past year or so.

Yet the black-market value of credit card numbers has tumbled, largely as a result of better fraud prevention technology that allows banks to spot and stop bad transactions faster. As a result, many thieves have moved on to target more lucrative information such as healthcare data.

Spectrum

[The Hill] FCC ready to launch next stage of wireless auction

David McCabe 15 August 2016

<http://thehill.com/policy/technology/291449-fcc-scheduled-to-start-second-phase-of-major-wireless-auction>

The Federal Communications Commission is poised to start the second phase of an innovative auction for wireless spectrum this week.

The commission purchased spectrum from broadcasters and, starting Tuesday, will attempt to resell it to wireless providers and other interested parties. Officials are trying to make more spectrum available for consumers, who increasingly rely on their smartphones for information.

Earlier this year, broadcast stations sold unwanted spectrum to the agency in a so-called Dutch auction. Stations agreed to lower and lower prices until the agency locked in a price and purchased the spectrum.

Tuesday now marks the start of the "forward" phase of the auction, where buyers will vie for those wireless airwaves.

The commission held a mock auction last week to prepare bidders for the real sale, where buyers will bid through a more traditional auction.

"Unlike the reverse auction, in which there is a limited number of possible rounds, forward auction bidding rounds for a stage can continue without limit so long as demand outpaces supply for any product," said the two officials leading the auction in a blog post last week. "As such, we cannot predict when the forward auction will conclude."

The FCC has a significant task ahead. The "reverse" auction among broadcasters yielded a potential \$86.4 billion worth of spectrum, meaning that buyers have a high value to meet.

If buyers don't meet the high number set by broadcasters, the commission will launch another round and attempt to sell a smaller amount of spectrum.

The never-before-tried auction comes as wireless providers say they need more access to spectrum, the wireless frequencies that carry data to mobile devices, to handle data-hungry smartphones.

FCC Chairman Tom Wheeler previously predicted that the auction would be a "spectrum extravaganza" and painted it as a singular opportunity for broadcasters to make money off of their valuable spectrum.

Patents

[Ars Technica] Podcasting patent troll fights EFF on appeal, hoping to save itself

Joe Mullin

15 August 2016

<http://arstechnica.com/tech-policy/2016/08/podcasting-patent-troll-fights-eff-on-appeal-hoping-to-save-itself/>

The owner of a [patent on podcasting](#) is hoping to snatch victory from the jaws of defeat.

Personal Audio and its owner, Jim Logan, [lost their patent last year](#) after lawyers from the Electronic Frontier Foundation showed the US Patent and Trademark Office that various types of Internet broadcasts pre-date the patent, which claims a 1996 priority date.

The podcasting patent became famous and received national media attention after it was used to sue several high-profile podcasters, including Adam Carolla, who raised \$500,000 and fought back for a time before [reaching a settlement in 2014](#). Personal Audio had also sued several big TV networks, and its case against CBS went to a jury in September 2014. The jury found the patent valid and awarded Personal Audio \$1.3 million, a victory that Personal Audio's lawyers have noted in their appeal arguments.

The controversy is now in the hands of the US Court of Appeals for the Federal Circuit, the court that handles all patent appeals. A three-judge panel heard arguments over the matter earlier this month.

Just like CNN?

In its [appeal brief](#) (PDF) and at oral arguments, Personal Audio lawyer Jeremy Pitcock argues that his client's patent, [US Patent No. 8,112,504](#), is a significant improvement on two pieces of "prior art" that EFF successfully used to invalidate it at the US Patent and Trademark Office.

Those earlier systems include one used by CNN, which described its system for a "digital news magazine" in 1995. The other system comes from a 1996 article explaining an early Internet radio experiment by the Canadian Broadcasting Corporation (CBC), which broadcast online as early as 1993.

In a proceeding called an "inter partes review," a board of judges at the Patent Trial and Appeal Board ruled in EFF's favor, finding that Personal Audio didn't create anything that hadn't already been done by the CBC and CNN. On appeal, Pitcock writes that the earlier technology for downloading content from the Web was "deficient" because it disseminated "individual program selections one at a time." The '504 patent describes putting out "a series of episodes... as said episodes become available" and organizing them all in one "compilation file."

The CNN system created a new webpage at a new URL each day, which Pitcock argues is an important difference. The CNN prior art "does not disclose making multiple programs available at a given URL or creating an updated version of an HTML file" that shows both new and old episodes.

In Pitcock's view, Jim Logan's patent claim "teaches" that a "series of episodes" refers to "multiple, sequentially-ordered, and distinct programs issuing at different times."

Displaying media on one webpage, as opposed to multiple webpages, might seem like a small difference. But in the patent-speak employed by Personal Audio and its lawyers, those shifts in presentation are "teachings" that justify getting a new patent and the 20-year monopoly it entails.

Pitcock didn't respond to requests for comment for this story. An EFF lawyer declined to add to earlier comments about the case, saying it's in the hands of the Federal Circuit.

An appealing pivot

At oral argument, Personal Audio lawyer Jeremy Pitcock described his client's "new apparatus" to the judges. It created a "compilation file" with both old and new episodes in it. That made it unlike the CNN system.

“Every day, a bunch of segments from that day’s newscast are made available at a single link,” said Pitcock, using inventors’ names to refer to the CBC and CNN prior art. “That information is never updated, is never changed. The next day, a different series of little segments is made available. It’s undisputed that’s how Compton/CNN and Patrick/CBC work.”

EFF lawyer Nick Brown countered that the Patent and Trial Appeal Board got it exactly right when they threw out the podcasting patent.

“What we have here is a pivot,” EFF lawyer Nick Brown told the panel when his turn came. “It’s an attempt to recast this argument that they lost below... and to turn it into an argument about a ‘series of episodes.’ The argument about a ‘series of episodes’ is about when the compilation file is updated. That’s exactly what CNN does. There’s no requirement that the same story [be updated].”

The matter is now in the hands of the panel. If EFF wins, the podcasting patent won’t have anywhere else to go.

In addition to the podcasting patent, Personal Audio also claims to own other basic audio technology. Personal Audio sued Apple over the iPod’s function to create playlists. After a 2011 trial, a jury [awarded the patent-holding company \\$8 million](#).

Privacy

[The Hill] 'Pay-for-privacy' internet actually benefits low-income consumers

Thomas Lenard 16 August 2016

<http://thehill.com/blogs/pundits-blog/technology/291549-pay-for-privacy-internet-actually-benefits-low-income-consumers>

Broadband service plans that offer discounts to subscribers who permit their internet service provider (ISP) to use their browsing behavior to deliver targeted advertising have become the latest issue for privacy advocates. Seven senators, including [Elizabeth Warren](#) (D-Mass.) and [Bernie Sanders](#) (I-Vt.), recently urged the Federal Communications Commission (FCC) to prohibit such "pay-for-privacy" plans, arguing that they "disproportionately harm low-income consumers, the elderly, and other vulnerable populations."

In fact, the opposite is true: "Pay-for-privacy" plans disproportionately benefit lower-income individuals. Indeed, the notion that offering an additional option would be detrimental to any consumers, whatever their income, is misguided.

The senators' views on plans offering a discount in exchange for data are echoed by advocacy groups such as Free Press, which argues, "For a struggling family, that could mean choosing between paying for privacy and paying for groceries or the public transportation needed to get to work."

But this is precisely backward. A plan that offers a discount in exchange for data may enable a lower-income consumer both to have internet service and pay for groceries. Depriving the consumer of that choice may put the internet connection out of reach.

Companies collect individuals' data in order to deliver targeted advertising, the revenues from which can be used to cover costs and in some cases provide services for "free." As is well-known, major internet companies, such as Google and Facebook, are built on this advertising-supported business model.

ISPs have had a more traditional business model, relying on direct payments from their customers rather than advertising revenues. Recently, however, ISPs have shown more interest in monetizing customer data, and thereby offering a partly or perhaps eventually even a fully advertising-supported service. AT&T is already experimenting with such a model, offering a \$30 discount to customers who allow their data to be collected and used. And Comcast recently urged the FCC not to limit these business models.

"Pay-for-privacy" and advertising-supported business models are two sides of the same coin. AT&T is giving the subscriber the opportunity to allow advertisers to pay part of the subscription fee. What would be the rationale for allowing Google to offer advertising-supported service but not AT&T?

In their letter, the senators argue, "Consumers should not have to pay an ISP an additional amount in order to protect their privacy." The lawmakers seem to be implicitly assuming that by prohibiting these plans everyone would be offered the lower price. But that's not what would happen. Basic economics implies that everyone would pay the higher price, or something close to it, because companies would not be able to use data to generate the additional revenue. This clearly would not be good for lower-income consumers.

Plans that offer a discount in exchange for data will be even more important if the FCC proceeds with its current privacy proposal, which requires affirmative opt-in for most data collection. It will likely be difficult to get consumers to go through the process of opting-in if failing to do so is perceived to be costless. But many consumers — not just lower-income consumers — are likely to opt-in in exchange for a discount. This will allow them to express their preferences for privacy in a market, and that's something we should encourage.

[WSJ] EU Looks to Level Regulatory Playing Field With Apps, Telecoms

Natalia Drozdiak

15 August 2016

http://www.wsj.com/articles/eu-looks-to-level-regulatory-playing-field-with-apps-telecoms-1471275483?mod=WSJ_TechWSJD_NeedToKnow

BRUSSELS—The European Union's executive body is set to propose more rules for so-called over-the-top telecommunications services such as [Microsoft](#) Corp.'s Skype or [Facebook](#) Inc.'s WhatsApp, in a bid to level the regulatory playing field with the bloc's big telecom operators.

The European Commission plans to require internet communications companies to meet stricter privacy and security protections and make it easy for consumers to move their information when switching to other services, according to an internal document obtained by The Wall Street Journal.

The document outlines the commission's preferred policy options for its coming package to update the bloc's telecom rules, expected in the fall.

Carriers including [Deutsche Telekom](#) AG and Spain's [Telefónica](#) SA have long asked the European Union to repeal some of the extensive regulations governing carriers, or to [extend similar rules to internet-based text-message and voice-call services](#) such as WhatsApp.

Telecom companies have complained that the onus is on them to make costly investments to update the networks, while internet companies use those networks to offer free services such as WhatsApp or [Alphabet](#) Inc.'s Google Hangouts.

In the document, the EU says the new obligations for over-the-top services "may entail some additional costs," but it doesn't have specific information about the size of the financial burden.

Along with the privacy requirements, over-the-top providers that connect with traditional telephone numbers could face administrative charges, though these would differ among the member states. In Italy, for example, the charges could total roughly 0.2% of annual revenue, according to the document.

Under the new proposals, some internet communications companies could also be required to provide emergency-call services.

Traditional telecom operators, however, likely will be relieved of some administrative burdens, especially where rules overlap, such as those around compliance regarding contractual rights, according to the document.

As part of the EU telecom package, the commission also aims to better coordinate the use of radio spectrum among the bloc's member states.

In its preferred policy option for spectrum, the EU says it wants to introduce common criteria, binding to all EU member states, around the timing of awards for spectrum allocation and the duration of the licenses. Once the commission makes its proposals, various EU institutions would then debate the draft legislation before it enters into law.

The Financial Times earlier reported the commission's plans to increase regulation for over-the-top competitors.

[\[Washington Post\] The privacy debate is personal to Tim Cook](#)

Todd Frankel

15 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/15/the-privacy-debate-is-personal-to-tim-cook/>

Apple CEO Tim Cook has said he developed his "moral sense" [growing up in rural Alabama](#) in the '60s and '70s – a period of incredible social upheaval.

Today, at Apple headquarters in Cupertino, Calif., Cook keeps in his office photos of two men who pushed the South to change: Robert F. Kennedy and Martin L. King Jr. In recent years, Cook appears to have been inspired by Kennedy and King as he pushed for the South to change again, this time on the issue of gay rights.

Cook, who publicly acknowledged he was gay two years ago, has advocated for changing laws in states such as Alabama, where employees can be fired for being gay. He also has [criticized states with “religious freedom” laws](#) that seemed designed to sanction some forms of discrimination.

The line connecting Cook’s youth with his current stance on gay rights seems obvious – especially to some of the people who know Cook. Yet Cook dismisses the idea that his upbringing influenced his views on privacy, which grabbed headlines earlier this year when Apple refused to help the FBI crack the passcode-locked iPhone belonging to one of the San Bernardino terrorists.

In an [exclusive interview with The Post’s Jena McGregor](#), Cook insisted there were other sources for his views on privacy:

McGregor: You’ve talked about privacy being part of Apple’s values. How personal is it for you? You’re known as a very private person. You grew up gay in a red state. Did those early years have an impact on how you lead Apple and on your public stances about privacy?

Cook: “Undoubtedly, your childhood and your upbringing is a constant across your life in terms of the things you learn and your point of view.

But in terms of privacy, I wouldn’t link the two. There’s a broader thing in play. Privacy, in my point of view, is a civil liberty that our Founding Fathers thought of a long time ago, and concluded it was an essential part of what it was to be an American. Sort of on the level, if you will, with freedom of speech, freedom of the press. The other thing is how all this data sits out there in different places. I do worry about people not really understanding deeply about what kinds of things are out there about them. So it’s really both of those — not really the growing up in the South.”

Apple’s stance on privacy did not begin with Cook. Apple co-founder Steve Jobs was an ardent believer in the need for his company’s products to be private and safe.

But Cook, since taking over as CEO in 2011, has made an especially forceful case about the need for privacy. And since the dispute with the FBI over the unlocking of a killer's smartphone, Cook has pushed the fight in interviews and speeches, not content to allow Apple’s attorneys and spokesmen to handle the message.

Perhaps Cook really doesn’t believe that growing up gay in the small town Deep South affected his current views. Maybe he’s worried that acknowledging the personal connection will cheapen the privacy message.

But under Cook, Apple no longer talks about privacy as some bonus feature of its devices. Privacy is elevated to something more intrinsic, more personal: A right.

[\[NY Times\] Peter Thiel: The Online Privacy Debate Won’t End With Gawker](#)

Peter Thiel 15 August 2016

<http://www.nytimes.com/2016/08/16/opinion/peter-thiel-the-online-privacy-debate-wont-end-with-gawker.html?ref=technology>

Last month, I spoke at the Republican National Convention in Cleveland because I believe our country is on the wrong track, and we need to solve real problems instead of fighting fake culture wars. I'm glad that an arena full of Republicans stood up to applaud when I said I was proud to be gay, because gay pride shouldn't be a partisan issue. All people deserve respect, and nobody's sexuality should be made a public fixation.

Unfortunately, lurid interest in gay life isn't a thing of the past. Last week, The Daily Beast published an article that effectively outed gay Olympic athletes, treating their sexuality as a curiosity for the sake of internet clicks. The article endangered the lives of gay men from less tolerant countries, and a public outcry [led to its swift retraction](#). While the article never should have been published, the editors' prompt response shows how journalistic norms can improve, if the public demands it.

As an internet entrepreneur myself, I feel partly responsible for a world in which private information can be instantly broadcast to the whole planet. I also know what it feels like to have one's own privacy violated. In 2007, I was outed by the online gossip blog Gawker. It wasn't so many years ago, but it was a different time: Gay men had to navigate a world that wasn't always welcoming, and often faced difficult choices about how to live safely and with dignity. In my case, Gawker decided to make those choices for me. I had begun coming out to people I knew, and I planned to continue on my own terms. Instead, Gawker violated my privacy and cashed in on it.

It didn't feel good, but I knew it could have been much worse. What I experienced would be minor in comparison with the cruelties that could be inflicted by someone willing to exploit the internet without moral limits.

As the competition for attention was rewarding ever more exploitation, Gawker was leading the way. The site routinely published thinly sourced, nasty articles that attacked and mocked people. Most of the victims didn't fight back; Gawker could unleash both negative stories and well-funded lawyers. Since cruelty and recklessness were intrinsic parts of Gawker's business model, it seemed only a matter of time before they would try to pretend that journalism justified the very worst.

Every weekday, get thought-provoking commentary from Op-Ed columnists, The Times editorial board and contributing writers from around the world.

Sure enough, in October 2012 Gawker did something beyond the pale: They published a sex tape without the consent of the people in the video. Unfortunately for Gawker, they had targeted someone who was determined to fight back. Terry Bollea is better known as the wrestler Hulk Hogan, a fact that Gawker claimed justified public access to his private life. Mr. Bollea disagreed. At first he simply requested that Gawker take down the video. But Gawker refused. It was getting millions of page views, and that was making money.

Four years later, the financial calculus has changed. Gawker Media Group has put itself up for sale (bids are due Monday afternoon) in part to satisfy the legal judgment of a unanimous jury that ruled against Gawker and assessed damages of \$140 million, proving that there are consequences for violating privacy. Mr. Bollea could not have secured justice without a fight, and he displayed great perseverance. For my part, I am proud to have contributed financial support to his case. I will support him until his final victory — Gawker said it intends to appeal — and I would gladly support someone else in the same position.

A year before the Bollea decision, Gawker retracted an article that outed the chief financial officer of Condé Nast. Gawker made the right decision by backing down, but I doubt the company would have done so without the pressure of Mr. Bollea's continuing defense of his own rights. Nick Denton, Gawker's founder and chief executive, used the occasion to defend the site's coverage of Mr. Bollea, but he also wrote that it's not enough for a story "simply to be true." He was right about that: A story that violates privacy and serves no public interest should never be published.

The defense of privacy in the digital age is an ongoing cause. As for Gawker, whatever good work it did will continue in the future, and suggesting otherwise would be an insult to its writers and to readers. It is ridiculous to claim that journalism requires indiscriminate access to private people's sex lives.

A free press is vital for public debate. Since sensitive information can sometimes be publicly relevant, exercising judgment is always part of the journalist's profession. It's not for me to draw the line, but journalists should condemn those who willfully cross it. The press is too important to let its role be undermined by those who would search for clicks at the cost of the profession's reputation.

The United States House of Representatives is considering the Intimate Privacy Protection Act, a bipartisan bill that would make it illegal to distribute explicit private images, sometimes called revenge porn, without the consent of the people involved. Nicknamed the Gawker Bill, it would also provide criminal consequences for third parties who sought to profit from such material.

This is a step in the right direction. Protecting individual dignity online is a long-term project, and it will require many delicate judgments. We can begin on solid ground by acknowledging that it is wrong to expose people's most intimate moments for no good reason. That is the kind of clear moral line that Gawker and publishers like it have sought to blur. But they can't do it if we don't let them.

[\[The Hill\] Europe said to prep new rules for online communications services](#)

David McCabe 15 August 2016

<http://thehill.com/policy/technology/291491-europe-said-to-prep-new-rules-for-online-communications-services>

European Union regulators plan to propose more stringent privacy and security rules for services like Skype and WhatsApp, which use the internet rather than traditional networks to communicate, according to multiple reports.

The Wall Street Journal [reported](#) that a draft version of the proposal would include requirements for the services that are closer to what regulators expect from standard messaging and phone services. The rules would also reportedly make changes to how companies treat customer data, including when they are changing to a different service.

The planned requirements for "over-the-top" services were [first reported](#) by the Financial Times. European telecommunication firms have reportedly been pushing for the regulations to be applied to web services if they are not removed altogether.

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Tech companies stateside have repeatedly tussled with European regulators over the years, including on privacy and antitrust issues. Europeans have been particularly wary of data privacy at American tech firms ever since former national intelligence contractor Edward Snowden leaked documents showing how companies had worked with the government surveillance apparatus.

New broadcasting rules [proposed in May](#) require that streaming services like Netflix and Amazon Prime feature a certain amount of European content in their catalogues.

The release of the policy paper containing the proposal, expected to come later this year, would not be the final step in cementing them in law. It won't contain final legislative text, [according to The Guardian](#), and EU member states would still need to consider the rules.

[\[Wired\] Sex, Privacy, and Videotape: Lessons of Gawker's Downfall](#)

Scott Grant

16 August 2016

<http://www.wired.com/2016/08/gawker-hulk-hogan-auction/>

IT WAS A fateful decision. A two-minute excerpt of secretly recorded video featuring professional wrestler Hulk Hogan having sex with his then-best-friend's wife. When Gawker got hold of the video in 2012, it elected to post the excerpt on its website, setting off an improbable series of events recently culminating in bankruptcy—for the company itself, as well as its founder and CEO. Now, this week the company is being sold at auction.

Soon after the video was posted, Hogan (whose real name is Terry Bollea) sued Gawker, asserting various legal claims relating to his loss of privacy and emotional distress. Gawker tried to have the case dismissed, claiming the First Amendment shielded it from Hogan's suit. But the Florida judge overseeing the case rejected Gawker's arguments, allowing Hogan's claims to proceed to trial before a jury. And the jury did not equivocate. It shocked most legal observers, awarding Hogan \$140 million in damages.

Scott Gant is a partner with Boies, Schiller & Flexner in Washington DC, where his practice includes constitutional law. He is the author of the book *We're All Journalists Now: The Transformation of the Press and Reshaping of the Law in the Internet Age*.

Unable to convince the court to put the damages award on hold while it appealed, Gawker headed to bankruptcy court. It was a startling turn of events: a fairly prominent news organization put in the poor house, its very existence jeopardized, by a single lawsuit.

The size of the verdict and Gawker's resultant bankruptcy have generated headlines and substantial interest in the case. And Gawker's descent into financial ruin may end up having lasting effects on news organizations and freedom of speech more generally. The searing lesson is that a solitary publishing misstep can cascade into an existential threat, which may lead writers and editors (or their lawyers!) to censor material they would have published before this case.

But focusing only on the eye-popping damages award and trip to bankruptcy court would miss the case's broader, and likely more enduring, significance. To fully understand the verdict, we need to consider how Gawker defended itself. However unorthodox Gawker's journalism may seem to some, it brushed aside Hogan's charges with tried and true arguments of traditional news organizations. Gawker claimed

the First Amendment afforded it the right to publish the sex tape excerpt because it was a “matter of public concern”—contending Hogan opened himself up to having the video shown because he had previously spoken about his sex life in public. While similar arguments frequently allow publications to evade liability, two powerful trends intersected in this case, rendering Gawker’s old-school First Amendment defense a poor fit.

The first trend concerns the profound and sweeping transformation of journalism. The Web has created an enormous supply of people who want to share information and ideas with a wide audience, and there are increasing numbers of people interested in hearing and discussing what they have to say. The lines separating professional journalists from the masses online have blurred, perhaps beyond recognition. And, although some traditional news organizations are reluctant to admit it, the First Amendment provides no special protections for corporate media organizations compared to other speakers—nor should it. Gawker, USA Today, and CNN are on the same legal footing as the rest of us.

The second trend concerns privacy—more specifically, the loss of it. We live in an age when our privacy is disappearing, through knowing, voluntary disclosures, but also often without our knowledge or consent. Our diminishing ability to keep certain things private is a source of concern and anxiety for many. And these concerns and anxieties appear destined to deepen as we move further towards the so-called Internet of Things, in which previously private personal devices of every conceivable variety become interconnected—and the information flowing through them susceptible to disclosure.

Which brings us back to Hulk Hogan’s case. Gawker’s arguments to the court appear not to have accounted for the fact that we’re all journalists now—or that Gawker has no entitlement to rights or protections not also afforded to occasional and non-professional journalists. To prevail at trial Gawker likely needed to convince the jury that anyone should have been allowed to post the Hogan sex tape excerpt on the Web—no easy feat.

Gawker also tried to convince the judge and jury that Hogan was not entitled to privacy in the bedroom at a time when we’re all losing control over our own privacy. Once Gawker’s argument that Hogan is different from most of us because he sometimes discussed his sex life in public fell flat, the company’s lawyers were essentially left having to convince the jury that Gawker had the right to broadcast a sex tape of anyone—again, no easy feat. And the notion that Hogan should be penalized for previously discussing his sex life in public was itself problematic for a defendant cloaking itself in the First Amendment. If Gawker’s view were adopted by courts, then speakers would have to censor themselves or risk having their personal information displayed before the world on the grounds that their own prior statements turned the subjects of their speech into “matters of public concern.”

Absent a settlement, Hogan’s case against Gawker will eventually find its way to an appeals court—and Gawker may succeed in reducing the damages (which seems likely), or overturning the result altogether (less likely). The lessons of this case highlight the interplay of journalism’s evolution and the erosion of privacy. When these trends powerfully converged, Gawker landed in bankruptcy.

Student Privacy

[Ridgefield Press] Data sweep: Schools preparing for student privacy law set to go into effect Oct. 1

Steve Coulter 16 August 2016

<http://www.theridgefieldpress.com/71433/data-sweep-schools-preparing-for-student-privacy-law-set-to-go-into-effect-oct-1/#axzz4HUnEqUs2>

Ridgefield students (and their parents) may be breathing a little easier knowing that beginning Oct. 1 students will no longer have to stress over who has access to individual scores or attendance records and where that digital information can be stored.

That's because, as early as this fall, tests on the computer can be taken without any tie back to the individual student — how and what students respond to when using an online program can't be tracked.

Under Connecticut's new student data privacy law — Public Act 16-189 — student's personal information will be protected when local education boards hire third-party contractors for instructional applications.

Ridgefield Superintendent Karen Baldwin said she's been keeping abreast of the situation this summer since the bill was signed into law on June 9.

Along with the rest of the Board of Education, Baldwin said she will also be addressing the new legislation through a revision of Ridgefield Public School system's Family Education Rights and Privacy Act (FERPA) policy, as well as its student records policy.

"The Student Data Privacy law does usher in sweeping changes to the protection and use of student data," she said.

"The most significant feature of the law for boards of education is the adoption of new standards for contracts between a board and a contractor," Baldwin said. "The law goes into effect Oct. 1, 2016, and we are taking steps in district to examine our current contracts, develop a data privacy-screening tool, and review procedures for communication and notification of data breaches."

Logistics

The goal is to wipe away the concern that scores and other information will end up in a database somewhere, as well as the question of what the third-party software providers do with individual, personalized data.

With the Board of Education's first meeting of the 2016-17 school year scheduled to take place in less than two weeks, the logistics of how that fear will be eliminated are beginning to take shape.

The new law calls for improved digital privacy for all Connecticut students, requires education boards to include a statement that student data is not the property of the third party and can't be used for other purposes when entering into a contract with software or electronic-service manufacturers.

Under Public Act 16-189, contracts must also allow local education boards to request the deletion of student information — records or content — that is in the possession of an independent software provider.

In addition, the state law enables a student or his or her parent or guardian the ability to review personally identifiable information in student records.

Confidentiality is key

What should make parents happy is that contractors will be required to take actions to ensure the security and confidentiality of student data.

An interesting loophole that the bill creates is that information shall not be retained or available to the third-party provider upon completion of the contracted services unless a student or parent chooses to establish or maintain an electronic account with the contractor for the purpose of storing student-generated content.

Baldwin and the rest of the district will be reviewing FERPA because Public Act 16-189 demands statements between software companies and the Board of Education that ensure federal compliance by yielding the State of Connecticut the right to govern all parties under the contract.

Read more: <http://www.theridgefieldpress.com/71433/data-sweep-schools-preparing-for-student-privacy-law-set-to-go-into-effect-oct-1/#ixzz4HUuW02gO>

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Big Data

[Forbes] Big Data And The Future Of Smart Cities

Daniel Newman

15 August 2016

<http://www.forbes.com/sites/danielnewman/2016/08/15/big-data-and-the-future-of-smart-cities/#411700923f2d>

Although Big Data has a lot of buzz around it, I believe that in many ways it is still a relatively new and unexplored concept. However, its potential for human analysis is already obvious. This makes it a perfect and integral part of the planning and creation of smart cities.

As populations grow and resources become scarcer, the efficient usage of these limited goods becomes more important. Smart cities are a key factor in the consumption of materials and resources. Built on and integrating with big data, the cities of the future are becoming a realization today.

Watch For Population, Crowd And Big Data Growth

[Crowd control](#) is one area that big data is already being used to great success. Anytime a much larger than average group of people congregates in one place, there's an unplanned need for services in that area. This includes meeting the crowd's needs (food, drink, etc.) and ensuring their safety (emergency responders, police, etc.). As the world's population grows and cities become more crowded, these events become more frequent—and cities are trying desperately to predict and understand them.

Thankfully, this is the kind of thing that big data is created to analyze. Large groups of people mean tons of data is generated. Big data is being used to understand when, how, and why crowds form, and to predict their movements and actions.

Connect To The Cities Of The Future

With the growth of our population and the advent of ideas such as big data and the Internet of Things, the natural step cities will take is to become more interconnected. There are millions of sensors in place already, monitoring various things in metropolises. In the near future, these sensors will multiply until they can monitor everything from streetlights and trashcans to road conditions and energy consumption.

These smart cities will allow us to make more efficient use of our resources, lower our energy consumption, and build our cities to maximize efficiency. Big data is essential to understanding how people in cities move, how energy is used, how various aspects of infrastructure interact, and much more. [Smart cities aren't some far-off dream of the future](#), either; some urban areas are already using big data to improve themselves:

- **Los Angeles' LED lights:** LA is replacing 4,500 miles of streetlights with new LEDs. Not only will this result in brighter streets, but the new lights will also be an interconnected system that will inform the city of each bulb's status. If one malfunctions, it can be identified and fixed almost immediately. In the future, we could have lights that change colors or blink to warn citizens of various conditions.
- **Los Angeles' landscaping:** To conserve water, LA is using information gathered and analyzed to best replace areas of non-native plant life with native, drought-resistant flora.
- **Shanghai's new Natural History Museum:** The recently built Natural History Museum in Shanghai has a unique spiral shape. This shape was partially inspired by the shell of a nautilus, but it also incorporates big data's analyses to control crowd movement.
- **Saudi Arabia—a city built for crowd control:** Every year, Saudi Arabia's population increases by more than three million people visiting Mecca for the five days of the Hajj. Tragedies have occurred as crowds turn into stampedes, but Saudi Arabia is fighting back by incorporating numerous ideas suggested by big data to control such crowds.

As these cities demonstrate, the integration of big data and interconnected technology—along with the increasing population—will lead to the necessary creation of smart cities. To continue providing people with safe, comfortable, and affordable places to live, cities must incorporate techniques and technologies to bring them into the future. I, for one, am looking forward to seeing the advances that will come to my city in the near future.

Drones

[\[Tech Crunch\] Fixed-wing drones not quite taking off in commercial market, a new DroneDeploy study finds](#)

Lora Kolodny 15 August 2016

<https://techcrunch.com/2016/08/15/fixed-wing-drones-not-quite-taking-off-in-commercial-market-a-new-dronedeploy-study-finds/>

[DroneDeploy released a new study](#) of the commercial and industrial drones market this week, revealing bad news for the makers of fixed-wing drones — quadcopters are far outpacing this type of unmanned aerial vehicle in every industry.

Fixed-wing drones, like the [SenseFly](#) eBee Ag, [3DR](#) Aero-M and [PrecisionHawk](#) Lancaster, promise performance benefits, including endurance and ruggedness.

A fixed-wing drone can fly farther and cover a greater area on a single charge than multi-rotor counterparts, generally. But they are also used in just 6 percent of the flights for commercial and industrial purposes, DroneDeploy found.

Meanwhile, quadcopters, which promise to be easier for drone operators to control in flight and allow for rapid takeoff, are used pervasively.

DroneDeploy CEO and co-founder [Mike Winn](#) explained, “People would rather fly a quadcopter multiple times over a large area, or stop to change batteries, than go through the process of assembling a fixed-wing drone before a flight.”

Thankfully, most manufacturers of fixed-wing drones for commercial and industrial use have also developed quadcopters or other multi-rotor models.

The DroneDeploy study also found that commercial and industrial users of drones mapped 3 million acres of land in the past four months alone. That compares to mapping fewer than 2 million acres of land in the entire year before that.

Agriculture is using drones more than any other industry, so far, followed by construction. But the fastest growth in adoption of drones is seen in mining, inspection and oil and gas.

New industries are finding uses for drones, these days, including: education, emergency services and real estate, though institutions in these industries were barely even testing drones just one year ago.

And in the past year, the drone hardware most used in this market came from DJI; SenseFly (a Parrot-owned company); 3DR; AgEagle and Parrot, respectively. The most popular drone-camera tech in the market came from DJI, Canon, Sony, GoPro and Mapir.

DroneDeploy provides software and systems to help organizations use drones for commercial and industrial purposes of any kind, from mapping and measuring traffic, to surveillance and venue security, to spraying crops and monitoring crop health from on high.

The company based its study on the drone-related activities of its customers in 130 countries over the past 16 months.

[\[Washington Post\] University collects medical samples via drones in Madagascar](#)

AP 15 August 2016

https://www.washingtonpost.com/national/health-science/drones-link-remote-villages-in-madagascar-to-medical-laboratories/2016/08/15/d8a590c6-5e6b-11e6-8e45-477372e89d78_story.html

A New York university is using drone technology to improve the health care of people in remote parts of Madagascar.

Stony Brook University, which has been working in the island nation off the coast of Africa for nearly three decades, has teamed with a Michigan start-up company called Vayu to transport medical samples by drone for laboratory analysis.

Diagnosis of ailments, such as tapeworm disease, which causes life-threatening seizures and contributes to malnutrition in villages on the island, can now be completed within a few hours, said Peter Small, founding director of Stony Brook's Global Health Institute.

The drones are about the size of a large picnic table and have two sets of wings. They take off and land like helicopters and have a flight range of about 40 miles. Blood and other medical samples can be secured in small compartments in the body of the aircraft. The first successful flight occurred in late July

Drones are being used in other parts of the developing world to deliver medications and other supplies to remote areas, but Stony Brook officials say theirs is one of the first efforts involving a small unmanned aircraft that lands in remote villages and returns quickly to a laboratory.

To reach these villages, medical workers have had to travel on foot — there are no roads — a trip that takes five to nine hours each way. With a drone, they can dispatch the medical samples back to Stony Brook's Centre ValBio research station and get lab results within an hour or two, said Patricia Wright, the station's executive director.

Ultimately, the plan is to deliver the proper medications in a timely manner.

Small said villagers who live as they did centuries ago were coached by Stony Brook personnel ahead of time so they would not be frightened by the drones. "That was the biggest unknown, seeing how they would react," Small said, adding that "they didn't throw rocks at it."

Artificial Intelligence

[Engadget] [We don't understand AI because we don't understand intelligence](#)

Jessica Conditt

15 August 2016

<https://www.engadget.com/2016/08/15/technological-singularity-problems-brain-mind/>

Artificial intelligence prophets including Elon Musk, Stephen Hawking and Raymond Kurzweil predict that by the year 2030 machines will develop consciousness through the application of human intelligence. This will lead to a variety of benign, neutral and terrifying outcomes. For example, Musk, Hawking and dozens of other researchers [signed a petition](#) in January 2015 that claimed AI-driven machines could lead to "the eradication of disease and poverty" in the near future. This is, clearly, a benign outcome.

And then there's the neutral result: Kurzweil, who first posited the idea of the technological singularity, believes that by the 2030s people will be able to [upload their minds](#), melding man with machine. On the terrifying side of things, Musk envisions a future where humans will essentially be [house cats](#) to our software-based overlords, while Kurzweil takes it a step further, suggesting that humans will essentially be eradicated in favor of intelligent machines.

These claims are not ludicrous on their own. We've seen rapid advancements in technology over the past decades; we know computers are growing more powerful and more accessible by the month. Already in 2011, a supercomputer named Watson [won a game of Jeopardy](#) against two former champions, using a mixture of AI and all-important natural-language processing. The future is here and it may soon outstrip us.

Kurzweil's [timeline of the technological singularity](#) is based on the law of accelerating returns, wherein the more powerful computers become, the faster they advance. It's a timeline of extreme exponential growth, and right now we're smacking into the steep curve that leads to conscious machines and a world where robots are the dominant creatures on earth.

That's what Kurzweil believes. That's what Musk, Hawking and many other AI scientists believe. And isn't that a human thing, to believe in something? However, by 2045, belief will also be a machine thing, according to these researchers. We just need to create the most advanced AI possible, and then *bam* -- conscious machines.

This is where they lose me.

I agree that technology will continue to advance in unprecedented, accelerated ways; we're seeing this happen right now, and there's no reason to believe we are anywhere near a computational plateau. However, it is a huge leap from advanced technology to the artificial creation of consciousness. Essentially, the most extreme promises of AI are based on a flawed premise: that we understand human intelligence and consciousness.

AI experts are working with a specific definition of intelligence, namely the ability to learn, recognize patterns, display emotional behaviors and solve analytical problems. However, this is just one definition of intelligence in a sea of contested, vaguely formed ideas about the nature of cognition. Neuroscience and neuropsychology don't provide a definition of human intelligence -- rather, they have many. Different fields, even different researchers, identify intelligence in disparate terms.

Broadly, scientists regard intelligence as the ability to adapt to an environment while realizing personal goals, or even as the ability to select the best response to a particular setting. However, this is based largely on the biological understanding of intelligence, as it relates to evolution and natural selection. In practice, neuroscientists and psychologists offer competing ideas of human intelligence within and outside of their respective fields.

Consider the [following overview](#) from psychologists Michael C. Ramsay and Cecil R. Reynolds:

"Theorists have proposed, and researchers have reported, that intelligence is a set of relatively stable abilities, which change only slowly over time. Although intelligence can be seen as a potential, it does not appear to be an inherent fixed or unalterable characteristic. ... Contemporary psychologists and other scientists hold that intelligence results from a complex interaction of environmental and genetic influences. Despite more than one hundred years of research, this interaction remains poorly understood and detailed. Finally, intelligence is neither purely biological nor purely social in its origins. Some authors have suggested that intelligence is whatever intelligence tests measure."

This does not describe a field flush with consensus. And psychology is just one of a dozen industries concerned with the human brain, mind and intelligence.

Our understanding of technology may be advancing at an ever-accelerating rate, but our knowledge of these more vague concepts -- intelligence, consciousness, what the human mind even is -- remains in a ridiculously infantile stage. Technology may be poised to usher in an era of computer-based humanity, but neuroscience, psychology and philosophy are not. They're universes away from even landing on technology's planet, and these gaps in knowledge will surely drag down the projected AI timeline.

Most experts who study the brain and mind generally agree on at least two things: We do not know, concretely and unanimously, what intelligence is. And we do not know what consciousness is.

"To achieve the singularity, it isn't enough to just run today's software faster," Microsoft co-founder Paul Allen [wrote](#) in 2011. "We would also need to build smarter and more capable software programs. Creating this kind of advanced software requires a prior scientific understanding of the foundations of human cognition, and we are just scraping the surface of this."

Defining human intelligence and consciousness is still more philosophy than neuroscience. So let's get philosophical.

Conscious creativity

Musk, Kurzweil and other proponents of the technological singularity suggest over and over again that ever-increasing computational power will automatically lead to human intelligence and machine consciousness. They imply that the more rapidly technology advances, the more rapidly other scientific fields will also advance.

"It is not my position that just having powerful enough computers, powerful enough hardware, will give us human-level intelligence," Kurzweil [said in 2006](#). "We need to understand the principles of operation of the human intelligence, how the human brain performs these functions. What is the software, what are the algorithms, what is the content? And for that we look to another grand project, which I label reverse-engineering the human brain, understanding its methods. And we see the same exponential progress we see in other fields, like biology."

Kurzweil recognizes the need to understand human intelligence before accurately rebuilding it in a machine, but his solution, reverse-engineering a brain, leaps across the fields of neuroscience, psychology and philosophy. It assumes too much -- mainly that building a brain is the same thing as building a mind.

These two terms, "brain" and "mind," are not interchangeable. It's feasible that we can re-create the brain; it's an infinitely complex structure, but it's still a physical thing that can, eventually, be fully mapped, dissected and re-formed. Just this month, IBM announced it had created a [working, artificial neuron](#) capable of reliably recognizing patterns in a noisy data landscape while behaving unpredictably - specifically what a natural neuron should do. Creating a neuron is light-years away from rebuilding an entire human brain, but it's a piece of the puzzle.

However, it's still not a mind. Even if scientists develop the technology to create an artificial brain, there is no evidence that this process will automatically generate a mind. There's no guarantee that this machine will suddenly be conscious. How could there be, when we don't understand the nature of consciousness?

Even if scientists develop the technology to create an artificial brain, there is no evidence that this process will automatically generate a mind.

Consider just one aspect of the mind, consciousness and intelligence: creativity. On its own, creativity is a varied and murky thing for each individual. For one person, the creative process involves spending weeks isolated in a remote cabin; for another, it takes three glasses of whiskey; for still another, creativity manifests in unpredictable flashes of inspiration that last minutes or months at a time. Creativity means intense focus for some and long bouts of procrastination for others.

So tell me: Will AI machines procrastinate?

Perhaps not. The singularity suggests that, eventually, AI will be billions of times more powerful than human intelligence. This means AI will divest itself of messy things like procrastination, mild alcoholism and introversion in order to complete tasks similar to those accomplished by their human counterparts. There's little doubt that software will one day be able to output beautiful, creative things with minimal (or zero) human input. Beautiful things, but not necessarily better. Creative, but not necessarily conscious.

Singularities

Kurzweil, Musk and others aren't predicting the existence of [Tay the Twitter bot](#); they're telling the world that we will, within the next 20 years, copy the human brain, trap it inside an artificial casing and therefore re-create the human mind. No, we'll create something even better: a mind -- whatever that is -- that doesn't need to procrastinate in order to be massively creative. A mind that may or may not be conscious -- whatever that means.

The technological singularity may be approaching, but our understanding of psychology, neuroscience and philosophy is far more nebulous, and all of these fields must work in harmony in order for the singularity's promises to be fulfilled. Scientists have made vast advances in technological fields in recent decades, and computers are growing stronger by the year, but a more powerful computer does not equate to a breakthrough in philosophical understanding. More accurately mapping the brain does not mean we understand the mind.

The technological singularity has a longer tail than the law of accelerating returns suggests. Nothing on earth operates in a vacuum, and before we can create AI machines capable of supporting human intelligence, we need to understand what we're attempting to imitate. Not ethically or morally, but technically. Before we can even think of re-creating the human brain, we need to unlock the secrets of the human mind.

[\[Tech Crunch\] Using artificial intelligence to create invisible UI](#)

Martin Legowiecki

15 August 2016

<https://techcrunch.com/2016/08/15/using-artificial-intelligence-to-create-invisible-ui/>

Interaction with the world around us should be as easy as walking into your favorite bar and getting your favorite drink in hand before your butt hits the bar stool. The bartender knows you, knows exactly

what drink you like and knows you just walked through the door. That's a lot of interaction, without any "interaction."

We're redefining how we interact with machines and how they interact with us. Advances in AI help make new human-to-machine and machine-to-human interaction possible. Traditional interfaces get simplified, abstracted, hidden — they become ambient, part of everything. The ultimate UI is no UI.

Everyone's getting in the game, but few have cracked the code. We must fundamentally change the way we think.

Cross-train your team

Our roles as technologists, UX designers, copywriters and designers have to change. What and how we build — scrolling pages, buttons, taps and clicks — is based on aging concepts. These concepts are familiar, proven and will still remain useful. But we need a new user interaction model for devices that listen, "feel" and talk to us.

Technologists need to become more like UX designers and vice versa. They must work much closer together and mix their roles, at least until some standards, best practices and new tools are established.

No decision trees

The bartender from the above example is where more of the UI is starting to reside. On one hand, that represents a lot more responsibility to create transparent experiences that tend to be based on hidden rules and algorithms. But on another, this gives us incredible latitude for creating open-ended experiences in which only important and viable information is presented to the user.

For example, to command our AI assistant, "Tell my wife I am going to be late," the system needs to be smart enough not only to understand the intent, but also to know who the wife is and the best way to contact her. No extraneous information is necessary, no option list, no follow-up questions. We call this Minimum Viable Interaction (MVI).

Your interface is showing

We've started talking to our machines — not with commands, menus and quirky key combinations — but using our own human language. Natural language processing has seen incredible advances and we finally don't need to be a machine to talk to one. We chat with the latest chatbots, search using Google Voice or talk to Siri. The accuracy of speech recognition has improved to an incredible 96 percent accuracy.

This space is way too dynamic to be married to an original creative concept.

The last few percentage points might not seem like a lot, but it's what makes or breaks the perfect experience. Imagine a system that can recognize what anyone says 100 percent of the time, no matter how we say things (whether you have an accent, pause between words or say a bunch of inevitable "uhhs" and "umms"). Swap a tap or a click for the Amazon Echo's far-field recognition, and the UI melts away. It becomes invisible, ubiquitous and natural.

We aren't there yet. For now, we can devise smart ways of disguising the capability gap. A lot of time goes into creating programming logic and clever responses to make the machine seem smarter than it really is. Make one mistake where the UI shows and the illusion will break.

Contextual awareness

The system needs to know more about us for invisible UI to become reality. Contextual awareness today is somewhat limited. For example, when asking for directions via Google Maps, the system knows your location and will return a different result if you are in New York versus California.

Our phones, watches and other mobile devices are loaded with a ton of sensors. They make us humans the cheap sensors machines need today. We gather the knowledge and data that the system needs to do its work.

But even with all the sensors and data, the machine needs to know more about us and what is going on in our world in order to create the experiences we really need. One solution is combining the power of multiple devices/sensors to gather more information. But this usually narrows down and limits the user base — not an easy thing to sell to a client. You have to think on your feet. Change, tweak, iterate. This space is way too dynamic to be married to an original creative concept.

What wasn't possible just yesterday is becoming mainstream today as we develop new experiences, explore new tech, topple old paradigms and continue to adapt.

Vehicles

[Washington Post] [Red light, green light: New Audis will predict the time until that stoplight turns green](#)

Jacob Bogage 15 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/15/red-light-green-light-new-audis-will-predict-the-time-until-that-stoplight-turns-green/>

Waiting for a green light is perhaps the worst of all driving frustrations. You're sitting there idling behind some station wagon, there's nothing but commercials on the radio and when, dear God, will this traffic light change colors so I can inch my way onward?

Now, your car will tell you.

Audi will debut software in select 2017 models that communicates with municipal traffic light systems to predict when lights will go from red to green.

Some cities already monitor traffic patterns, and Audi and its supplier, Traffic Technology Services, will harvest that data and use it to tell drivers how long they'll be sitting there.

The software will appear in select 2017 Audi Q7, A4 and A4 all-road models with Audi connect, a data subscription service that comes free on all new Audis.

Audi expects to have the system running in at least five major metropolitan cities by the end of the year. Those cities will be announced within the next month, a company spokesman said.

The software marks a step toward connecting individual cars to a metropolitan traffic grid, a vision automakers see as crucial to self-driving-friendly roadways. Autonomous vehicles, to keep from crashing into one another, need to know where other cars are. One way to do that is by equipping each vehicle

with sensors. A second way is to allow vehicles to communicate with existing infrastructure, like stoplights, to detect traffic patterns.

"This feature represents Audi's first step in vehicle-to-infrastructure integration," said Pom Malhotra, Audi's general manager of connected vehicles in a news release. "In the future we could envision this technology integrated into vehicle navigation, start/stop functionality and [it] can even be used to help improve traffic flow in municipalities. These improvements could lead to better overall efficiency and shorter commuting times."

While waiting at a red light, the Audis will project the estimated waiting time on the car's instrument cluster as well as its head-up display, according to the release.

[\[Washington Post\] Tesla's Autopilot controversy just took another twist](#)

Brian Fung 15 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/15/teslas-autopilot-controversy-just-took-another-twist/>

Tesla is adding the word "autopilot" back onto its Chinese website after earlier reports suggested the electric car maker had deliberately removed after a crash involving the driver-assist technology.

The company told The Washington Post on Monday that it had "mistakenly dropped" the term while updating translations across its websites.

The Chinese-language site will now include the word "autopilot" followed by the phrase "zidong fuzhu jishi," which in English means "automatic-assist driving."

Tesla's marketing of its autopilot feature has come under [mounting scrutiny](#) in recent months amid a string of crashes linked to the technology. Autopilot is designed to keep a Tesla vehicle driving at a certain speed and within the lane markings, without crashing into other vehicles. But in the case of one recent crash in Beijing, the driver-assist feature could not prevent a Tesla from scraping against the side of a vehicle parked by the side of the road.

Tesla says the driver did not have his hands on the wheel, something the company urges before it allows drivers to enable autopilot. The driver claims that Tesla overpromised on the autopilot's capabilities.

On Monday, Reuters [reported](#) that Tesla had scrubbed the word "autopilot" from its Chinese website the night before, drawing a link between the two events. But Tesla denied the connection, saying it had been working on "addressing any discrepancies across languages for many weeks."

Still, it's unclear why or how the mistake that canned "autopilot" occurred. Tesla did not respond to a request for further explanations.

Tesla has been one of the few automakers working on driver automation to experience such high-profile crashes. An accident in May killed a Florida driver when his Tesla, which was under autopilot at the time, hit the side of a truck. In recent months, drivers have blamed Tesla's automatic features for several incidents, although autopilot does not appear to have been enabled in some cases.

[Bloomberg] Tesla Tweaks Autopilot's Chinese Translation After Beijing Crash

15 August 2016

<http://www.bloomberg.com/news/articles/2016-08-16/tesla-tweaks-autopilot-s-chinese-translation-after-beijing-crash>

Tesla Motors Inc. has altered the translation of how the electric-car maker markets its Autopilot system in China, following a minor accident in Beijing earlier this month.

The maker of the plug-in Model X crossover changed the translation to list Autopilot as a driver-assistance system, rather than a [self-driving](#) system, on its website, said Gary Tao, a Beijing-based spokesman. Luo Zhen, a 32-year-old Beijing resident, sideswiped a parked car when using Autopilot without keeping his hands on the wheel earlier this month, which scratched his Model S and didn't result in any injuries.

"We hope to clarify that it is a driving-assisting function and hope people can use it in a correct way," Tao said. Tesla has always asked its users to use Autopilot with both hands on the wheel since introducing the feature last year, he said.

Tesla's Autopilot system has come under greater scrutiny following a May 7 [crash](#) in Florida that killed a 40-year-old Ohio man, which the company said was the first known fatality in more than 130 million miles of use. China's regulators are crafting policies for autonomous driving and have directed automakers to suspend [road testing](#) of self-driving cars in the meantime. Domestic companies including Chongqing Changan Automobile Co., Baidu Inc. and Zhejiang Geely Holding Group Co. have urged the government to speed up the process and clear the way for technology that could make roads safer.

Luo took his eyes off the road and both hands off the wheel when his Model S sideswiped a Volkswagen Santana Vista during his commute to work on Aug. 2, he said by phone three days after the incident. Prior to purchasing the car, the sales manager demonstrated the feature by taking both hands off the wheel during a test drive, he said.

"They didn't clarify the risk but kept leaving the impression on everyone that its technology is fabulous and intelligent," Luo said of Tesla. "It can easily mislead people to overuse the function, which is immature."

Tao, the Tesla spokesman, said the company wasn't aware of the test drive taken by Luo. He confirmed the details related to the accident.

[Bloomberg] How Many of Our Vehicles Could Be Electric? How Does 87% Strike You?

Amrith Ramkumar

15 August 2016

<http://www.bloomberg.com/news/articles/2016-08-15/how-many-of-our-vehicles-could-be-electric-how-does-87-strike-you>

With all the [limits](#) on electric vehicles—battery life, cost, the availability of charging stations—you might expect that at most 50 percent of the vehicles on U.S. roads could be replaced by more-sustainable cars.

Buckle up: It's 87 percent, MIT reckons, in a study published Monday in the journal *Nature Energy*. Such a proportion, if it were the case today, would lead to a 60 percent reduction in total U.S. gasoline consumption and a 30 percent decrease in the [1.8 billion metric tons](#) of greenhouse gas emissions emitted by all American transportation in 2014.¹ Transport represents 26 percent of America's total greenhouse gas emissions.

That's huge. It's also a thought experiment. Currently [0.7 percent](#) of vehicles in the U.S. are electric, and plug-in electric vehicle sales [declined 17 percent](#) from 2014 to 2015.

But it's an interesting one. The findings represent a "technical potential" that shows how many households could start living more sustainably now, said Professor Jessika Trancik, who led the study. For instance, in a two-car household, having one electric car and one conventional vehicle could meet drivers' needs across the country and significantly increase the number of electric vehicles on the road.

The researchers found that more affordable electric vehicles, such as the Ford Focus Electric and the Nissan Leaf, could meet our MIT energy and affordability needs if people recharged their cars just once daily, either [overnight at home](#) or during the day at work. Then the scarcity of public charging stations wouldn't be as pressing. And although electric vehicles' sticker prices are higher, the researchers concluded that their operating costs would be lower than for conventional cars. This would make the overall costs comparable.

The study noted that rural areas had a slightly smaller adoptive potential than urban areas but found similar potential across different types of cities, ranging from more compact cities such as New York and to more sprawling ones like Houston.

Areas with more extreme temperatures—using heating or cooling systems lowers an electric vehicle's driving range—and where such larger vehicles as [trucks](#) and SUVs are more common will be less likely to increase their use of EVs, said Jeremy Michalek, an engineering professor at Carnegie Mellon and director of the university's vehicle electrification group. Michalek, who wasn't involved in the study, said he prefers to focus on the most challenging days for vehicles rather than the average conditions.

"You buy a pickup truck even though most days you're not loading it full of stuff. You buy it because you have to move some things a few days a year," he said, noting that most electric vehicles are small or midsize cars. Trancik acknowledged the issue.

The researchers used two data sets, one with second-by-second driving behavior based on GPS data collected from Texas, Georgia, and California and a national data set based on travel surveys. They accounted for different [regional](#) driving and weather conditions to conclude that daily energy consumption is distributed similarly across cities for most vehicles.

Trancik hopes the research will show how the potential for EV adoption could exceed even 87 percent. She said the researchers are developing an app based on their model that could tell car shoppers how many days per year an electric vehicle could meet their needs and advise two-car households on which type of car, EV or regular, they should use on high-energy-consumption days.

Regardless of advances in technology and the addition of charging stations, there will always be days on which electric vehicles can't get the job done. For these, Trancik said, there would need to be better car-sharing services or advancements in other environmentally friendly cars that could fill in the gaps. She also pointed to the need for further quantitative research on EVs.

“Common sense isn’t enough. Common sense leads people to conclude either that the potential is high or low. You have extreme views on both ends,” she said. “It’s important to unpack that question and ask research questions that we can answer quantitatively.”

[\[Yahoo! Finance\] Apple Loses Self-Driving Car Expert to Automotive Upstart](#)

15 August 2016

<http://finance.yahoo.com/news/apple-loses-self-driving-car-234418579.html>

Apple’s ultra-secret self-driving car project has lost a key technologist to Chinese-backed electric car startup Faraday Future.

Bart Nabbe, who worked on computer vision, navigation, and artificial intelligence on Apple’s special projects team, has left for Faraday Future, according to a Faraday Future spokesman. He joined in late July as director of strategic partnerships of automated driving.

Nabbe’s departure from , [reported by Electrek](#), marks the latest headwind for Apple’s not-so-secret plan to develop an all-electric autonomous vehicle. Steve Zadesky, who was believed to be leading the push, reportedly [left Apple’s car project](#) in January.

A string of problems including employee defections has caused Apple to delay its anticipated [car debut from 2020 to 2021](#). Of course, Apple has yet to publicly acknowledge any of this--even whether it is considering making a car. But Tesla CEO Elon Musk has described the initiative, Project Titan, as Silicon Valley’s “worst-kept secret.”

[Get Data Sheet](#), Fortune 's *technology newsletter*.

Nabbe, who is an industry-leader in self-driving car systems, will serve as a big resource for Faraday Future as it tackles the complex issue of automated driving, according to an emailed statement from the company. Faraday Future, with Nabbe’s help, is still developing and refining its autonomous driving plans, the spokesman added.

Nabbe’s expertise is in how autonomous things--not just cars, but robots too--perceive and plan their way safely around people and objects in the outside world, according to his LinkedIn profile. Self-driving cars typically use a combination of sensors to see, as well as artificial intelligence that handles the perception and learning parts. Nabbe is adjunct faculty member at Carnegie Mellon, a university that coincidentally formed a partnership with ride hailing service Uber last year-- only to watch [40 of its faculty, researchers, and technicians](#) join the ride-hailing startup’s new tech center there.

Nabbe worked in special projects at Apple for almost two years. Before Apple, Nabbe he served as a principal research scientist and assistant project manager for Toyota.

Nabbe’s hiring by Faraday Future is just the latest in an endless employment shuffle in the autonomous vehicle world. Apple has snagged employees from Tesla, which has grabbed its own fair share of skilled executives from tech companies like and automakers such as Audi. And Faraday Future is grabbing folks from all of them.

In June, Faraday Future lured longtime [automotive industry executive Marco Mattiacci](#) away from Ferrari. The electric vehicle startup also has a number of Tesla alumni in its ranks, including [James Chen](#), its new vice president of government relations and general counsel, and Nick Sampson, the company’s

senior vice president of research and development and engineering. Top managers in the company's global supply chain, manufacturing, and human resources all worked at Tesla in its early years.

E-Rate

[Yahoo! Finance] Denver Public School System Selects Zayo for Major Network Upgrade
15 August 2016

<http://finance.yahoo.com/news/denver-public-school-system-selects-140000973.html>

Denver Public Schools (DPS), Colorado's largest school district, has selected Zayo Group Holdings, Inc. ([ZAYO](#)) for a dark fiber network. The network will connect 153 schools and sites, including two DPS data centers. The 618-mile solution consists of 562 miles of network in place or under construction and 56 miles of new build, which will be leveraged for follow-on tenants.

More than 100,000 students and educators will leverage the higher bandwidth that is needed for digital textbooks and tools, online standardized testing, streaming media and online resources and apps that are critical for K-12 curriculum.

The district is funding the upgrade through E-Rate, a federal program that subsidizes internet infrastructure so schools and libraries can provide high-speed internet. This is the first year that dark fiber has been included in the program. The solution will provide DPS with full network control and the ability to add capacity as needed.

"Denver is the largest school district in Colorado to leverage E-Rate funded dark fiber. Its decision sets a precedent among top-tier school districts in the country that dark fiber is a viable and economical solution for long term bandwidth demands," said John DiLacqua, director of Zayo's K-12 & E-Rate segment. "As a result, the resilient, secure and high-capacity network will benefit employees and students across the district."

Zayo has implemented more than 30 E-Rate-funded solutions in Colorado. Additional projects have been completed or are underway in Georgia, California, Arizona, Idaho, Indiana, Kansas, Michigan, Minnesota, New York, Texas, Utah and Washington. For more information on Zayo's E-Rate certified services, visit <http://www.zayo.com/solutions/industries/research-education/>.

About Zayo Group

Zayo Group Holdings, Inc. ([ZAYO](#)) provides communications infrastructure services, including fiber and bandwidth connectivity, colocation and cloud services to the world's leading businesses. Customers include wireless and wireline carriers, media and content companies and finance, healthcare and other large enterprises. Zayo's 112,000-mile network in North America and Europe includes extensive metro connectivity to thousands of buildings and data centers. In addition to high-capacity dark fiber, wavelength, Ethernet and other connectivity solutions, Zayo offers colocation and cloud services in its carrier-neutral data centers. Zayo provides clients with flexible, customized solutions and self-service through Tranzact, an innovative online platform for managing and purchasing bandwidth and services. For more information, visit zayo.com.

Forward-Looking Statements

This press release contains a number of forward-looking statements. Words, and variations of words such as “believe,” “expect,” “plan,” “continue,” “will,” “should,” and similar expressions are intended to identify our forward-looking statements. No assurance can be given that future results expressed or implied by the forward-looking statements will be achieved and actual results may differ materially from those contemplated by the forward-looking statements. These forward-looking statements involve risks and uncertainties, many of which are beyond our control. For additional information on these and other factors that could affect our forward-looking statements, see our risk factors, as they may be amended from time to time, set forth in our filings with the SEC, including our 10-K dated September 18, 2015. We disclaim and do not undertake any obligation to update or revise any forward-looking statement in this press release, except as required by applicable law or regulation.

Artificial Intelligence

[Washington Post] Putting a computer in your brain is no longer science fiction

Elizabeth Dwoskin

15 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/15/putting-a-computer-in-your-brain-is-no-longer-science-fiction/>

VENICE BEACH, Calif. — Like many in Silicon Valley, technology entrepreneur Bryan Johnson sees a future in which intelligent machines can do things like drive cars on their own and anticipate our needs before we ask.

What’s uncommon is how Johnson wants to respond: find a way to supercharge the human brain so that we can keep up with the machines.

From an unassuming office in Venice Beach, his science-fiction-meets-science start-up, Kernel, is building a tiny chip that can be implanted in the brain to help people suffering from neurological damage caused by strokes, Alzheimer’s or concussions. The team of top neuroscientists building the chip — they call it a neuroprosthetic — hope that in the longer term, it will be able to boost intelligence, memory and other cognitive tasks.

The medical device is years in the making, Johnson acknowledges, but he can afford the time. He sold his payments company, Braintree, to PayPal for \$800 million in 2013. A former Mormon raised in Utah, the 38-year-old speaks about the project with missionary-like intensity and focus.

“Human intelligence is landlocked in relationship to artificial intelligence — and the landlock is the degeneration of the body and the brain,” he said in an interview about the company, which he had not discussed publicly before. “This is a question of keeping humans front and center as we progress.”

Johnson stands out among an elite set of entrepreneurs who believe Silicon Valley can play a role in funding large-scale scientific discoveries — [the kind that can dramatically improve human life](#) in ways that go beyond building software.

Though many of their ventures draw from software principles: In the last two years, venture capital firms like Y-Combinator, Andreessen Horowitz, Peter Thiel’s Founders Fund, Khosla Ventures and others have poured money into start-ups that focus on “bio-hacking” — the notion that you can engineer the body the way you would a software program. They’ve funded companies that aim to sequence the bacteria in the gut, reprogram the DNA you were born with, or conduct cancer biopsies from samples of

blood. They've backed what are known as cognitive-enhancement businesses like Thync, which builds a headset that sends mood-altering electrical pulses to the brain, and Nootrobox, a start-up that makes chewable coffee supplements that combine doses of caffeine with active ingredients in green tea, leading to a precisely-engineered, zenlike high.

It's easy to dismiss these efforts as the hubristic, techno-utopian fantasies of a self-involved elite that believes it can [defy death](#) and human decline — and in doing so, confer even more advantages on the already-privileged.

And while there's no shortage of hubris in Silicon Valley, it's also undoubtable some of these projects will accelerate scientific breakthroughs and fill some of the gaps left in the wake of declining public funding for scientific research, said Laurie Zoloth, professor of Medical Humanities and Bioethics at Northwestern University. Moreover, techies are motivated by the fact that many biological and health challenges increasingly involve data-mining and computation; they're looking more like problems that they know how to solve. Large-scale genome sequencing, for example, has long been seen as key to unlocking [targeted cancer therapies](#) and detecting disease far earlier than current methods; it's becoming more of a reality as the cost of sequencing, storing and analyzing the data has dropped dramatically, leading to a flood of investments in that area.

Kernel is cognitive enhancement of the not-gimmicky variety. The concept is based on the work of Theodore Berger, a pioneering biomedical engineer who directs the Center for Neural Engineering at the University of Southern California, and is the startup's chief science officer.

For over two decades, Berger has been working on building a [neuroprosthetic](#) to help people with dementia, strokes, concussions, brain injuries and Alzheimer's disease, which afflicts 1 in 9 adults over 65.

The implanted devices try to replicate the way brain cells communicate with one another. Let's say, for example, that you are having a conversation with your boss. A healthy brain will convert that conversation from short-term memory to long-term memory by firing off a set of electrical signals. The signals fire in a specific code that is unique to each person and is a bit like a software command.

Brain diseases throw off these signaling codes. Berger's software tries to assist the communication between brain cells by making an instantaneous prediction as to what the healthy code should be, and then firing off in that pattern. In separate studies funded by the Defense Advanced Research Projects Agency over the last several years, Berger's chips were shown to [improve recall functions](#) in both rats and monkeys.

A year ago, Berger felt he had reached a ceiling in his research. He wanted to begin testing his devices with humans and was thinking about commercial opportunities when he got a cold call from Johnson in October 2015. He hadn't heard of Johnson; the Google search said he was a tech entrepreneur who had founded a payments processing company and invested in out-there science start-ups. The two met in Berger's office later that month. They talked for four hours, skipping lunch, and by the end of the day, Johnson said he would put up the funds for the two to start something together. "I don't know who, but somebody was looking over us," Berger said of the meeting.

For Johnson, the meeting was a culmination of a longtime obsession with intelligence and the brain.

Shortly after he sold Braintree, he was already restless to start another company. He spent six months calling everyone he knew who was doing “something audacious” — about 200 people in all. “I wanted to understand, what mental models people maintained — how did they define what to work on and why?” he says.

He then set up a \$100 million fund that invests in science and technology start-ups that could “radically improve quality of life.” The fund, which comes exclusively from his personal fortune, was called OS Fund, because he wanted support companies that were making changes at the so-called operating-system level, he said. Johnson’s goal was to take projects from “crazy to viable” — including start-ups attempting to mine asteroids for precious metals and water, delivery drones for developing countries, and an artificial-intelligence company building the world’s largest human genetic database.

At the same time, he kept returning to intelligence, both artificial and real. As he saw it, artificial intelligence was booming — technology advances were moving at an accelerated pace; the pace of the human brain’s evolution was sluggish by comparison. So he hired a team of neuroscientists and tasked them with combing through all the relevant research, with the goal of forming a brain company. Eventually they settled on Berger.

Ten months later, the team is starting to sketch out prototypes of the device and is conducting tests with epilepsy patients in hospitals. They hope to start a clinical trial, but first they have to figure out how to make the device portable. (Right now, patients who use it are hooked up to a computer.)

Zoloth says one of the big risks of technologists funding science is that they fund their own priorities, which can be disconnected from the greater public good. Many people don’t have enough resources to fulfill the brain potential they currently have, let alone enhance it. “Saying that if tech billionaires fund what they want may inadvertently fund science for the larger public, as a sort of leftover effect, is a problematic argument,” she said. “If brilliantly creative high school teachers in the inner city, for example, could fund science, too, then perhaps the needs of the poor might be found more interesting.”

Johnson says he is acutely aware of those concerns. He recognizes that the notion of people walking around with chips implanted in their heads to make them smarter seems far-fetched, to put it mildly. He says the goal is to build a product that is widely affordable, but acknowledges there are challenges. He points out that many scientific discoveries and inventions — even the printing press — started out for a privileged group but ended up providing massive benefits to humanity. The primary benefits of Kernel, he says, will be for the sick, for the millions of people who have lost their memories because of brain disorders. Even a small improvement in memory — a person with dementia might be able to remember the location of the bathroom in their home, for example — can help people maintain their dignity and enjoy a greater quality of life.

And in an age of AI, he insists that boosting the capacity of our brains is itself an urgent public concern. “Whatever endeavor we imagine — flying cars, go to Mars — it all fits downstream from our intelligence,” he says. “It is the most powerful resource in existence. It is the master tool.”

Business and Market

[Bloomberg] Xiaomi China Phone Shipments Fall 38% as Huawei Takes Lead

Peter Elstrom

15 August 2016

<http://www.bloomberg.com/news/articles/2016-08-16/xiaomi-phone-shipments-fall-38-in-china-as-huawei-takes-lead>

Xiaomi Corp., the once-hot Chinese smartphone maker, saw shipments tumble 38 percent in China in the second quarter as Huawei Technologies Co. took over the top spot in the world's largest market, according to research from International Data Corp.

Xiaomi shipped 10.5 million smartphones in the quarter, down from 17.1 million in the same period a year earlier. That made the company the fourth-largest competitor in the market behind Huawei, OPPO and Vivo, according to IDC.

Xiaomi disputed the IDC numbers, citing data released by other researchers. It said IHS showed shipments of 14.2 million units while Strategy Analytics has the company at 12.8 million units, the Beijing-based company said in a statement.

The Chinese market, the world's biggest, has grown increasingly competitive as domestic manufacturers have improved their quality, design and marketing, putting pressure on global leaders Apple Inc. and Samsung Electronics Co. Apple saw shipments in China drop 32 percent in the second quarter and the iPhone maker fell to fifth in the market, according to IDC.

The research firm said that Huawei and OPPO gained ground by concentrating on one or two key attributes in their marketing messages. Huawei emphasized the Leica lens now available on its phones, while OPPO pitched fast-charging technology.

Apple's global shipments are set to decline in 2016 as it continues to lose ground in its largest overseas market, Canalys said in a separate report.

"The iPhones lack features such as waterproofing and wireless charging. Apple needs to catch up with the competition if it wants to compete," Canalys research analyst Jessie Ding wrote.

[Bloomberg] Steve Cohen's Point72 Boosts Amazon Stake, Sells Off Alphabet

Taylor Hall and Saijel Kishan

15 August 2016

<http://www.bloomberg.com/news/articles/2016-08-15/steve-cohen-s-point72-boosts-amazon-stake-sells-off-alphabet>

Point72 Asset Management, the firm that oversees billionaire Steve Cohen's wealth, boosted its stake in Amazon.com Inc. while selling off its holding of Google parent Alphabet Inc. in the second quarter.

Point72 bought 536,020 shares in Seattle-based Amazon, boosting its position to 666,620 shares valued at \$477 million as of June 30, according to a filing with the U.S. Securities and Exchange Commission, and making it the family office's biggest U.S.-listed holding. The Stamford, Connecticut-based firm reduced its positions in Facebook Inc. and Netflix Inc.

[Bloomberg] Berkshire Built Apple Stake as Stock Slipped in Second Quarter

Noah Buhayar

15 August 2016

<http://www.bloomberg.com/news/articles/2016-08-15/buffett-s-berkshire-increases-apple-stake-to-15-2-million-shares>

Warren Buffett's Berkshire Hathaway Inc. increased an investment in Apple Inc. during the second quarter, taking advantage of a dip in the iPhone maker's stock to build the holding.

Berkshire boosted its stake in Apple by 55 percent to 15.2 million shares, according to a regulatory filing Monday from the billionaire's Omaha, Nebraska-based firm. The investment was valued at \$1.46 billion as of June 30.

"Apple's stock came down substantially in the second quarter," David Kass, a professor at the University of Maryland's Robert H. Smith School of Business who has taken students to meet Buffett, said in a phone interview. "Value investors always like the price to go down because it gives them an opportunity to buy more."

Apple shares fell shortly after Berkshire took its initial stake, sliding 12 percent in the second quarter. Sales of iPhones have fallen this year as customers upgrade their handsets at a slower pace. That, paired with mounting competition in China, means that the company's revenue is expected to decline this fiscal year for the first time since 2001.

Yet with Apple gearing up to introduce a new iPhone this year, the trough of its product cycle may also have presented an opportunity for investors to boost their stakes. The share price averaged less than \$100 during the quarter and has rallied 13 percent since July 26, when Chief Executive Officer Tim Cook forecast a sales decline for the fourth fiscal quarter that was [less severe](#) than many analysts had expected.

Berkshire's bet stands in contrast to those of other prominent investors. In April, billionaire Carl Icahn said he exited a position in the company because of concern about its relationship with China. David Tepper's Appaloosa Management [disclosed](#) in May that it sold its Apple stake in the first quarter.

Buffett has previously said that smaller investments, including the Apple stake, were initiated by his deputy money managers, Todd Combs or Ted Weschler. Even as Berkshire's stock picks are closely watched by investors, they've become less important to its overall performance. During the past two decades, the billionaire has focused more on acquisitions than stocks to generate growth.

Wal-Mart Stores

Berkshire also trimmed a number of its holdings in the quarter. Its stake in Wal-Mart Stores Inc. -- one of Buffett's picks -- fell to 40.2 million shares from 55.2 million. The retailer rallied 6.6 percent in the second quarter to \$73.02 a share.

Buffett's company also cut holdings of Deere & Co. and Suncor Energy Inc. in the three months ended June 30, according to Monday's filing.

"It's a little bit of fine tuning," said University of Maryland's Kass. Buffett and his deputies "do not make many changes to their portfolio."

[WSJ] Dropbox Is in Talks With Advisers for Possible 2017 IPO

Alex Barinka and Manuel Baigorri

15 August 2016

<http://www.bloomberg.com/news/articles/2016-08-15/dropbox-said-to-discuss-possible-2017-ipo-in-talks-with-advisers>

Dropbox Inc., the popular file-storage company, has met with advisers to discuss the possibility of an initial public offering as soon as 2017, according to people familiar with the matter.

Management wanted to talk about the feasibility of a listing and get a sense of the valuation the company could fetch from public market investors, the people said. The conversations were exploratory and no final decision has been made on a potential IPO, said the people, who asked not to be identified because the matter is private.

The meetings, which the people said Dropbox sought out, signal a shift in thinking by the closely held company and Chief Executive Officer Drew Houston, who [said](#) last year it had no plans to go public anytime soon.

A spokeswoman for Dropbox declined to comment.

Dropbox, based in San Francisco, has faced [questions](#) over whether it's worth the \$10 billion valuation it was awarded in a 2014 funding round. Since then, a number of investors who also invest in both public and private stocks have written down the value of their holdings in the company.

Cost Discipline

Though not yet profitable, the company is free-cash-flow positive, Houston said at the Bloomberg Technology Conference in June. Getting to that point took revenue growth and greater discipline on costs, Todd Jackson, the company's vice president of product and design, [said](#) in June.

Some 200,000 business teams pay for Dropbox products, Houston said at Fortune's Brainstorm conference last month. The company recently added sports retailer Adidas AG to its list of enterprise customers. It has 500 million registered users, according to its [website](#).

After making its name in file-syncing and sharing, Dropbox has been trying to expand into the larger market of cloud-based collaboration. The company has recently added tools for scanning documents with a smartphone camera and for creating new Microsoft Office documents with the click of a button.

One of Dropbox's closest competitors, Box Inc., went public last year at a \$1.7 billion valuation -- [29 percent](#) below the value it fetched in a private funding round six months earlier. Box shares traded at \$12.88 at 12:36 p.m. in New York, below its \$14-a-share IPO price.

IPO Market

This year has been the slowest for U.S. technology and communications IPOs since the recession, according to Bloomberg data. Some technology startups have [put off](#) going public because of fears they may have to stomach a lower valuation than they last achieved in a private fundraising round.

Despite those concerns, some are still thinking about testing the water. Spotify Ltd., the music-streaming company valued at more than \$8 billion, plans to [go public](#) in the second half of next year, people familiar with the plan said last month.

Meanwhile Uber Technologies Inc.'s sale of its money-guzzling China unit to competitor Didi Chuxing takes the company one step [closer](#) to being ready for an IPO.

Of the 11 technology companies to list on U.S. exchanges in 2016, Japanese messaging platform Line Corp., which also listed in Tokyo, is the biggest by market value. Line raised \$1.3 billion in a July IPO and its shares are up 43 percent since its debut, valuing the company at about \$9.8 billion.

[\[Bloomberg\] TPG to Acquire RCN, Grande in \\$2.25 Billion Cable TV Deal](#)

Ville Heiskanen and Brooke Fox 15 August 2016

<http://www.bloomberg.com/news/articles/2016-08-15/tpg-to-buy-rcn-grande-communications-for-2-25-billion>

Private-equity firm TPG agreed to buy two small cable providers, RCN Telecom Services LLC and Grande Communications Networks LLC, in a \$2.25 billion bet on demand for faster internet connections and video.

TPG will acquire RCN for \$1.6 billion and Grande for \$650 million from private-equity firm Abry Partners LLC to create a top 10 cable company in the U.S., according to a statement Monday. Google Capital, Alphabet Inc.'s investment fund, will acquire a minority stake in the companies, according to a representative, who declined to provide additional details.

Amid consolidation in the cable industry, private-equity firms have been quietly buying smaller operators, merging them together and upgrading internet bandwidth and speed with the goal of injecting more competition in the market and, in some cases, attracting takeover interest. With networks in Texas, New York, Boston, Chicago and Washington, D.C., TPG could bring another super-fast internet provider to territories where AT&T Inc., Verizon Communications Inc. and even Google have service available or in the works.

On their own, cable's tiny mom-and-pops seldom become the deal targets of the likes of cable giants Comcast Corp. or Charter Communications Inc. Some serve sparsely populated corners of the country, while other "over-builders" like RCN struggle to keep their TV businesses profitable as they compete against entrenched incumbents. Yet the game changes once they're rolled up. In an industry where consolidation or acquisitions are necessary for survival, a cobbled-together, regional cable system is one of the few options left -- for both big and small providers.

TPG said RCN and Grande will challenge existing phone and cable operators by expanding gigabit-per-second, high-speed data services, and "focusing on providing high-quality and more reliable communications services along with better value and customer service."

TPG's purchases come after a wave of deals in the cable industry. Charter bought Time Warner Cable Inc. and Bright House Networks LLC and Altice NV acquired Cablevision Systems Corp. and Suddenlink Communications.

RCN has about 289,000 video subscribers in markets including New York, Boston and Philadelphia, while Grande serves 88,000 TV customers in Dallas and Austin, Texas, according to SNL Kagan.

For Google Capital, the investment in the two companies gives the search-engine giant another toehold in the market for TV and broadband delivery. In addition to providing these services directly to consumers in some cities through Google Fiber, the Mountain View, California-based company has been exploring various ways to get more involved in television, from YouTube programming to cable set-top boxes. Grande was actually the first cable provider to introduce a gigabit service in Austin following Google Fiber's push into the city. Google Capital, which specializes in later-stage investments, operates as a separate entity from Google Fiber.

Abry bought Grande in [2009](#) and RCN in 2010. JPMorgan Chase & Co. analyst Phil Cusick said the deal is probably about 8.25 times earnings before interest, taxes, depreciation and amortization, lower than the 8.8 times Ebitda that Altice paid for Cablevision and the 9.1 times that Charter paid for Time Warner Cable. Given their concentration in New York and Texas, RCN and Grande likely didn't fetch interest from Altice-Cablevision, which already serves New York, and Charter, which has systems in both New York and Texas, Cusick said.

The combined company will continue to be led by Chief Executive Officer Jim Holanda through Patriot Media, TPG said in the statement. The deal value includes the assumption of debt, according to a person familiar with the transaction who asked not to be identified.

PJT Partners Inc., UBS Group AG, Cleary Gottlieb Steen & Hamilton LLP, and Deloitte are TPG's advisers on the deal. Credit Suisse, Kirkland & Ellis LLP, Locke Lord and PwC are serving as advisers to Abry, Patriot Media, RCN and Grande.

The transactions, subject to regulatory approvals, are expected to close in the first quarter of 2017.

[\[WSJ\] Elon Musk Sets Ambitious Goals at Tesla—and Often Falls Short](#)

Susan Pulliam, Mike Ramsey and Ianthe Jeanne Dugan

15 August 2016

<http://www.wsj.com/articles/elon-musk-sets-ambitious-goals-at-teslaand-often-falls-short-1471275436?mod=LS1>

In May, Elon Musk made another of the bold projections that have become commonplace for the [Tesla Motors](#) Inc. chief executive when he said the electric car maker expected to deliver [about 17,000 vehicles](#) to buyers in the second quarter, its biggest ever.

In July, Tesla did something else that has become commonplace: It missed Mr. Musk's target. Tesla said it [delivered 14,370 vehicles](#), blaming the 15% shortfall partly on cars that were still on trucks and ships at the end of June.

"I have never set a goal which I know is unrealistic, unless I have specifically said I know it's unrealistic," said Mr. Musk, 45 years old, in an interview. Earlier this month, he committed to [boosting Tesla's weekly output](#) more than 50% by the end of this year compared with the first half of 2016.

Few chief executives aim as high or push as hard as Mr. Musk, also the chairman and largest shareholder of Tesla, which is growing faster than [General Motors](#) Co. and [Ford Motor](#) Co. and is worth \$34 billion in stock-market value. That's about one-third of the two traditional auto makers combined.

In the past five years, though, Tesla has fallen short of more than 20 projections made by Mr. Musk, ranging from car-production output to financial targets, according to an analysis by The Wall Street Journal. The company missed 10 of his stated goals by an average of nearly a year.

Tesla's Model S sedan was rolled out on schedule in 2012, but its Model X sport-utility vehicle was delayed nearly two years before its debut last September. The Model 3 sedan, initially targeted for rollout by the end of 2014, was unveiled in March and won't be delivered to customers until next year.

So far, the expectations game on Wall Street hasn't applied to Mr. Musk, showing that some of Silicon Valley's highest-profile technology entrepreneurs play by different rules. Companies that make promises they don't keep usually are punished by investors.

Tesla shares are up more than 760% in the past five years, compared with about 65% for the Dow Jones Industrial Average.

"This guy wants to save the world," said Ron Baron, the founder of asset manager Baron Capital Group Inc., which has a Tesla stake worth more than \$300 million. He isn't bothered by the misses. "The odds are very favorable that we are going to make a lot of money on this investment," Mr. Baron said.

Some analysts have begun to worry Mr. Musk's ambitious prognostications could haunt Tesla as it tries to meet his goal of churning out a million cars a year by the end of 2020. It has sold about 140,000 since 2008.

Last month, Mr. Musk announced a new "master plan" [that he wrote](#), which includes [plans for electric versions](#) of a pickup truck, small sport-utility vehicle, large over-the-road truck and bus-type vehicle in the next several years. Tesla will double its workforce after buying [SolarCity](#) Corp., a solar-energy company where Mr. Musk also is the largest shareholder, in a deal valued at \$2.6 billion.

"The targets they put out for production are ridiculously aggressive," said Colin Langan of [UBS](#) Group AG's UBS Investment Research.

Efraim Levy, an analyst with S&P Global Market Intelligence, said Tesla "has put off the day of reckoning for a long time because their case is based on delivering on future demand."

Tesla's future is riding largely on whether Mr. Musk can broaden the appeal of the Palo Alto, Calif., company's cars to the masses. The earliest Tesla models cost more than \$100,000. The company is now racing to complete work on the Model 3, a sedan with a base price tag of \$35,000 that will compete with gasoline-powered cars.

In May, Mr. Musk told analysts and investors that he expected production of the Model 3 to start on July 1, 2017.

In an interview with the Journal last month, the CEO talked down his own target. "Do I think production of the Model 3 will start on July 1 of next year?" Mr. Musk asked. "No."

Securities law gives executives leeway to prognosticate and issue targets, but a company could be held liable if its executives knew their projections had little or no chance of coming true.

“When you make a projection, you need a reasonable basis to believe in the validity of the projection,” said former Securities and Exchange Commission Chairman Harvey Pitt, who now runs a consulting business.

Mr. Musk said he doesn’t “set targets that I know can’t be met.” Tough goals keep Tesla moving forward. “In order to have a good outcome, we must strive for a great outcome,” he said.

Tesla workers assembled cars at the company’s factory in Fremont, Calif., last year. Tesla has sold about 140,000 cars since 2008 and is aiming to churn out a million a year by the end of 2020. Tesla has about 14,000 employees, up from 6,000 at the end of 2013. In 2014 and 2015, Mr. Musk pushed production targets higher but then fell short at the end of both years. He sets the targets, and the numbers filter down through the company’s ranks, according to Mr. Musk and employees.

A letter to shareholders in May 2014 set a goal of more than 35,000 deliveries of Model S vehicles for the full year. Tesla wound up missing the number by 3,345 financial filings show.

Instead of a “run rate” of 100,000 vehicles at the end of last year, or more than 8,000 made and sold a month, as Mr. Musk predicted in August 2014, the actual number was closer to 5,800 a month. Tesla came up about 8% short of his projection in February 2015 that Tesla would deliver about 55,000 vehicles by the end of last year.

Mr. Musk agrees it took longer than expected to meet the projections. That matters little, he said, because Tesla will eventually hit all its goals.

Cristina Balan, a former design engineer at Tesla, said quality issues increased as the company ramped up production on the Model S.

In early 2014, she saw cars lined up for assembly with flawed headliners, a part of the roof’s interior. She said the flaw left a gap between the headliner and the trim on the roof-support pillar through which the car’s metal frame was visible.

After Ms. Balan raised concerns about the headliners, she was forced to quit, she said. After leaving Tesla, she told Mr. Musk in an email that managers were “putting parts in the car knowing [they] are bad,” according to a copy of the email reviewed by the Journal.

She filed an arbitration claim against Tesla last year. The company and Mr. Musk declined to comment on Ms. Balan.

Last year’s production shortfall was caused partly by design problems with the Model X that left production of the SUV two years behind schedule. The vehicle’s “falcon wing” doors sometimes didn’t open or close, or the doors banged into objects after failing to notice them with ultrasonic sensors.

Mr. Musk changed the plans for a lift mechanism used in Model X doors just a few months before deliveries of the vehicle began last year, according to a former Tesla employee who worked on the doors.

In a [news release in April](#), Tesla blamed its own “hubris” for the delays and said it was a mistake to include so much new technology with the Model X.

Mr. Musk also wanted a piece of molding that runs along the doors to look like a single strip with no crack where the door opened, said people familiar with the project. They said his specifications made it impossible to produce the Model X on schedule or on budget, but no one told Mr. Musk.

To keep production moving, engineers used a different process for the molding, but that backfired. In January, Mr. Musk saw a piece of molding hanging down from one Model X and summoned more than a dozen managers into a conference room, according to people familiar with the matter.

After Tesla's director of product excellence, Chris Van Wert, explained the problem to Mr. Musk, the chief executive asked Mr. Van Wert to leave the room with him, the people said. Mr. Musk was alone when he came back. "He's no longer part of the company," Mr. Musk said about Mr. Van Wert.

In an email to the Journal, Mr. Musk said the door seal on the driver's side of the Model X that he saw wasn't properly attached. "I fixed it myself," Mr. Musk said. Mr. Van Wert was "asked to leave" the company, Mr. Musk said.

Mr. Van Wert said: "I wholeheartedly disagree with Elon's statements regarding my work at Tesla." Mr. Van Wert added that he continues to "believe deeply in the work Tesla is doing to transform the industry."

In a February conference call with analysts and investors, Mr. Musk cited moldings as one reason for delays of the Model X.

After Tesla [unveiled its Model 3](#) in March, the company received 373,000 customer reservations for the car. Mr. Musk has predicted Tesla will sell 500,000 total vehicles by 2018, two years sooner than the previous goal.

He went even further in a May conference call. "It's better to say our 2020 target for volume is closer to maybe close to one million vehicles in 2020 or something like that," Mr. Musk said.

Model 3 production is supposed to start in less than a year, but final engineering designs were finished only a few months ago. Other auto makers often complete engineering two years ahead of new-model launches.

Asked about the car's time frame, Mr. Musk agreed it is "really short. It will be like a world record." Anyone who doesn't believe Tesla will hit its goals "obviously...shouldn't buy the stock," he added.

[\[Bloomberg\] Tech's M&A Rainmaker Could Care Less That Rivals Badmouth Him](#)

Alex Sherman

16 August 2016

<http://www.bloomberg.com/news/articles/2016-08-16/tech-s-m-a-rainmaker-could-care-less-that-rivals-badmouh-him>

George Boutros has heard the stories -- the ones rivals tell about how he's cajoled, bullied and dissembled his way to the top of the cut-throat business of technology mergers and acquisitions.

So here's a news flash: Boutros doesn't care what the other guys think. "It's sour grapes," he says.

Source: Bloomberg/Qatalyst Group

In Silicon Valley dealmaking, few have been as successful -- and controversial -- as Boutros and his long-time comrade, Frank Quattrone.

Over the past eight years, the duo has given their boutique advisory firm, [Qatalyst Partners](#), the sharpest elbows in the Valley. Their specialty: pushing up prices for companies looking to sell, a strategy reminiscent of Quattrone's days during the Nasdaq boom of the 1990s.

Unique Methods

It's no wonder then that competitors keep trying to pick the firm apart and discern its methods. One major Wall Street bank has gone as far as to disseminate a 10-page presentation laying out its ability to counteract Qatalyst, people with knowledge of the matter said. Others have urged corporate buyers to shun the firm altogether, said the people, who asked not to be identified because the information is private.

Some large technology companies make the decision to avoid Qatalyst themselves. Meg Whitman, the head of Hewlett Packard Enterprise Co., caused a stir in 2015 by refusing to negotiate with Quattrone and Boutros. In an e-mail later made public, an executive working on the deal said Whitman had described Boutros as "evil."

Qatalyst has represented clients across the table from HP in the past, an external spokesman for Qatalyst said in a e-mailed statement, and expects to do so in the future.

Privately, rivals say Qatalyst's aggressiveness and Boutros's abrasiveness in negotiations can have adverse consequences. Indeed, acquisition premiums suggest the firm may be losing some of its edge. But publicly, few in the Valley will say a bad word about the firm. Who knows when you'll end up on the other side of the table?

Boutros, 55, scoffs at the notion that anyone is going to figure out his playbook.

"The playbook is, we don't have a playbook," he says. "We have to understand what it is that motivates an acquirer to want an asset. Where is your leverage as a seller?"

Feints, Threats

Feints and threats go with the territory in M&A. But tales of Qatalyst's stratagems are legion. Rivals stew over how Boutros and Quattrone wrestle buyers to the table and finagle lucrative deals. They complain Qatalyst plays bidders off each other, bluffs about prices and buyers' interest, forces tight deadlines to stunt due diligence -- whatever it takes.

Other investment bankers do the same things, of course. It's just that few seem as adept at it as Qatalyst.

"There are certain advantages to being mysterious and having that reputation," said Bill Gurley, a general partner at venture capital firm Benchmark Capital, who worked with Qatalyst as an OpenTable Inc. board member on its \$2.6 billion sale to Priceline Group Inc. in 2014. "Qatalyst's reputation almost works as a self-fulfilling prophecy."

Aggressive Stance

Which is why some buyers balk when Boutros pushes too hard. Silver Lake Management walked away from buying Shutterfly Inc. in 2014 when Qatalyst asked the private equity firm to make a final bid before it had finished conducting due diligence, according to a person familiar with the matter. In a May 13, 2015 filing, Shutterfly called the sales process, which lasted about four months, “thorough and broad-reaching,” and said a deal never occurred because the company didn’t receive an offer that would have approached a meaningful premium to its trading price at the time.

Last month, Hellman & Friedman LLC negotiated directly with fellow private equity firm Permira Advisers, instead of involving Qatalyst, on its \$900 million investment in Genesys Telecommunications Laboratories Inc., according to two people familiar with the transaction. Another person said Hellman’s choice was more about a long-standing relationship with Permira, rather than a wish to avoid Qatalyst.

“It is not uncommon for principals to negotiate directly with Qatalyst advising them in the background,” Boutros said. “Ultimately, Qatalyst will do what is best for the client and transaction.”

Representatives for the private equity firms declined to comment.

There’s an inherent conflict of interest for banks when they’re hired to sell companies. Advisers are supposed to push for the best price, but they’re only paid if deals are completed. Most bankers actually try to convince founders and chief executives to accept lower prices than they want, Gurley said.

“Qatalyst’s willingness to take an aggressive stance on price is so valued in the community,” said Gurley.

LinkedIn Deal

Qatalyst’s success speaks for itself: Along with Allen & Co., it landed the industry’s biggest deal so far this year, advising LinkedIn Corp. on its \$26.2 billion sale to Microsoft Corp. in June.

So far this year, Qatalyst has generated about \$220 million in fees, according to Freeman & Co., a research firm. That puts Qatalyst, which has about 60 employees, just behind Goldman Sachs Group Inc. and Morgan Stanley. It’s on course to finish 2016 at No. 3, same as last year.

There may be more deals to come before the year is out. Lyft Inc., the second-largest U.S. ride-sharing startup, is working with Qatalyst to find a buyer, a person familiar with the matter [said](#) in June, and Imperva Inc. confirmed this month it’s working with the firm to explore strategic options.

It’s been a remarkable run for Quattrone and Boutros, who’ve worked together for three decades. In the early 2000s, Quattrone’s career was derailed by a battle against obstruction of justice charges; he was exonerated on appeal. In 2008, he opened Qatalyst, and Boutros joined two years later. Quattrone referred requests for comment to Boutros, who speaks for the firm.

Today the San Francisco-based advisory, with Boutros as its chief executive and primary dealmaker, works almost exclusively for technology companies looking for buyers.

Since its beginnings, Qatalyst has cultivated its mystique by negotiating fat premiums. In 2009 and 2010, for instance, it scored an average premium of 80 percent on deals of more than \$500 million, according to data compiled by Bloomberg, against an average for U.S. technology deals of 37 percent.

“Qatalyst’s performance in technology is ahead of what any other boutique has been able to achieve in any other sector,” said Jeffrey Nassof, vice president at New York-based Freeman & Co.

Lately, though, those premiums have begun to dwindle. In the past four years, they've hovered near 35 percent, compared with an industry average of about 29 percent.

Premiums aren't the only measure of success, Boutros said. Since 2009, 27 tech companies have been sold at six-times revenue or more, he said. Qatalyst handled 14 of those sales.

"We're in the business of maximizing price," Boutros said. "Sometimes you're better off selling off a very high stock price and getting a lower premium. Sometimes a company is overvalued or highly valued by the market and may not get a huge premium, but you may realize a record-setting multiple."

One common Qatalyst tactic for fattening premiums is telling potential buyers they must hit minimum prices or face being eliminated in lightning-round auctions, people familiar with the firm said.

When OpenTable sold to Priceline, Gurley said he found out from a representative of the second-place bidder that it thought Boutros was bluffing. He wasn't, Gurley said.

"Our job is to represent our clients' best interests," Boutros said. "We give them unbiased advice, but at the end of the day they make the decision. If they decide to pursue a transaction, our job is to help them achieve the best possible outcome."

Yet maximizing prices for the sellers rarely endears a banker to the buyers, or to the buyers' bankers. Qatalyst, for instance, advised the British software company Autonomy Corp. on its 2014 sale what was then Hewlett-Packard Co. The price: \$10.3 billion.

That deal, engineered by then-chief of H-P Leo Apotheker, turned into a nightmare: HP later took an \$8.8 billion writedown and accused Autonomy of misreporting hundreds of millions of dollars in revenue before the purchase. The blowup was one reason HP's Whitman refused to negotiate with Qatalyst on Aruba, according to e-mails [disclosed](#) in June, following a request from the Wall Street Journal.

For now, at least, Qatalyst remains the boutique to beat. People who know Boutros say he's mellowed over the years. Few think he's about to go soft, however.

"The reason I keep doing this after 30 years is, every situation is different," Boutros said.

[\[Washington Post\] Tim Cook's own \(slow\) brand of innovation](#)

Haley Tuskayama

15 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/15/tim-cooks-own-slow-brand-of-innovation/>

All tech companies face a constant demand to innovate while also producing huge profits and sales growth. That means that Apple, the world's largest company, is also one of the few that can post a \$13.6 billion profit and still miss expectations because the product it's sold a billion of isn't selling quite as well as it once did.

Those sounding the alarm bells over Apple point to a few factors, chief among them that the smartphone market is slowing down and growing "saturated" — a term analysts use when they want to say that most people interested in buying a new smartphone probably have one already. For Apple, which makes nearly two-thirds of its revenue from the iPhone, it looks like that could be a big problem.

Of course, Apple chief executive Tim Cook is aware of this. It doesn't really bother him.

"This is actually a privilege, not a problem," [Cook said in an interview with The Washington Post](#).

Talk about turning lemons into lemonade and bugs into features. Cook's optimism — some might say denial — is not particularly popular, even among devoted Apple watchers. Some are even saying that Apple's crested the peak and is on its way back down.

The bears continued to roar after the company reported that its revenue had dropped from the previous year for the second quarter in the row. That just doesn't happen at Apple, or at least not at the Apple we've come to know in the past decade.

Yet even that doesn't seem to faze Cook. "I realize that the people who are focused on this 90-day clock say, 'Oh, my God, the smartphone industry only grew by 1 percent or decreased by 6 percent.' You know, the global economy's not that great right now," Cook told my Post colleague Jena McGregor. "But if you're in it for the long haul, this is the best market on earth."

He believes that, over time, "every person in the world will have a smartphone." And he's willing to wait for it.

In that way, Cook is an outlier in a go-go-go tech world. His accomplishments are on a long-term scale. They take investment. They're about refinement, about maturity. As chief operating officer, Cook was credited with what some could arguably call Apple's greatest but most boring accomplishment — the massive manufacturing and distribution chains that made it a household name in Beijing, Baltimore and everywhere in between.

So Cook's ears are closed to the criticism Apple gets for not being as flashy or open about its moonshots as its competitors. Google, Microsoft, Amazon and Facebook, for instance, are all very vocal about the spaghetti they throw at the wall. Sure, Apple may try a wearable here or a cheaper smartphone there, but it's not running headlong into anything.

"Technology is one of these industries where every week there's a new shiny object that people are skating to," Cook told The Post.

Further, he said, "Regardless of who you are, there's only so many things that you can do at a very high-quality and deep, deep level — personally and in business. And so we're not going to change that. That's core to our model and way of thinking."

There's a touch of (dare we say?) Jobsian hubris in that. But it does speak to Cook's own brand of innovation, which is in setting foundations rather than breaking ground. He cements success. It's no coincidence that, as Apple's hardware divisions see slower growth on the horizon, its services division is seeing more investment. In Cook's mind, the addressable market for the iPhone is 7 billion — and he knows those people will constantly need things to watch, listen and do on their phones.

That's great for a company that's looking for stability. It's great for a firm making sure it has enough money to stoke the future flames in research and development, which has grown under Cook's watch.

But the slow innovation philosophy can be hard to jell with a company vocabulary and culture that's steeped in superlative. So much of Apple's appeal has been due to its dramatic history, its deep lows that made its highs all the more breathtaking. The truth is that Tim Cook could probably keep Apple

humming along forever. The question is whether the rest of the world can ever accept an Apple that isn't run by one of the crazy ones.

[Bloomberg] Uber-Didi's Chinese Mega Deal Expected to Breeze Past Regulators

16 August 2016

<http://www.bloomberg.com/news/articles/2016-08-16/uber-didi-s-chinese-mega-deal-expected-to-breeze-past-regulators>

An alliance between the top two players in an industry often piques an antitrust watchdog's scrutiny. Less so with the Chinese [mega-merger](#) between the two largest on-demand ride services on the planet, Uber Technologies Inc. and local champion Didi Chuxing.

Didi's decision to buy out Uber's Chinese operation creates a \$35 billion ride-sharing juggernaut holding sway over almost 90 percent of the market. Yet the odds are slim that the commerce ministry or other agencies will nix such a high-profile deal involving a bona-fide national champion, legal and industry experts say.

Helping the chances of a deal sailing through is the struggle by China to come to grips with a regulatory framework for the sharing economy, an industry with which it has little experience. While Uber and Didi have operated in the country for years, it was [only last month](#) that the government said they would make them legal. Regulators are also likely to provide a generous classification of the company's market: though it reigns supreme in ride-sharing, it's only one of scores of players in the nation's transport system.

"It requires a very complicated and professional process to determine monopoly status. Revenue and market share figures usually do not show the full picture," said Huang Yong, a senior member of an anti-monopoly board of experts advising the State Council, China's cabinet. "In Didi's case, the regulators will need to draw a clear boundary of the market car-hailing apps are operating in, which will require loads of sophisticated research."

The Ministry of Commerce's Anti-monopoly Bureau is the primary body for assessing the antitrust impact of deals but other national bodies can get involved. Ministry spokesman Shen Danyang told reporters Aug. 2 that the merger "cannot move on" if Uber and Didi fail to file a formal application, while stopping short of saying it will investigate.

Approval from the anti-monopoly bureau for a deal is typically needed for companies with more than 400 million yuan (\$60 million) in annual revenue each and more than 2 billion yuan in combined sales. A formal review could then take months. But if ministry regulators accept that Didi's reported revenue falls under those thresholds, the anti-monopoly bureau can simply let the deal through.

Didi may not meet that threshold because it only takes a cut of the money that flows through its platform from ride-sharing, and has avoided charging commissions on taxi hailing in its push to lure drivers and users. Didi and Uber China are also said to be loss-making, because of a massive outlay in [subsidies](#).

What also helps is that regulators have traditionally emphasized the policing of sensitive state-owned enterprises with millions of workers such as banks and steelmakers, rather than fast-evolving web businesses, said Richard Lim, managing director of GSR Ventures. An example was when the government

handed out wireless licenses to rival carriers to curtail China Mobile Ltd.'s [dominance](#) of fourth-generation services.

A spate of recent technology-industry mergers have passed without incident: [Meituan and Dianping](#) were able to combine in group buying and food, while [Ganji.com and 58.com](#) Inc. got together in the classified ads business.

“The antitrust in China tends to be focused on big traditional industries,” said Lim, an early backer of Didi. “In China, the anti-monopoly regulators are not very focused on technology.”

If a merger goes ahead, government bodies are expected to keep a close eye on Didi with the ride-hailing service expected to gradually [do away](#) with subsidies once aimed at grabbing market share. Taxi companies -- many backed by local governments -- have railed against the company's rapid expansion, saying it threatens their drivers' livelihoods.

Yet few significant moves are made in China without first checking in with influential government bodies and garnering their tacit approval. Given the millions of users that could be affected, Didi is likely to have sounded out senior officials.

As an additional deterrent to an investigation, the top post in the ministry's anti-monopoly bureau has remained vacant since January.

“Competition is very much alive in the market after the merger,” said Dong Xu, a researcher from Analysys. Given the speed with which the industry is evolving, even relative minnows like Yidao, backed by Chinese internet giant LeEco, or publicly-traded Ucar could grow their market share over time, she said. They “are all prepped up to grab market share from those who lower subsidies.”

Google

[WSJ] Google Duo Review: A Bet on Simplicity

Nathan Olivarez-Giles

16 August 2016

<http://www.wsj.com/articles/google-duo-review-a-bet-on-simplicity-1471320066?mod=LS1>

There is no shortage of messaging apps jam-packed with features to help you stay in touch with friends. [Alphabet](#) Inc.'s Google has a new app, called Duo, that is going in the other direction and focusing on just one thing: video chat. Is it enough to get you to switch?

That depends on whether you chat often enough through video, and whether you prize simplicity. If the answers to both are yes, Duo is worth a look.

Duo, which is available for iOS and Android, has a single purpose: one-on-one phone video chats. There are no video filters, no group chats, no texting and no GIFs. Duo's interface and setup are as bare bones as the app's purpose. You sign up with just a phone number. On the main screen, there is one option. Tap “video call” to scroll or search your contact list for someone to call. That's it.

On the most important issue—video quality—Duo performed in line with other chat apps I've used. The visuals were sharp over Wi-Fi and blurry over most cellular connections. Google says Duo can switch to

an audio-only feed if video quality deteriorates too much, though I never ran into that scenario. Duo's calls are encrypted end-to-end, as with some other apps.

Duo has one feature called "knock knock" that sets the app apart from its competitors. If someone calls you using Duo, a notification shows you a video preview of the caller before you pick up. Seeing a video stream of your friend waiting for you to pick up is fun, but it wasn't a compelling enough feature for me to try to convince dozens of people I care about to download another app.

It is likely your family and friends already use one of the apps already out there for video calls, such as [Apple](#) Inc.'s FaceTime, [Microsoft](#) Corp.'s Skype, [Facebook](#) Inc.'s Messenger, Snapchat Inc.'s namesake app or Google's own Hangouts. Many people use a combination—an iOS user, for example, might FaceTime with other iPhone owners but use Hangouts to talk to Android phone-using friends.

Duo likely won't keep you from juggling multiple apps, either. Being freed of the myriad features packed into other messaging apps was refreshing for a time—when I wanted to make a video call. Without text messaging and group chats, though, Duo just isn't as useful as its rivals that offer that combination. Google is expected to introduce a "[smarter" text-messaging app this summer called Allo](#) for iOS and Android, which together with Duo pretty much make up Hangouts. Google has done this before, breaking up its Drive cloud-storage service into separate apps including Docs and Sheets, for example.

It doesn't help that Duo can only be used on phones. I use a tablet daily, and I have laptops for work and personal use. If I want to video chat with a colleague at work or a friend while lounging on my couch with my tablet, Duo isn't an option. Even if I wanted to convert to Duo exclusively, I'd need to keep around Hangouts and FaceTime (or both).

If you absolutely desire a stripped-down video-chat app, and think you can convince others to download one more messaging app, Duo is good enough for a look. Just don't expect it to replace your other messaging apps.

[\[Wired\] Google Duo Is Great, But Video Chat Is Still Super Awkward](#)

David Pierce

16 August 2016

<http://www.wired.com/2016/08/google-duo-great-video-chat-still-super-awkward/>

MY PHONE BUZZES as a call comes in. I don't recognize the number, but that's normal. What's weird is it's a video call, from someone using Duo, Google's video chat app available today for iOS and Android. I probably know this person, because they'd need my number to make the call. So it's almost definitely not a nude stranger.

I take a sec to check my hair, ensure I don't have food in my teeth, and position the camera to avoid filling the frame with chins. By the time I'm ready to take the call, I've missed it by a long shot.

After using Duo for about a week, I can say it is among the best video-chat apps around. Google's clever back-end work lets you switch from Wi-Fi to cellular with just a brief stutter. It's as stable as any video chat I've used, even on crappy connections.

The best thing about Duo is its simplicity. If you've ever tried video chat, you know the pain of diagnosing connection problems, determining usernames, and figuring out how the app works. With

Duo, all you do is call the person from the app. If that person has the app, the call goes through. If not, you can invite them to Duo.

If you're on iOS, you get a push notification that someone's calling. It vibrates incessantly until you address it. On Android, Duo calls come through like phone calls, ringing loudly and taking over the screen. If the person in your phone book, the Knock Knock feature provides live video before you pick up. (the Duo ad does a great job showing you all the cool things you can do with Knock Knock, but mostly I use it to make sure everyone's clothed.) Swipe up to answer, and you're on the call. You can flip the camera, or mute your microphone. Turn the screen off and it becomes a voice call. Turn it back on and video should return, too— though it doesn't always cooperate.

You can use Duo to call anyone, but it seems designed largely for calling the same people over and over. Place a new call and the app offers two options: re-dial one of your most recent calls, or start a new one. If you have a Broad City-style bff you call anytime without worrying about whether you're in bed, having sex, or on the toilet, it's perfect. Just tap their pic on the homescreen and launch right back into it. Duo is the fastest thing since walkie-talkies. In many ways, Duo is like Apple's FaceTime, but for all platforms.

The problem isn't the app so much as chatting on camera. Video calling has been the next big thing in communication for two decades, and a staple of science fiction for far longer. But it hasn't caught on. Even now, when the tech is good enough and everyone carries Internet-connected cameras, it's hardly the first thing you think to do.

Video conferencing is useful at work, and Skype and FaceTime are great ways to keep up with far-off loved ones. But, really, video calling is lame. The logistics alone are a nightmare. How do you hold the phone far enough from your face to avoid looking terrifying yet close enough to avoid yelling to be heard? How do you avoid moving the camera? What do you say to end the call? And what are you supposed to look at?

No, seriously: What are you supposed to look at? You can look into the camera and almost convincingly fake eye contact, but then you don't see the other person—and if she's also looking into the camera, you might as well not have cameras on. You can look at his face, but then it's like you're sheepishly avoiding his gaze. Or you can do what I do: Watch the small thumbnail of yourself.

I used to play videogames during phone calls, and texting while watching TV is standard for anyone with a phone and a TV. But video chatting demands undivided attention, lest you appear rude. Etiquette guides, pro tips, and unwritten rules govern the interaction. Video also isn't conducive to modern communication. Everyone texts, usually with emoji and GIFs and little punctuation. This back-and-forth is ever quicker, easier, and interactive, not appointment-based and long-lasting. In that way, video calling feels old-school before it's ever even cool.

Even if everyone decides to get down with video calling, Google needs to get tons of people to download the app if it is to become part of the world's messaging lexicon. Almost everyone already has a video-chatting app, be it it Snapchat, Facebook Messenger, Skype, Viber, FaceTime, or even Google's own Hangouts. It's hard to imagine millions of people embracing an app that does the same thing those apps do, especially when people don't do that thing much anyway.

I like Duo. Once Google fixes its few bugs, it will be everything a video chat app should be. I'll probably cajole my girlfriend into using it, because she's the only person I video chat with and Duo is easier than

Skype. For a startup, that might be enough. But Google prides itself on tackling big problems with big solutions with the potential for big scale. Duo is Google's attempt to make video calling happen. I don't think it's going to happen.

[NY Times] Google Duo Makes Video Calling Between Operating Systems Easier

Brian Chen

16 August 2016

<http://www.nytimes.com/2016/08/18/technology/personaltech/google-duo-video-calling-app-facetime.html?ref=technology>

Google and Apple have battled each other for years for primacy over mobile users. Apple has preferred its superior devices, like the iPhone. Google has fought back with its Android operating system and a series of mobile apps that are more flexible and compatible with a broader set of devices than Apple's apps.

On Tuesday, Google underscored that strategy with the release of its latest mobile app: Duo, a video-calling app that is a direct alternative to Apple's [FaceTime](#).

The app fits squarely into Google's playbook in mobile. Over the last few years, Google has increasingly offered its important software and internet services, including Google Maps, Google Photos and Google Docs, to iPhone customers. All of those apps were compelling alternatives to Apple's proprietary apps, like Apple Maps, Photos and Notes, because they work on a wider variety of devices, including Macs, Windows PCs, Android devices and iPhones.

Duo is no exception. People can only use FaceTime to call others who have Apple devices. But Duo lets you place video calls between Android and iPhone users, and sizably increases the universe of people with whom you can hold a video conversation.

"You shouldn't have to worry about whether your call will connect, or if your friend is using the same type of device as you are," Google said in a statement, in a veiled jab at Apple. "It's no wonder that nearly half of U.S. adults never make video calls on mobile."

All of this feeds into Google's strategy to attract iPhone users over to Android. Google's apps generally work better on Android devices than on iPhones, so the more that people get hooked on Google's core apps, the less incentive there is to stay loyal to Apple.

Nick Fox, Google's head of communication products, said the top priority with Duo was to build a great product and to increase the use of video calling among Android users. But he added that making Android more attractive to iPhone owners was a secondary motive. He said that Duo's appeal was that it was simple to use, fast and more widely accessible.

"Our view is video calling should work for everybody," he said. "If you can only call half the people you know, that's very limiting."

Apple does not profess to be worried by Google's moves. When the iPhone maker reported [falling sales](#) last month, Timothy D. Cook, Apple's chief executive, repeatedly highlighted that the rate at which people were switching from Android-based devices to iPhones was the highest the company had seen.

"Our year-to-date iPhone sales to switchers are the greatest we've seen in any nine-month period," Mr. Cook said in the call, without disclosing precise figures.

An Apple spokeswoman declined to comment beyond Mr. Cook's comments.

I decided to test Duo to see how the new app plays into the debate about whether iPhone users should consider switching to Android devices. After trying an early copy of Duo and comparing it side by side with FaceTime, I found that Duo was just as intuitive and fun to use as FaceTime, but that it was too early to tell which service was more reliable.

A Short History

First, a little context about Duo and where it fits into the universe of Google apps. The Silicon Valley company announced in May at its annual developer conference that Duo [would be coming](#). The app is solely dedicated to video chats between two people, the company said, to make video calling simpler to access.

This is not the first time Google has provided video calling. Google started offering mobile video calling several years ago inside its Hangouts app, which also includes messaging and voice-calling capabilities. The video-calling feature in Hangouts will remain intact.

Crystal Dahlen, a Google spokeswoman, said the name Duo conveyed that the app was designed for one-to-one video calling on mobile devices, in contrast to Hangouts, which lets groups of people make video calls over mobile devices and computers. Duo will roll out globally over the next few days.

FaceTime, in contrast, is now six years old. When Apple unveiled the video-calling ability in iPhones in 2010, Steven P. Jobs, Apple's co-founder, said he had dreamed of mobile video calling since he grew up watching "The Jetsons" and "Star Trek." Apple later expanded FaceTime to work with iPads and Macs, among other Apple products. The company has not published statistics on FaceTime use, but the technology helped make mobile video calling mainstream.

Duo Versus FaceTime

The Duo app is downloadable and free through Google's Play store and Apple's App Store. When you open the Duo app, there is just one button: video call. Tapping that loads your contacts list, and from there you can choose whom to call.

Duo starts streaming video to a recipient as soon as the call is placed, meaning the person you are calling will be able to see you waving or making faces before he or she picks up. Google calls this feature Knock Knock. It can be disabled in case you have friends who are likely to make inappropriate hand gestures.

With FaceTime, you place a call directly through the iPhone's contacts list or through the separate FaceTime app. The recipient does not see the video streaming until after the call is answered.

I placed video calls over Duo and FaceTime over a strong Wi-Fi connection as well as a weak cellular connection. In the tests, the video calls looked clearer on Duo, though that is an unreliable measure because very few people are currently able to use Duo, so the network is unrealistically uncongested. When more people use Duo, we can expect the picture quality to vary depending on network traffic and internet speeds.

There is a minor difference for Duo between Android and iPhone users. An Android user receiving a Duo call will see a Knock Knock video on the home screen by default. Those using Apple devices will see a

notification on top of the screen and will have to open the Duo app before seeing Knock Knock in action. Otherwise, the app works the same for both Android and iPhone.

Against the Rest

I also compared Duo calls with video calls placed over Microsoft's Skype and Facebook Messenger. Against those two, Duo's simplicity won hands down.

In Facebook's Messenger app, the video-calling feature is embedded in the corner of a message box, so it is hard to find and not intuitive to use. In fact, every call I have ever made with Messenger has been by mistake.

On Skype, the video-calling feature is in a place similar to Messenger's, in the corner of a message box. More annoyingly, to find other Skype users you have to manually add them to your Skype contacts list or toggle on an option to synchronize your address book with Skype.

The Bottom Line

For now, FaceTime is just as intuitive as Duo so I see no compelling reason to use Duo over FaceTime to call iPhone users.

But if I had to video call an Android user, I would use Duo over other video-calling services like Skype or Facebook Messenger, which have more cluttered interfaces than Duo's single-button approach.

[\[The Verge\] Google is killing off Hangouts on Air in September](#)

Sean O'Kane

15 August 2016

<http://www.theverge.com/2016/8/15/12490666/google-hangouts-on-air-september-youtube-live>

Google has announced that Hangouts on Air — the live-streaming service once used by Barack Obama and [Pope Francis](#) — will be *mostly* discontinued next month. A new post [over at Google's YouTube support page](#) lays out the details for Hangouts on Air users, who will have to use YouTube Live to handle all their live-streaming needs starting September 12th. That includes events that were already scheduled for after that date, too.

Google's post features [a walkthrough](#) of how users will be able to start, schedule, and control live streams after the switchover. The company also calls out a few specific features of Hangouts on Air that are being left behind. The native Q&A feature, which was part of the bedrock of Hangouts on Air, is being discontinued; instead, Google wants broadcasters to use social media or the Q&A feature of Google Slides to field questions and communicate with viewers during live streams. Other features, like "Showcase" and "Applause" are also being cut.

ANOTHER ONCE-TOUTED PRODUCT BITES THE DUST

Hangouts on Air was created in 2012 when Google added live-streaming and community features to its existing Hangouts product. It was a shrewd move — it came at a time when live-streaming products were much harder to come by than they are today, and so Google promoted it hard by having big names like Obama perform live broadcasts that were heavy on Q&A. In turn, the core product (plus an early run of new features and support from Google) also attracted plenty of users — [podcasters](#), especially.

YouTube Live was rolled out the following year, and Google wasted no time loosely tying the two streaming services together — it leveraged YouTube’s infrastructure to increase the device compatibility of Hangouts on Air, as well as to store streams post-broadcast. But even as Google tried to build up Hangouts on Air, it always seemed like YouTube was [a more natural fit for live-streaming](#). In that respect, Google is treating Hangouts on Air the same way it handled Google+ — take what works, find new home for those features, and sweep the hollowed-out shell under the rug.

[Bloomberg] Google Debuts New Chat App to Rival Skype, FaceTime

Alistair Barr

16 August 2016

<http://www.bloomberg.com/news/articles/2016-08-16/google-debuts-new-chat-app-to-rival-skype-facetime> Google nailed e-mail with the 2004 introduction of Gmail. Now it's the No. 1 form of electronic correspondence in the U.S.

But as traditional e-mail falls out of favor with a growing sliver of the population, Google has struggled to make its messaging tools relevant or introduce new ones that resonate with younger users.

Now Google is trying again with a new video chat application called Duo. The app works with mobile devices running Google’s Android operating system and Apple Inc.’s iOS. It runs on Wi-Fi and cellular networks, automatically switching between different types and speeds of connection and adjusting video quality.

Duo also uses phone numbers, rather than a Google account or Gmail address, making it easier to call friends, family and other people already stored on smartphone contact lists. The company’s existing video calling and messaging app, Hangouts, requires a Google account which limited adoption, especially in emerging markets. Facebook Inc.’s WhatsApp and Messenger, Skype -- now owned by Microsoft Corp. -- and Apple's FaceTime used phone numbers to grow faster.

A confusing array of communication options has held Google back. It has two e-mail services -- Gmail, which is the top e-mail service in the U.S. based on unique visitors, according to ComScore, and Inbox; three text offerings, Hangouts, Messenger and the upcoming Allo; and now two video chat services, Duo and Hangouts (which offers texting and video calls).

This scattershot approach, and Google’s late start, is becoming more costly for the Alphabet Inc. division as messaging evolves from a simple way to communicate quickly into one of the next big technology platforms supporting digital commerce, advertising and new services powered by artificial-intelligence.

"Google missed it because of the requirement that you needed a Google ID to communicate with others," said Ankit Jain, a former Googler and executive at SimilarWeb Inc., which measures website and mobile app usage.

Hangouts ranked 84th among Android apps in the U.S. in July, based on installs and usage, according to SimilarWeb. That lagged Facebook Messenger, WhatsApp and Snapchat.

Nick Fox, a 13-year Google veteran, was tasked by Google Chief Executive Officer Sundar Pichai 18 months ago with fixing the sprawl. Soon after, his new team formulated a strategy and started building Duo and Allo.

"Google sees communication as this essential human need, whether that's through text, a picture, calling someone or doing a video call." Fox said in a recent interview.

This insight is a decade old and has guided Facebook's strategy since its creation in 2004. Asian companies, like Tencent Holdings Ltd.'s WeChat and Line, have grown into tech powerhouses by connecting people through communication apps and offering related services on top of their networks. Skype, founded in 2003, became a leading video chat app on a similar foundation.

So how is Fox going to catch up? Job number one is clearing up the bloated smorgasbord of Google communications services.

Hangouts will be a workplace service, offering group video conferencing mostly via desktop computers and office laptops, Fox said. It will be integrated more with Google's work software, such as Docs, Sheets and Slides, which will be easier to share.

Duo is a mobile app and only allows one-to-one video calling, limiting it as a consumer offering. Allo, a messaging service coming out later this year, will also target consumers, Fox said. Google's Messenger is a basic text system, part of a group of services provided to wireless carriers that work closely with Android.

The second tactic: Bringing what Fox says is better technology to the new services to catch up with rivals.

Duo constantly performs "bandwidth estimation" to understand how much video can be delivered. If Wi-Fi weakens, it switches to a phone's cellular network. If a cellular signal drops as low as 2G, Duo will automatically cut video and maintain audio.

Allo will use Google's expertise in AI to automatically understand texts and provide useful suggestions. Google will also let third-party developers create chatbots that will interact with Allo users through messages. That's already being tried by other companies such as Facebook and Microsoft, but Google has been working hard on AI for about a decade, so it may be more advanced.

"First build a great product," Fox said, repeating a common Google mantra. "Once you get people to love it, they will share it with friends and co-workers and it grows."

Google was late in other technology and caught up, Fox noted. Gmail started in 2004, more than six years after Yahoo Mail, but Google's offer of mountains of free storage won over hundreds of millions of users. Google's Chrome emerged in 2008 -- over a decade after Microsoft's Internet Explorer -- and is now the most popular web browser partly because of speed and frequent updates.

Better technology may not be enough to catch up, Jain said. WhatsApp and Snapchat offered something useful enough to persuade many people to switch away from their existing communication service where all their friends already were.

Duo's promise of video calling for everyone on Android and iOS is something that Hangouts already offers, but that didn't move the needle enough, he noted.

"It's worth another shot, but having better tech can't be the only thing," Jain said.

Competition

[ZDNet] Vodafone NZ-Sky merger accused of trying to monopolise market

Corinne Reichert

16 August 2016

<http://www.zdnet.com/article/vodafone-nz-sky-merger-accused-of-trying-to-monopolise-market/>

The Vodafone NZ-Sky merger is facing criticism from the telecommunications segment, with submissions accusing the two of trying to squeeze the competition out of the wholesale premium live sport and entertainment content market, the retail residential fixed-line broadband market, the retail mobile broadband market, and the pay TV market.

The New Zealand Commerce Commission (ComCom) on Tuesday [published submissions](#) from Spark, 2degrees, the Coalition for Better Broadcasting, Trustpower, and the Telecommunications Users Association of New Zealand (TUANZ) it received in response to the [Statement of Preliminary Issues released last month](#).

Spark identified the main issue as being premium sport, claiming that it is "essential" content for being able to attract telecommunications customers. Were the merger to go ahead, Sky's sport content ownership would extend into Vodafone NZ's mobile and broadband offerings, Spark said, and "distort competition" in those segments -- including to the detriment of the New Zealand government's Ultra-Fast Broadband (UFB) project.

"Sky/Vodafone will bundle a further, competitive, product (broadband and/or mobile) with its monopoly sports rights, and in doing so will reduce competition for that product. There is likely to be less innovation and less digital distribution of pay TV content; increased barriers to entry and expansion, and reduced switching between broadband suppliers; and lower uptake of UFB," Spark argued.

"Sky has used its acquisition of Prime TV to foreclose competition for free-to-air premium sports rights, and will use its acquisition of Vodafone to do exactly the same for digital and mobile premium sports rights."

Calling both Sky and Vodafone "reluctant wholesalers", it added that the two would "engage in exclusionary conduct". Before such a merger is allowed, there should be rules in place to ensure a competitive wholesale market for sports content, Spark said.

"We believe if the Commerce Commission blocked the proposed merger, Sky would be forced by commercial realities to make all of its sports content available online and on-demand -- and via wholesale arrangements with lots of parties that help distribute this content to New Zealand consumers," Spark New Zealand general manager of Regulation John Wesley-Smith said.

"A merged Sky/Vodafone will be able to leverage its monopoly power in the sports market, to the detriment of consumers. That's why we're asking the Commerce Commission to reject the proposed merger in its current form."

2degrees, the third-largest telco in New Zealand [after Spark and Vodafone NZ](#), agreed, saying that the acquisition of sports and entertainment media content would give it an unfair advantage in attracting and retaining customers across the mobile and home broadband segments.

"The merged entity will have both the incentive and the ability to leverage its substantial market power in content markets to lock up premium content for exclusive delivery over its own platforms, foreclosing competition in the residential fixed-line and retail mobile markets," 2degrees said.

2degrees' ability to negotiate with Sky over mobile content would be impeded by the fact that a merged Sky-Vodafone entity would be its competitor, with 2degrees calling this situation "clearly untenable".

The Coalition for Better Broadcasting (CBB), meanwhile, called for the ComCom to defer making a decision on the merger until the New Zealand government has responded to the recent Convergence Issues Paper and addressed the gaps between the *Telecommunications Act*, the *Broadcasting Act*, and the *Commerce Act*. The CBB went so far as to suggest that Sky and Vodafone intentionally put forward their proposal during this time of regulatory uncertainty so as to take advantage of it.

"The long-term interest of the public is not served by permitting the merger to proceed before the future shape and direction of government policy on telecommunications and content regulation has been determined, because the respective areas of legislation could (and, in the CBB's view, should) be significantly revised," the CBB said in its submission.

"Indeed, it would seem naïve to suppose that the timing of significant media market merger proposals (including Sky-Vodafone and also NZME-Fairfax) submitted to the Commerce Commission during a period of regulatory deliberation is entirely coincidental."

Overall, however, the CBB said the merger should be blocked because Vodafone and Sky "have no natural right to entrench a position of market dominance as part of a dual-sector duopoly", which would occur despite the entrance of Netflix and Spark's Lightbox into the streaming market primarily thanks to Sky's ownership of premium sports content.

Lastly, the CBB suggested that since there are no net neutrality requirements in New Zealand, Vodafone could use the opportunity to prioritise and un-meter Sky content on its fixed-line and mobile networks and through proprietary apps.

"The potential for a de facto 'walled garden' to arise increases when proprietary devices and 'apps' are available ... the restrictions on mobile device bandwidth and data limits are also far more substantial than in the fixed-line broadband retail market, raising the prospect of zero-rated content and 'fast lanes' being used to disadvantage rivals or (less obviously but more insidiously) the deployment of proprietary 'apps' architectures and formats which function optimally when the merged entity's own content is accessed via preferred devices," the CBB said.

TUANZ and wholesale internet, gas, and electricity provider Trustpower also focused their submissions on the lack of mobile and fixed-line competition that would result thanks to Vodafone being able to offer the sports that Sky has locked down for the next four years.

"In its current proposed form, the merger does not guarantee a strong wholesale offering of premium content to service providers other than the retail arm of the merged entity, and this is enough to raise

serious concerns about the risk this proposed merger places to competition in the telecommunications market that currently exists in New Zealand today," TUANZ concluded.

Vodafone Group and Sky Network Television announced reaching an agreement to [form an integrated telco and media group](#) in June, forecasting that it would make NZ\$2.91 billion in revenue for FY17, and earnings before interest, tax, depreciation, and amortisation (EBITDA) of NZ\$786 million.

If approved by shareholders, the merger will occur via Sky acquiring all Vodafone NZ shares for a total purchase price of NZ\$3.44 billion through the issue of new Sky shares, in return giving Vodafone Europe a 51 percent stake in the combined group, in addition to cash consideration of NZ\$1.25 billion funded through new debt.

The combined group is predicted to have a net present value of around NZ\$850 million, or NZ\$1.07 per share.

"The merger brings together Sky's leading sports and entertainment content with our extensive mobile and fixed networks, enabling customers to enjoy their favourite shows or follow their team wherever they are," Vodafone NZ CEO Russell Stanners said at the time.

"The combination with Sky will bring greater choice, enhances viewing experiences, and will better serve New Zealanders as demand for packaged television, internet, and telecoms services increases."

Vodafone NZ is the number one mobile provider in New Zealand, with more than 2.35 million mobile connections, and the second-largest broadband provider with around 500,000 fixed-line connections. Sky is the most popular pay TV provider in the country, with more than 830,000 subscribers, although its shares have declined by 28 percent over the past year thanks to increasing competition from video-streaming services such as Netflix and Lightbox.

Sky and Vodafone NZ already offer bundled deals of pay TV, broadband, and phone services to their customers. A combined entity would mean offering Sky's entertainment offerings across all smart devices on Vodafone's fixed-line and mobile networks.

Miscellaneous

[WSJ] China's Latest Leap Forward Isn't Just Great—It's Quantum

Josh Chin

15 August 2016

<http://www.wsj.com/articles/chinas-latest-leap-forward-isnt-just-greatits-quantum-1471269555?mod=LS1>

BEIJING—A rocket that shot skyward from the Gobi Desert early Tuesday is expected to propel China to the forefront of one of science's most challenging fields.

It also is set to launch Beijing far ahead of its global rivals in the drive to acquire a highly coveted asset in the age of cyberespionage: hack-proof communications.

State media said China sent the world's first quantum-communications satellite into orbit from a launch center in Inner Mongolia about 1:40 a.m. Tuesday. Five years in the making, the project is being closely watched in global scientific and security circles.

The quantum program is the latest part of China's multibillion-dollar strategy over the past two decades to draw even with or surpass the West in hard-sciences research.

"There's been a race to produce a quantum satellite, and it is very likely that China is going to win that race," said Nicolas Gisin, a professor and quantum physicist at the University of Geneva. "It shows again China's ability to commit to large and ambitious projects and to realize them."

Scientists in the U.S., Europe, Japan and elsewhere are rushing to exploit the strange and potentially powerful properties of subatomic particles, but few with as much state support as those in China, researchers say. Quantum technology is a top strategic focus in the country's five-year economic development plan, released in March.

Beijing hasn't disclosed how much money it has allocated to quantum research or to building the 1,400-pound satellite. But funding for basic research, which includes quantum physics, was \$101 billion in 2015, up from \$1.9 billion in 2005.

U.S. federal funding for quantum research is about \$200 million a year, according to a congressional report in July by a group of science, defense, intelligence and other officials. It said development of quantum science would "enhance U.S. national security," but said fluctuations in funding had set back progress.

Beijing, meanwhile, has tried to lure Chinese-born, foreign-educated experts in quantum physics back to China, including Pan Jianwei, the physicist who is leading the project.

"We've taken all the good technology from labs around the world, absorbed it and brought it back," Mr. Pan told Chinese state TV in an interview that aired on Monday.

With state support, Mr. Pan was able to leapfrog his former Ph.D. adviser, University of Vienna physicist Anton Zeilinger, who said he has tried since 2001 to convince the European Space Agency to launch a similar satellite.

"It's a difficult process, which takes a lot of time," said Mr. Zeilinger, who is now working on his former student's satellite.

Neither Mr. Pan nor the Chinese Academy of Sciences, which is directing the project, responded to requests for comment. The European Space Agency and the U.S.'s National Science Foundation, which provides federal funding for basic American science research, also didn't respond to requests for comment.

China's investment in the field is likely being driven in part by fear of U.S. cyber capabilities, said John Costello, a fellow at Washington, D.C.-based New America specializing in China and cybersecurity, pointing to 2013 disclosures that the U.S. had penetrated deeply into Chinese networks. He also noted that U.S. institutions are researching how to build powerful quantum computers theoretically capable of shattering the math-based encryption now used world-wide for secure communication. "The Chinese government is aware that they are growing particularly susceptible to electronic espionage," Mr. Costello said.

However, quantum communication is defensive in nature, he noted, and wouldn't benefit from what the U.S. has identified as China's state-sponsored hacking program.

Quantum encryption is secure against any kind of computing power because information encoded in a quantum particle is destroyed as soon as it is measured. Gregoir Ribordy, co-founder of Geneva-based quantum cryptography firm ID Quantique, likened it to sending a message written on a soap bubble. "If someone tries to intercept it when it's being transmitted, by touching it, they make it burst," he said.

Quantum physicists have recently advanced the use of photons to communicate securely over short distances on earth. The satellite, if successful, would vastly expand the range of unhackable communication.

To test whether quantum communications can take place at a global scale, Mr. Pan has told state media, he and his team will attempt to beam a quantum cryptographic key through space from Beijing to Vienna.

"It would be enormous" if the test succeeded, said Ma Xiaosong, a Vienna-trained quantum physicist at Nanjing University who worked on early phases of the satellite project.

China launched the world's first quantum satellite on top of a Long March-2D rocket from the Jiuquan Satellite Launch Center in northwest China early Tuesday. *PHOTO: ZUMA PRESS*

Quantum encryption isn't foolproof. It's possible for hackers to trick an incautious recipient by shining an intense laser into a quantum receptor, said Alexander Ling, principal investigator at the Center for Quantum Technologies in Singapore.

U.S. security experts also question whether intricacies of quantum communication can be simplified enough for use in a conflict situation.

"Inevitably these kinds of technologies have problems and things get messed up by the people using them, unless they have gone through extensive training," said Peter Mattis, a fellow at the Jamestown Foundation who studies China's intelligence services.

Whatever the challenges, the University of Vienna's Mr. Zeilinger said, the satellite puts China and the field of quantum mechanics on the verge of a significant technological breakthrough. "In the long run, there is a good chance that this will replace our current communications technology," he said. "I see no basic reason why it won't happen."

In a January interview with the journal *Nature*, Mr. Pan said the satellite showed China's scientists had stopped following in the footsteps of others. To drive the point home, Chinese state media on Monday said the satellite had been named Micius after a 5th century B.C. philosopher who opposed offensive warfare.

"I think China has an obligation not just to do something for ourselves—many other countries have been to the moon, have done manned spaceflight—but to explore something unknown," he said.

[\[NY Times\] The Top News Events That Got America Talking About Race](#)

Niraj Chokshi

15 August 2016

<http://www.nytimes.com/2016/08/16/us/pew-study-race-twitter-news-events.html?ref=technology&r=0>

Every day last year, Twitter users turned to social media to talk about race.

They voiced frustrations, offered opinions, spread news and shared reflections on race no fewer than 1.5 million times per day, according to a [new Pew Research Center analysis](#). Typically, the number was even higher, with an average of 2.2 million daily Twitter posts on race. On some days, the chatter was much louder.

The Pew analysis, published on Monday, traced the contours of a continuing conversation about race, revealing how social media serves as an outlet as the nation reckons with racial inequality and injustice, particularly around tragedy.

“We can now see big cultural conversations taking place in ways that we couldn’t have seen when we only had them at the water cooler at the office or over the backyard fence or at coffeehouses,” said Lee Rainie, director of internet, science and technology research at Pew. “This is a big new venue for those kinds of very intimate and sometimes painful conversations.”

Black Americans engage in those online conversations far more than whites, Pew found in a survey of 3,769 adults from all states, conducted in late winter and early spring. Roughly one in four black users reported that most or some of what they share on social media pertains to race, compared with roughly one in 12 white users.

Black users were also nearly twice as likely as white users to report seeing posts about race on social media: Roughly two in three black users reported that some or most of what they see on social media deals with race, compared to roughly one in three white users.

On Twitter in particular, discussion of race often revolved around current events, Pew found in an analysis of tweets over a 15-month study period that began on Jan. 1, 2015.

Race/Related

Sign up here to join a deep and provocative exploration of race with a diverse group of New York Times journalists.

Ten percent of race-related tweets mentioned the 2016 presidential campaign, with the Republican nominee, Donald J. Trump, being the subject of many of those posts. An additional 7 percent dealt with the police or the judicial system. Of the tweets over that period, 22 percent lacked a tie to current events and instead discussed discrimination. And 18 percent dealt with neither discrimination nor current events.

What we talk about when we talk about race online

Subject of all race-related tweets from Jan. 1, 2015, to March 31, 2016. Subjects in bold are related to current events.

2016 campaign

Police or judicial system

Celebrities or entertainment

Other current events

Discrimination (unrelated to current events)

Here's a look at a handful of moments that coincided with the loudest discussions of race on Twitter.

The Charleston church shooting

On Wednesday, June 17, 2015, Dylann S. Roof, a white man, walked into a black church in Charleston, S.C., joined those there in prayer and then opened fire. He [killed nine people that night](#).

That brutal act ignited a national discussion on race, including on social media. More than 4.3 million race-related tweets were posted the following day, contributing to the largest single-day discussion of race on the social media network over the period studied.

The conversation remained active on June 19, too, which saw 2.9 million tweets posted to the social media network. That day ranked eighth.

Prosecutors [plan to seek the death penalty](#) for Mr. Roof, whose federal trial is scheduled to begin in November.

The death of Freddie Gray

The death of Freddie Gray, a 25-year-old Baltimore resident, in April 2015 ignited days of violent protests in the city, CreditRobert Stolarik for The New York Times

Twitter erupted again the day after the funeral of 25-year-old Freddie Gray, who sustained a fatal spinal cord injury in police custody last April.

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The funeral was held on Monday, April 27, 2015, a day that ended with the Maryland governor [activating the National Guard](#) in response to riots in Baltimore. The following day, Tuesday, April 28, users posted 3.4 million race-related tweets, contributing to the second-largest single-day conversation on the subject over the period studied.

The looting and rioting cannot be tolerated.

But neither can the complete lack of answers as to why he died [#FreddieGray #BaltimoreRiots](#)

FTR, I walked all day in Freddie Gray's hood, one of the poorest & most dangerous in [#Baltimore](#), and everyone I met greeted me with a smile.

Last month, prosecutors [dropped all remaining charges](#) against the police officers accused of having a role in Mr. Gray's death.

The death of Sandra Bland

Keona Robertson and her son, Jeremiah, 3, join hands with family members to pray at a memorial for Sandra Bland in July 2015. Credit Tamir Kalifa for The New York Times

The third-, fourth- and fifth-largest discussions of race on Twitter all occurred as the nation reacted to the death of Sandra Bland, the 28-year-old black woman who was found dead, hanging in her Texas jail cell, three days after being arrested last summer.

On July 22, 2015, one day after [the authorities released dashboard camera footage](#) of Ms. Bland's arrest, users posted 3.3 million tweets discussing race. The next day, they posted three million more. A week later, on July 29th, the conversation was just as loud, with Pew attributing the three-million-tweet-strong discussion that day to protests held in response to Ms. Bland's death.

Last week it was [#SandraBland](#). This week it's [#SamDubose](#). She didn't use a turn signal. He didn't have a front license plate.

Both dead.

Late last year, a [grand jury declined to indict](#) anyone in connection to her death.

The awards shows

While the largest race-related conversations on Twitter were held in the aftermath of tragedies, some appear to have been provoked by entertainers using awards show stages as a platform.

Twitter users share 2.9 million posts on June 29th, 2015, one day after the BET Awards, which included a speech by the actor [Michael B. Jordan on the Charleston shooting](#).

This year, on Feb. 16, just one day after the rapper Kendrick Lamar won five awards and performed a medley of songs at the Grammy Awards, Twitter users posted more than 2.9 million race-related messages to the social media network. Mr. Lamar, whose songs about black identity had become touchstones of the Black Lives Matter movement, [appeared on stage](#) in chains and a blue prison uniform, surrounded by other black men, a clear statement on over-incarceration.

Later that month, users posted a similar number of race-related tweets following the Academy Awards, which for two years had [weathered strong criticism](#) for lacking any black nominees for acting awards.

[\[NPR\] Saying Goodbye To Old Technology — And A Legendary NYC Repair Shop](#)

Jon Kalish

15 August 2016

<http://www.npr.org/sections/alltechconsidered/2016/08/15/489629491/saying-goodbye-to-old-technology-and-a-legendary-nyc-repair-shop>

Last year, an Indian company that was considered the last recycler of cathode ray tubes from those old bulky TVs [quietly stopped recycling](#) the CRT glass into new tube televisions. This year, BlackBerry [discontinued](#) its last model featuring the the original signature plastic keyboard. This month, the final maker of VCRs in Japan [will cease](#) production.

Some technologies slowly fade into obsolescence (think phone booths or typewriters) while others go quickly, in a relative sense (floppy disks anyone?). But some, despite archaism, persist.



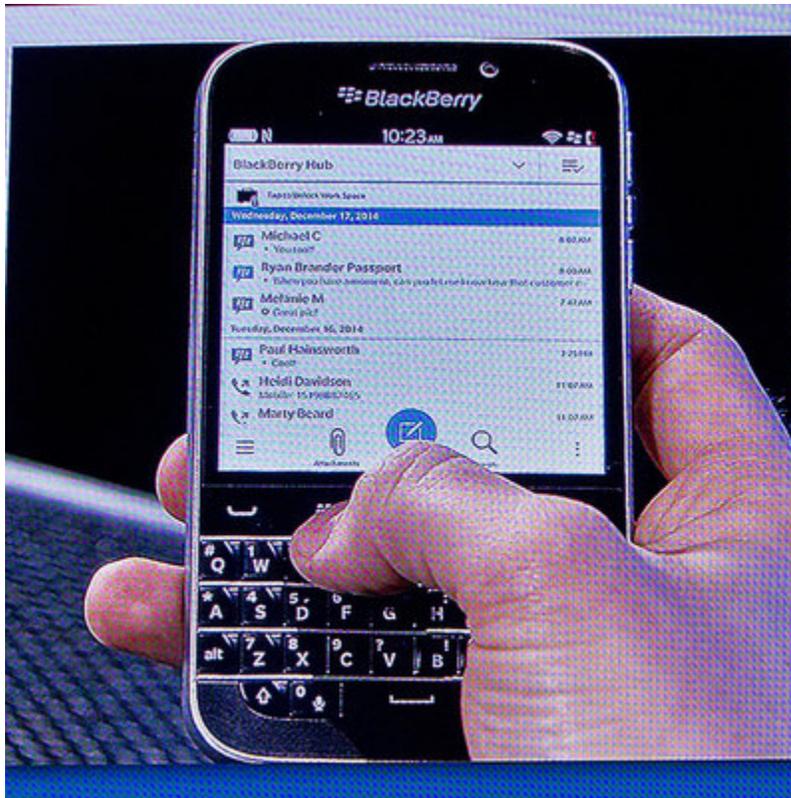
[ALL TECH CONSIDERED](#)

[So Long, VCR. We Hardly Knew You \(Were Still Around\)](#)

We [asked you](#) to suggest technology that you *wish* would fade away. You offered up a few — dot-matrix printer, multidisc CD changer, voicemail — but the leading cause of tech agony, by far, was the fax machine.

"I ask myself every day, 'Why must I still have one?' " says Erica Lacher, a veterinarian in Gainesville, Fla. "I simply can't get some companies to communicate with me any other way. It drives me crazy because I have to pay for an extra phone line, I have to pay for the faxes, I have to pay for my staff to get us off junk fax lists. It's just ridiculous. I hate that stupid thing."

Harvard professor [Calestous Juma](#) says the technologies that are hardest to discontinue are those that are part of a larger ecosystem, which are established within a home or a professional microcosm — it's almost like removing a species from a wider environment.



ALL TECH CONSIDERED

Saying Goodbye To BlackBerry's Iconic Original Keyboard

"So when it goes extinct, there's also some sense of feeling of empathy that something has been lost that's bigger than just the device itself," says Juma, author of *Innovation and Its Enemies: Why People Resist New Technologies*. "People don't fear new technologies; people fear loss."

He says elimination of technologies has historically been slowed by the pace of innovation — but is increasingly speeding up, especially as "smart" devices and artificial intelligence lower the learning curve for people to adapt to new capabilities.

As Juma points out, technologies that are hardest to let go are those connected to an ecosystem.

A key element, of course, is the repair shop.

And in Manhattan this week, Apple device owners say goodbye to one such store — a legendary independent repair store that predates the first official Apple Store, called Tekserve.

"Respect those who came before"

Tekserve has had a cult following for close to 30 years but is closing its doors for good — a victim of high rents and retail competition.

Step inside and marvel at the antique radios, microphones and electrical meters lining the walls. In the back of the spacious store, a display of every model of the Mac ever made. A 1950s vending machine will still sell you a bottle of Coke for a dime.

David Lerner is one of the two radio engineers who started the store in 1987 — 14 years before the first Apple Store opened. "For a long time we were a Mac destination in New York," he says. But then, Apple stores started to pop up. "They're temples, really," Lerner says. "There are six within, what, 2 miles of us now. It's more convenient to go closer."

Co-founder Dick Demenus says what Apple stores' uncluttered, spotless decor is missing is history. "Everything is forward-looking. It's all new; it's all clean," he says. "I want to respect those who came before."

Tekserve customers take a decidedly analog deli counter ticket and wait for their number to be displayed on old Macs, kept alive from the 1980s. The store in Manhattan's Chelsea neighborhood was so well-known in New York that it had a cameo in *Sex and the City*, when [Carrie Bradshaw brought her crashed Powerbook](#) here.

"Tekserve was a planet unto itself," says Chester Higgins Jr., a former photographer for *The New York Times*. The shop has a devoted following among filmmakers and other creative professionals. "Nobody had the turnaround time that Tekserve had," says Higgins.

And there was another point of attraction: One of the owners had hacked the iMac construction to install a second monitor on its base.

"It was just awesome and this is so much of why I think people would come in," says Asher Rapkin, who worked at the store when the double-headed iMac went on display. "Because while you were sitting there stressed out waiting to find out if your term paper was going to get saved, you could play with a two-headed iMac."

The techs at Tekserve have been known to discover problems and fixes for Macs even before Apple. The store's diverse workforce includes white-haired baby boomers, tattooed millennials, female techs and people of color. Deb Travis, who has worked at Tekserve for 20 years, says many of her co-workers were touring musicians.

"That was one of the big perks of working here," she says. "Most of the people who worked here had other things they were doing."

Other perks included health insurance and free lunch for the store's 100 or so employees. Many say it's the best place they ever worked.

[\[WSJ\] Hyperloop Technology to Be Studied as Shipping Tool](#)

Erica Phillips

16 August 2016

<http://www.wsj.com/articles/hyperloop-technology-to-be-studied-as-shipping-tool-1471324403>

LOS ANGELES—Hyperloop technology is fast-tracking into the freight sector.

Hyperloop One Inc., one of two companies racing to build the futuristic speed-of-sound transportation technology, announced a new partnership with the one of the world's largest port-terminal operators, DP World.

Hyperloop One and DP World will work together to study the viability of using hyperloop technology to unload ocean-container cargo at the Jebel Ali port in Dubai. Containers would travel swiftly via hyperloop to an inland depot, while minimizing the impact on local surface traffic.

Hyperloop, a concept popularized in recent years by billionaire entrepreneur Elon Musk, is a technology for transporting people or cargo in suspended capsules through miles-long near-vacuum tubes at speeds reaching more than 700 miles per hour.

“We have to be creative to sustain our business,” said Sultan Ahmed Bin Sulayem, chairman and chief executive of DP World, at a news conference at Hyperloop One’s offices in Los Angeles on Monday. “This is a game changer for the terminal handling operation as it is today.”

Hyperloop One and DP World sign an agreement to conduct the study. *PHOTO:COURTESY OF HYPERLOOP ONE*

Dubai’s Jebel Ali port last year handled about the same volume of cargo as the Southern California port complex, which includes the ports of Los Angeles and Long Beach, but it is growing quickly, Mr. Sulayem said. With nearly 8,000 port-related businesses in Dubai, and thousands of vehicles visiting the port each day, he said, “congestion is a way of life.”

The DP World feasibility study will explore design, cost and financing options, and it will include studying the possibility of an offshore, floating hyperloop. That concept would enable containers to be taken from a ship, placed into the tube, then transported directly to an inland hub rather than requiring handling and taking up space on the docks—vastly reducing local congestion and emissions, while freeing up port real estate.

If hyperloop works in Jebel Ali, Mr. Sulayem said, “this will re-engineer our thinking world-wide.” DP World operates 77 cargo terminals in more than 40 countries.

The announcement comes as [ports around the world](#) are working both to improve efficiency and reduce emissions, after decades of global trade growth have increased traffic congestion and pollution in port-adjacent communities. The Dubai port is one of several where Hyperloop One’s engineers are studying the application of their technology to move cargo. The firm is also conducting freight-related feasibility studies in the U.S., Switzerland and Russia.

“The first hyperloop could easily happen in Dubai,” said Hyperloop One CEO Rob Lloyd. While the technology has been discussed widely as speedy means of passenger transportation, Mr. Lloyd said freight may be the first step.

“Our intuition and discussions with regulators have told us start first with freight,” Mr. Lloyd said. “That’s why we’re pretty excited about these projects.”

In Southern California, where Hyperloop One is based, the firm has partnered with [AECOM Technology](#) Corp. and GRID Logistics Inc. to study the feasibility of hyperloop technology at the Ports of Los Angeles and Long Beach, the largest container port complex in the U.S.

Mr. Lloyd said hyperloop technology has advantages over proposed rail-transfer facilities that have recently hit setbacks in Southern California, including [a BNSF Railway Co. rail yard that lost](#) a court battle after the neighboring community objected to the environmental impact.

“The things that prevented BNSF’s project don’t apply to hyperloop,” Mr. Lloyd said. “We could go directly from the dock to hyperloop, to rail yards or the Inland Empire in the future.” The Inland Empire is an area east of Los Angeles that is a popular transportation and logistics hub for goods delivered via the port complex.

Hyperloop One faces other challenges as it seeks to get its technology up and running. In July, Brogan BamBrogan, one of the startup’s two founders, [sued co-founder Shervin Pishevar](#) and the company in a California state court, alleging mismanagement, breach of fiduciary duty and other mistreatment. The [company filed a \\$250 million countersuit](#), alleging Mr. BamBrogan and three colleagues tried to start their own competing company while at Hyperloop One, breaching nonsolicitation, nondisparagement and confidentiality agreements.

[Bloomberg] What Do Chevron, Apple, and Chris Christie Have in Common?

Paul Barrett

15 August 2016

<http://www.bloomberg.com/news/articles/2016-08-15/what-do-chevron-apple-and-chris-christie-have-in-common>

On Aug. 8, the law firm Gibson Dunn & Crutcher enjoyed its latest jolt of good news. A federal appeals court [ruled](#) in favor of its client Chevron Corp. in a multibillion-dollar case over oil pollution in Ecuador. It was arguably the most definitive ruling in a 23-year-old battle over environmental liability.

The case is only one victory among many for 1,200-attorney Gibson Dunn, which has its roots in Los Angeles and 19 offices around the U.S. and the world. “We’re on a good run,” says [Randy Mastro](#), a co-chairman of Gibson Dunn’s muscular litigation department and the firm’s lead lawyer representing Chevron in the Ecuador oil case.

Good run may be an understatement. Other notable recent engagements include a \$3 billion [victory](#) on behalf of Hewlett-Packard in a contract dispute with Oracle and the law firm’s representation of Apple Inc. in the iPhone maker’s encryption [showdown](#) with the Federal Bureau of Investigation.

Litigation stems from controversy, of course, and Gibson Dunn’s effectiveness at times draws criticism and unflattering media coverage, given some of its clients. The Chevron case, for example, pits poor Ecuadorian villagers against the mammoth oil company. Lawyers for the villagers have accused Gibson Dunn of thwarting the plaintiffs’ ability to enforce a \$9.5 billion judgment entered in Ecuador in 2011. Chevron counters that the lead plaintiffs’ lawyer, Steven Donziger of New York, turned the pollution suit into a racketeering scheme—a conclusion affirmed by the federal appeals court.

In the notorious “Bridgagate” case in New Jersey, Gibson Dunn produced a [report](#) in 2014 that, to many observers’ dismay, absolved Republican Governor Chris Christie (and former presidential candidate) of blame for the 2013 George Washington Bridge lane-closing scandal. The law firm has billed the state more than \$10 million for its services in the case.

Whatever detractors may say about a particular case, though, the law firm is firing on all cylinders as a business. It had \$1.5 billion in gross revenue in 2015, good for a ranking of No. 11 on the [American Lawyer100](#) list. All the firms with greater revenue are substantially larger than Gibson Dunn. Using

another measure of financial performance, Gibson Dunn notched \$3.2 million in profit per partner; that merited a ranking of No. 10 on the closely watched *American Lawyer* list.

While its fame and most of its revenue come from litigation, the firm also has a successful corporate practice, with such clients as the private equity outfits Investcorp and Lone Star Funds. R. Hewitt Pate, Chevron's general counsel, told *American Lawyer* magazine in January: "If there's a better managed large law firm in the world, it hasn't been pointed out to me."

[NY Times] Get Out of Gun Control, Apple

Jonathan Zittrain

16 August 2016

<http://www.nytimes.com/2016/08/16/opinion/get-out-of-gun-control-apple.html?ref=technology>

Cambridge, Mass. — This month, [Apple](#) previewed some changes to its next generation of iPhones and iPads with the promise that “all the things you love to do are more expressive, more dynamic and more fun than ever.” That especially includes emojis, those little icons that, [according](#) to one study, 92 percent of the online population now make part of their everyday communication.

One change in particular, though, is not delighting everyone. Apple’s new suite of operating systems appears to replace its pistol emoji, which was an image of a six-shooter, with a squirt gun.

Apple hasn’t said why it would be making this change, but this summer, along with Microsoft, the company lobbied Unicode, the nonprofit consortium that decides which emojis should exist, [against](#) adding a separate rifle. For those emojis Unicode has already approved, like gun, it’s up to each company to create a picture for it.

It’s [possible](#) that the company’s decision on the pistol resulted from a [#DisarmTheiPhone](#) campaign by a public relations firm working with New Yorkers Against Gun Violence. “There is a gun we all carry that we can all give up,” explains a video on the campaign’s [website](#) — meaning the [iPhone](#)’s picture of a gun. But the campaign was not asking individual people to abstain from using the emoji; it aimed at persuading Apple to prevent, in one swoop, anyone from sending or receiving that cartoon image of a handgun.

Apple’s change is ill considered because it breaks the conceptual compatibility that Unicode is meant to establish. Anyone with an iPhone ought to be able to send a message to someone with another company’s products — like Google or Microsoft or Samsung — and have what’s delivered communicate the same idea as what’s sent. But with this change, a squirt gun sent from an iPhone will turn into a handgun when received by an Android device, and vice versa.

Every weekday, get thought-provoking commentary from Op-Ed columnists, The Times editorial board and contributing writers from around the world.

So what could justify a retroactive change by Apple that breaks compatibility among phones? One theory, perhaps derived from [notions](#) that toy guns are inappropriate for kids, could be that children’s exposure to gun imagery might encourage violence. By changing the picture into something harmless, children will be protected. If that is the concern, Apple could address the issue by simply enabling parental controls for some emojis.

The thrust of our digital infrastructure should allow us to be, in Apple’s words, more expressive. That’s why last year’s change to allow people to [select emoji skin-tone shading](#) was good news. When it comes to restrictions, technology companies should limit only speech that breaks clearly stated and openly applied rules, not deprive us of entire tools and means of expression.

To take a related example, some have demanded that Facebook actively monitor live feeds — whether through a squad of customer service reps or through artificial intelligence methods — and cut off those that might be [threats to public safety](#) or merely considered inappropriate. This is a dangerous path to tread when there are only a handful of private gatekeepers.

To eliminate an elemental concept from a language’s vocabulary is to reflect a sweeping view of how availability of language can control behavior, as well as a strange desire for companies — and inevitably, governments — to police our behavior through that language. In the United States, this confuses taking a particular position on the Second Amendment, concerning the right to bear arms, with the First, which guarantees freedom of speech, including speech *about* arms.

Those behind the campaign to remove the gun from the phone do not appear to be relying on arguments about kids’, or everyone else’s, malleability. Rather, they have portrayed it as a traditional grass-roots messaging campaign: “By removing the gun emoji,” they write, “we’ll show America wants stricter access to real guns.” Apple is surely free to favor gun control as a matter of corporate policy — but it should not be tinkering with our right to express either that or a contrary view on worldwide platforms.

With emojis so popular, the Unicode Consortium now requires those who want to propose new emojis for standardization to take a ticket and join a queue, laying out a two-year [process](#) for people to suggest things like dumplings, sleds and robots and await the consortium’s judgment.

It need not be this way. Rather, our devices already enable tech-savvy individuals to invent new emoji-like graphics to send their friends — and that their friends in turn can pass on to others. Those that attain extensive use could then be standardized in a routine way through Unicode and made available to everyone.

Some will be skeptical that emojis represent a profound expression of speech the way that more traditional languages do, but even the skeptics should worry about private companies’ intervening in what their users can say before they even try to say it. Today, users of the Chinese version of Skype simply cannot type to one another certain [words](#), including “truthfulness,” “campus upheaval” and “Amnesty International.”

Apple, Microsoft, Google and other “big tech” companies should not be placed in a position, which they themselves do not want, of having to decide which words or emojis do and don’t represent their brand. Apple should be no more responsible if someone uses a gun image in the abstract than if someone happens to type the word “gun.”

As free citizens, we acquiesce to infantilizing digital infrastructure at our peril.

[\[WSJ\] China’s Factories Count on Robots as Workforce Shrinks](#)

Robbie Whelan and Esther Fung

16 August 2016

<http://www.wsj.com/articles/chinas-factories-count-on-robots-as-workforce-shrinks-1471339805>

A Chinese factory near Shanghai is relying on a new breed of workers to maintain its competitive advantage in assembling electronics devices: small robots designed in Germany.

Suzhou Victory Precision Manufacture Co.'s chairman, Yugen Gao, said the days when the company drew its strength from China's cheap and hardworking employees are gone.

"We've been losing that edge in the past three years," said Mr. Gao in his office, overlooking rows of buildings where a battalion of robots was cranking out computer keyboards. "It's one of the effects of [the one-child policy](#)."

China's [appetite for European-made industrial robots is rapidly growing](#), as rising wages, a shrinking workforce and cultural changes drive more Chinese businesses to automation. The types of robots favored by Chinese manufacturers are also changing, as automation spreads from heavy industries such as auto manufacturing to those that require more precise, flexible robots capable of handling and assembling smaller products, including consumer electronics and apparel.

At stake is whether China can retain its dominance in manufacturing.

"China is saying, 'we have to roboticize our industry in order to keep it,'" said Stefan Lampa, chairman of the robotics division of [Kuka](#) AG, a German automation firm and a supplier to Suzhou Victory.

The rush to buy robots comes in part because China's population of [workers aged 15 to 59 is starting to shrink](#), forcing manufacturers to turn to automation. The United Nations estimates the number of the country's workers peaked in 2010 at more than 900 million and will fall below 800 million by 2050.

In addition, the average hourly labor cost—defined as wages plus benefits—of \$14.60 in China's coastal manufacturing heartland has more than doubled as a percentage of U.S. manufacturing wages, from roughly 30% in 2000 to 64% in 2015, according to Boston Consulting Group, making [the country less competitive](#) as a destination for manufacturers.

China, in 2013, became the world's largest market for industrial robots, surpassing all of Western Europe, according to the International Federation of Robotics. In 2015, Chinese manufacturers bought roughly 67,000 robots, about a quarter of global sales, and demand is [projected to more than double to 150,000 robots](#) annually by 2018.

Chinese firms also are investing in industrial technology, with an eye toward building more of their own robots. Chinese home-appliance maker [Midea Group](#) Co. launched a bid [to buy Kuka for more than \\$5 billion in May](#) and now owns about 86% of the robots company. Some German politicians criticized the deal, saying Kuka is a strategic asset that should have remained German or European-owned.

At a robotics-research conference in Stockholm in May, companies including Kuka and Switzerland's [ABB](#) Ltd. displayed lightweight robots with agile arms capable of manipulating items as small as bottle caps.

Last year, ABB, introduced [a two-armed version of its YuMi robot](#), a lightweight robot that was designed specifically for the Chinese market. It can put together car-dashboard electronics, wristwatches and eyewear.

YuMi, which is manufactured both in Sweden and in a sister factory in Shanghai that opened a decade ago, was designed as a "collaborative" robot, meaning it is small and safe enough that it can share the

manufacturing line with humans and doesn't require a protective cage, as many large industrial robots do.

Over the past five years, China has become ABB's largest market for robotics customers, according to Steven Wyatt, ABB's head of marketing and sales.

Mr. Wyatt said China originally started adopting automation en masse in response to concerns over the quality of goods manufactured in the country. Now, however, Chinese factories—including those that make consumer goods—are buying robots to fill positions that would otherwise sit empty because of high job turnover rates.

"Hard as it may be to believe, despite having 1.3 billion inhabitants, China doesn't find enough people to do the work generated in its factories," Mr. Wyatt said.

Another factor is cost. Robotics technologies that were once prohibitively expensive are now cheap enough that they are feasible for Chinese factories.

Budapest-based OptoForce Ltd. manufactures €2,500 (\$2,796) sensors that can be attached to robotic arms and used to polish metal parts that go into car transmissions and other products. Its head of sales, Szabi Fekete, said such sensors have become significantly cheaper to produce in recent years.

"Ten years ago when a force sensor cost €20,000, no one wanted to automate polishing, because it was cheaper to hire 100 workers," Mr. Fekete said.

Suzhou Victory, which assembles laptops for Dell Inc. and [Lenovo Group](#) Ltd. and smartwatches for [Fitbit](#) Inc., started increasing its investment in robots two years ago, driven by shorter product cycles, rising wages and high worker turnover, especially after the annual vacation around Lunar New Year. This year, the manufacturer signed an agreement to buy 160 jointed-arm robots made by Kuka.

"We have to consider investing in robots so that the company can survive longer," Mr. Gao said.

[\[The Hill\] State Dept warns Pokemon Go players in SE Asia: Watch out for landmines](#)

Justin hatterm 16 August 2016

<http://thehill.com/policy/national-security/291553-state-dept-warns-pokemon-go-players-in-se-asia-watch-out-for>

The State Department has a message for fans of Pokemon Go in Southeast Asia: Watch where you step.

The department's Political-Military Affairs Bureau this week made a public appeal about landmines to Pokemon Go fans in Cambodia, Laos and Vietnam, which remain pockmarked with the deadly bombs.

A major credit card issuer upped the ante with an unbelievable 21-month intro 0% APR offer that has you paying no interest until 2018 [Read More](#)

"Playing [#PokemonGo](#) in [#Cambodia](#) [#Laos](#) [#Vietnam](#)?" the department tweeted on Monday. "Beware of [#landmines](#) or anything that looks like an old bomb!"

The tweet injected a somber note into the mobile game, which became enormously popular this summer.

Landmines planted decades ago kill and maim hundreds of people across Southeast Asia every year. Roughly one-fifth of Vietnam is estimated to contain the mines or other unexploded ordnance, such as cluster bombs.

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ICANN/IANA

[WSJ] Obama Administration to Privatize Internet Governance on Oct. 1

John Mckinnon 16 August 2016

http://www.wsj.com/articles/obama-administration-to-privatize-internet-governanceon-oct-1-1471381820?mod=WSJ_TechWSJD_moreTopStories

WASHINGTON—The Obama administration said Tuesday it will formally shift authority for much of the internet’s governance to a nonprofit multi-stakeholder entity on Oct. 1, a move likely to spark a backlash from parts of Congress.

The administration—as well as many in the high-tech community—regard the long-planned move as necessary to maintain international support for the internet and prevent a fracturing of its governance. They say transferring authority for the internet’s domain-name system to the Internet Corporation for Assigned Names and Numbers will have no practical effect on the internet’s functioning or its users.

But the move is likely to stir long-smoldering concerns among some conservative Republicans, who say it could endanger national security. As recently as Friday, Sens. Ted Cruz (R., Texas) and Mike Lee (R., Utah) and Rep. Sean Duffy (R., Wis.) sent a letter to the administration, complaining again of its “planned internet giveaway.”

Lawmakers have adopted budget restrictions in recent years to try to stave off the move. But existing restrictions expire Sept. 30, giving lawmakers little time to act if they want to block the Obama administration’s latest executive action.

Conservative critics say the administration has been flouting the existing restrictions. Brett Schaefer of the conservative think tank Heritage Foundation on Tuesday called the National Telecommunications & Information Administration announcement “a direct violation” of the current law, which prohibits use of taxpayer funds for the transfer. He said Congress should “act to protect its constitutional authority in this matter.”

Another, Berin Szoka of the conservative TechFreedom group, said “private plaintiffs could raise these issues” in court soon, even if Congress doesn’t act. Some conservatives say the domain-name function could be a government asset that can’t be privatized without congressional permission.

Administration officials said lawmakers have sent mixed messages on the transfer and called for government reports to Congress on its progress.

Despite the heated rhetoric, the move isn't expected to change anything for internet users for the foreseeable future, administration officials emphasized, although the change eventually could lead to consideration of new policies when it comes to tough issues such as copyright.

The administration in March 2014 announced its intent to wind down the U.S. government's stewardship role when it comes to the internet's domain-name system and relinquish control to the multi-stakeholder group, Icann, which manages a number of technical functions that help computers locate servers and websites.

In a blog post on Tuesday, the head of the National Telecommunications & Information Administration, Lawrence Strickling, said his agency had informed Icann that the government would end its role in the process on Sept. 30, by allowing the government's contract with Icann to expire. That will effectively transfer full responsibility to Icann for what some refer to as the internet's "phone book."

The transition "represents the final step in the U.S. government's longstanding commitment, supported by three [presidential] administrations, to privatize the internet's domain-name system," Mr. Strickling wrote.

The U.S. government's role "has long been a source of irritation to foreign governments," the NTIA wrote in a separate post. It has prompted some governments to call for takeover of internet operations by the United Nations or some other intergovernmental organization.

"These calls for replacing the multi-stakeholder model with a multilateral, government-run approach will only grow louder if the U.S. government fails to complete the transition," the NTIA said.

Icann told NTIA last week it had completed or would soon complete all the steps that NTIA was demanding, including measures to protect internet security.

Cybersecurity

[The Hill] WikiLeaks, too, claims to have NSA code

Joe Uchill

16 August 2016

<http://thehill.com/policy/cybersecurity/291565-wikileaks-too-claims-to-have-nsa-code>

The auction for an advanced, National Security Agency-linked cyberweapon just became cheaper.

After a day of speculation over whether the previously unknown "Shadow Brokers" **could really be auctioning off** an authentic stolen copy of the vaunted espionage group's source code, WikiLeaks announced it would be releasing a free, "pristine" copy.

WikiLeaks — and The Shadow Brokers — claim to have copies of the code behind the Equation Group, labeled "one of the most sophisticated cyber attack groups in the world" when it was discovered last year. The operation went under the radar for 14 years before being discovered, well longer than other known attackers.

Equation is usually described as an NSA team because of similarities between its work and other projects attributed to the spy agency, as well as the use of NSA jargon within the program's core.

An auction notice by Shadow Brokers placing hacked source code of Equation malware gained wide attention Monday. While inconclusive, files the Brokers released as proof it had the code appeared legitimate enough to pique the security community's interest.

With credit cards offering up to 6% cash back at the supermarket, it's time to upgrade your card if you're settling for less. [Read More](#)

But Monday night, WikiLeaks [tweeted](#), "We had already obtained the archive of NSA cyber weapons released earlier today and will release our own pristine copy in due course."

It is unclear why WikiLeaks had not already released a copy of the code it claims it had. As of late, WikiLeaks has timed its releases for maximum political impact. Emails leaked from the Democratic National Committee went live leading into the Democratic Convention, rather than when they were first obtained.

Democratic Congressional Campaign Committee and DNC hacker Guccifer 2.0 announced WikiLeaks will release the brunt of the documents taken from the DCCC hack.

[\[NY Times\] 'Shadow Brokers' Leak Raises Alarming Question: Was the N.S.A. Hacked?](#)

David Sanger

16 August 2016

http://www.nytimes.com/2016/08/17/us/shadow-brokers-leak-raises-alarming-question-was-the-nsa-hacked.html?_r=0

The release on websites this week of what appears to be top-secret computer code that the [National Security Agency](#) has used to break into the networks of foreign governments and other espionage targets has caused deep concern inside American intelligence agencies, raising the question of whether America's own elite operatives have been hacked and their methods revealed.

Most outside experts who examined the posts, by a group calling itself the Shadow Brokers, said they contained what appeared to be genuine samples of the code — though somewhat outdated — used in the production of the N.S.A.'s custom-built malware.

Most of the code was designed to break through network firewalls and get inside the computer systems of competitors like Russia, China and Iran. That, in turn, allows the N.S.A. to place "implants" in the system, which can lurk unseen for years and be used to monitor network traffic or enable a debilitating computer attack.

According to these experts, the coding resembled a series of "products" developed inside the N.S.A.'s highly classified Tailored Access Operations unit, some of which were described in general terms in documents stolen three years ago by Edward J. Snowden, the former N.S.A. contractor now living in Russia.

But the code does not appear to have come from Mr. Snowden's archive, which was mostly composed of PowerPoint files and other documents that described N.S.A. programs. The documents released by Mr. Snowden and his associates contained no actual source code used to break into the networks of foreign powers.

Whoever obtained the source code apparently broke into either the top-secret, highly compartmentalized computer servers of the N.S.A. or other servers around the world that the agency would have used to store the files. The code that was published on Monday dates to mid-2013, when, after Mr. Snowden's disclosures, the agency shuttered many of its existing servers and moved code to new ones as a security measure.

By midday Tuesday Mr. Snowden himself, in a Twitter message from his exile in Moscow, declared that "circumstantial evidence and conventional wisdom indicates Russian responsibility" for publication, which he interpreted as a warning shot to the American government in case it was thinking of imposing sanctions against Russia in the cybertheft of documents from the Democratic National Committee.

"Why did they do it?" Mr. Snowden asked. "No one knows, but I suspect this is more diplomacy than intelligence, related to the escalation around the DNC hack."

Around the same time, WikiLeaks declared that it had a full set of the files — it did not say how it had obtained them — and would release them all in the future. The "Shadow Brokers" had said they would auction them off to the highest bidder.

"I think it's Snowden-era stuff, repackaged for resale now," said James A. Lewis, a computer expert at the Center for Strategic and International Studies, a Washington think tank. "This is probably some Russian mind game, down to the bogus accent" of some of the messages sent to media organizations by the Shadow Brokers group, delivered in broken English that seemed right out of a bad spy movie.

The N.S.A. would say nothing on Tuesday about whether the coding released was real or where it came from. Its public affairs office did not respond to inquiries.

"It certainly feels all real," said Bruce Schneier, a leading authority on state-sponsored breaches. "The question is why would someone steal it in 2013 and release it this week? That's what is making people think this is likely the work of Russian intelligence."

There are other theories, including one that some unknown group was trying to impersonate hackers working for Russian or other intelligence agencies. Impersonation is relatively easy on the internet, and it could take considerable time to determine who is behind the release of the code.

The Shadow Brokers first emerged online on Saturday, creating accounts on sites like Twitter and Tumblr and announcing plans for an auction. The group said that "we give you some Equation Group files free" and that it would auction the best ones. The Equation Group is a code name that Kaspersky Labs, a Russian cybersecurity firm, has given to the N.S.A.

While still widely considered the most talented group of state-sponsored hackers in the world, the N.S.A. is still recovering from Mr. Snowden's disclosures; it has spent hundreds of millions of dollars reconfiguring and locking down its systems.

Mr. Snowden revealed plans, code names and some operations, including against targets like China. The Shadow Brokers disclosures are much more detailed, the actual code and instructions for breaking into foreign systems as of three summers ago.

"From an operational standpoint, this is not a catastrophic leak," Nicholas Weaver, a researcher at the International Computer Science Institute in Berkeley, Calif., [wrote on the Lawfare blog](#) on Tuesday.

But he added that “the big picture is a far scarier one.” In the weeks after Mr. Snowden fled Hawaii, landing in Hong Kong before ultimately going to Russia, it appears that someone obtained that source code. That, he suggested, would be an even bigger security breach for the N.S.A. than Mr. Snowden’s departure with his trove of files.

However, the fact that the code is dated from 2013 suggests that the hackers’ access was cut off around then, perhaps because the agency imposed new security measures.

The attack on the Democratic National Committee has raised questions about whether the Russian government is trying to influence the American election. If so, it is unclear how — or whether — President Obama will respond. A response could be public or private, and it could involve sanctions, diplomatic warnings or even a counterattack.

“The real problem for us is that the Russians seem to have taken the gloves off in the cyberdomain,” said Mr. Lewis, of the Center for Strategic and International Studies, “and we don’t know how to respond.”

[WSJ] [Why Safety Is Hard to Find in Cybersecurity](http://www.wsj.com/articles/why-safety-is-hard-to-find-in-cybersecurity-1471378585)

Dan Gallagher 16 August 2016

<http://www.wsj.com/articles/why-safety-is-hard-to-find-in-cybersecurity-1471378585>

riven by fear, corporate spending on cybersecurity gets more selective



ENLARGE

FireEye offices in California. The cybersecurity company's revenue growth is expected to slow to 16% this year. *PHOTO: ASSOCIATED PRESS*

By

DAN GALLAGHER

Aug. 16, 2016 4:16 p.m. ET

[0 COMMENTS](#)

The cybersecurity business runs on fear, so it is appropriate that investors have learned to be afraid.

While hacking seems like a [long-term growth industry](#), security hasn't turned out to be the surefire bet many thought it was. It has underperformed many other tech segments since hitting a peak last summer. The Hack Cyber Security ETF has shed nearly 12% in the past 12 months compared with a 13% gain for the S&P 500 Software and Services Index. One-time highfliers such as [Palo Alto Networks](#), [FireEye](#) and [Imperva](#) have lost about one-quarter of their market value so far this year.

Some of that is due to [hype that pushed valuations to unreasonable levels](#). Actual business spending on cybersecurity is still growing faster than many other tech segments. But there is less fear in the marketplace, especially compared to a wave of panic spending that followed a series of high-profile attacks such as the one on [Sony](#) Pictures in 2014.

FireEye, which derives much of its business from postattack consulting, saw revenue more than double that year. But its growth has slowed considerably, in part due to what it describes as changes in "the threat landscape." Revenue is expected to grow just 16% this year.

Threats haven't receded. At least 169 hacks from outside entities against corporations and other organizations have been documented so far in 2016, according to the Privacy Rights Clearinghouse. That is more than the 125 tabulated for all of last year. Gartner projects that global spending on IT security will rise by 8% this year, up from growth of under 5% in 2015.

Who benefits most is the key question. Joel Fishbein of BTIG sees security spending shifting from product- and hardware-based models to software-subscription offerings. Wall Street's favored names in security right now include [Proofpoint](#), [Fortinet](#) and [Rapid7](#)—all of which are projected to post strong double-digit sales growth for the current fiscal year. Palo Alto Networks is expected to post 47% revenue growth for its recently ended fiscal year when it reports at the end of the month.

But profits may be cramped. UBS analyst Brent Thill noted "discounting pressures" stemming in part from an influx of competition. Venture capitalists poured \$3.8 billion into cybersecurity startups last year—more than double the amount two years prior, according to CB Insights.

Consolidation is likely, spurred by reduced valuations in the market. [Symantec](#)'s recent purchase of Blue Coat Inc. for \$4.7 billion is unlikely to be the last. That could provide upside for investors who have found the cybersecurity business to be unsafe ground.

[\[The Hill\] CrowdStrike to work on DNC's cybersecurity](#)

Joe Uchill

16 August 2016

<http://thehill.com/policy/cybersecurity/291568-crowdstrike-restructuring-dnc-management-systems>

The Democratic National Committee (DNC) on Monday announced that cybersecurity company CrowdStrike would be restructuring its management systems.

"I'm pleased to tell you that CrowdStrike — which was retained back in May — is doing a fabulous job and not only restructuring and rebuilding our entire management systems, but they have monitored our systems 24/7 over the past few weeks and I can tell you we are stronger, we're very well protected," acting DNC chairwoman Donna Brazile said during a private call with state party officials, [Politico reported](#).

CrowdStrike, known for its work with state-level threats, investigated the recent hacks of DNC servers by Guccifer 2.0, a hacker or hackers many believe are a front for Russian intelligence.

The move comes after the security community questioned the DNC for appointing a cybersecurity review board many felt was heavy on lawyers but light on security experts.

"DNC creates Cybersecurity board made up of well meaning people with no cybersecurity expertise. Your move Russia..." [tweeted](#) Peiter Zatkó, a well-regarded security expert who leads an Underwriter Labs-like project for cybersecurity.

[\[Politico\] NSA website recovers from outage amid intrigue](#)

Eric Geller

16 August 2016

<http://www.politico.com/story/2016/08/nsa-website-hacking-rumors-227088>

The National Security Agency's website was offline for almost a full day until Tuesday evening, in an unexplained outage that began shortly after hackers claimed to have stolen a collection of the agency's prized cyber weapons.

It's unknown if the two events are connected.

POLITICO first [noticed](#) that the agency's website wasn't working at 10:54 p.m. Monday. It came back online around 5 p.m. Tuesday.

The outage began a few hours after a mysterious group called the Shadow Brokers [claimed](#) to have stolen cyber weapons from [the Equation Group](#), a sophisticated hacking group suspected of being linked to the NSA. Some cybersecurity experts, as well as fugitive NSA whistleblower Edward Snowden, suggested that the alleged thefts may be connected to the uproar over suspected Russian cyber spying on the Democratic Party — but no information has surfaced to link the two, or to connect the alleged thefts with the NSA website outage.

During the outage, the NSA [homepage](#) itself was accessible, but all links on the page led to "Service Unavailable" error pages, except for blog posts listed under the "What's New" section. (Those may be hosted on another server.)

An NSA spokesman declined to comment on the record about the outage, as did a spokesman for the Office of the Director of National Intelligence. A spokesman for the Department of Defense, which also oversees the NSA, said he would look into the issue, but did not follow up with any information.

The White House referred POLITICO to the NSA.

An unnamed source [told FedScoop](#) that the outage was due to an ongoing "internal review." The Shadow Brokers' claims to have stolen the Equation Group's hacking tools had stirred much intrigue earlier Monday, especially when the Shadow Brokers said they were willing to sell them. The security firm Kaspersky has [linked](#) the Equation Group to digital intrusion techniques widely associated with the NSA.

Regardless of how the Shadow Brokers obtained the files — if in fact they're real — the thieves have been holding onto their merchandise for a while, as POLITICO's [Morning Cybersecurity](#) noted Tuesday. [One of the leaked tools](#) exploits a vulnerability from 2006.

Capital Alpha Security CEO Matt Tait [hypothesized](#) that the hackers acquired the files a long time ago and saved them for a future purpose. If so, he said, their recent unveiling — along with Monday's release of a fresh batch of stolen Democratic [documents](#) — may be designed to

hit back at the NSA for [some behind-the-scenes action](#) the agency took in response to the DNC hack.

Snowden also speculated about a connection, calling it "unprecedented" for anyone to publicize this kind of attack on the agency.

"Why did they do it? No one knows, but I suspect this is more diplomacy than intelligence, related to the escalation around the DNC hack," Snowden [wrote](#) Tuesday on Twitter.

He [added](#) that "circumstantial evidence and conventional wisdom indicates Russian responsibility," and said it may be an attempt to warn the NSA that the dispute "[could get messy fast](#)."

"Accordingly, this may be an effort to influence the calculus of decision-makers wondering how sharply to respond to the DNC hacks," Snowden [tweeted](#).

The Obama administration has not publicly assigned blame for the hacking of the Democratic National Committee and other Democratic groups, let alone said whether it is prepared to take retaliatory action.

[\[Politico\] Democrats' new warning: Leaks could include Russian lies](#)

Cory Bennett

17 August 2016

<http://www.politico.com/story/2016/08/democrats-cyberhack-russia-lies-227080>

Democratic leaders are putting out a warning that could help inoculate Hillary Clinton against an October cyber surprise: Any future mass leaks of embarrassing party emails might contain fake information inserted by Russian hackers.

House Minority Leader [Nancy Pelosi](#) is among those sounding that alarm, echoing security experts who say Russian security services have been known to doctor documents and images or bury fictitious, damaging details amid genuine information. For hackers to resort to such tactics would be highly unusual, but security specialists say it's a realistic extension of Moscow's robust information warfare efforts.

Story Continued Below

Pelosi aired her concerns during a Saturday night conference call with Democratic lawmakers and aides who had been [stung](#) by a [dump](#) of their emails and phone numbers, according to a source on the call.

Democratic strategists say the party would be wise to trumpet warnings about faked leaks as it braces for the possibility of hackers releasing damaging information about Clinton or other candidates close to Election Day. Preemptively casting doubt on the leaks may be easier now than trying to mount a full response days before voters go to the polls.

"It is certainly a valid issue to raise, because clearly the people who are doing these attacks have a political agenda that's against the Democratic Party," said Anita Dunn, who was White House communications director in the early part of President Barack Obama's first term.

If Russia is indeed attempting to destabilize Clinton's candidacy through the widespread digital assault on Democratic institutions — as many researchers believe, and Democrats are alleging, but Moscow strongly denies — “why wouldn't you want to raise the potential [for tampering]?” asked Dunn, now a partner at communications firm SKDKnickerbocker. “I think it's only prudent for people to raise that possibility.”

Republicans say Democrats are just trying to distract the public from the most important issue: the content of the leaks. They say the Democrats already tried to do that with the first batch of 20,000 Democratic National Committee emails that leaked in July, which forced the resignation of Chairwoman Debbie Wasserman Schultz after showing that some DNC staffers had favored Clinton over primary rival Sen. Bernie Sanders.

“First, they made it all about Russia instead of the substance of what was actually in the emails,” said Matt Mackowiak, a veteran Republican strategist. Now, he added, “If there is a massive trove of emails or documents relating to the Clinton campaign or the Clinton Foundation ... they may just say, ‘Look, the authenticity of the emails hasn't been confirmed.’”

Intelligence officials — including NSA Director Adm. Michael Rogers and Director of National Intelligence James Clapper — have long argued that data manipulation more broadly is a disturbing possibility, and potentially the next front in both cybercrime and the budding digital warfare between countries.

Last month, a bipartisan group of 32 national security experts at the Aspen Institute Homeland Security Group [warned](#) of a specific type of fakery following the DNC hack, arguing that the suspected Russian hackers who struck the DNC and the Democratic Congressional Campaign Committee could “salt the files they release with plausible forgeries.”

In Saturday's call, Pelosi was underlining a point made by cyber experts at CrowdStrike, the firm the party has hired to investigate the breaches at the DNC and the DCCC. The conference call was prompted by the [late Friday release](#) of DCCC spreadsheets containing nearly all House Democrats' and staffers' personal emails and phone numbers, which led to a flood of harassing emails and phone calls over the weekend.

In total, the hackers have reportedly [infiltrated](#) more than 100 party officials and groups, leaving progressives [fearful](#) that the entire Democratic Party apparatus is potentially compromised. During Saturday's call, House members in competitive races voiced concerns about what damning information might be out there.

But hacking specialists say the most harmful information might not even be genuine.

“You may have material that's 95 percent authentic, but 5 percent is modified, and you'll never actually be able to prove a negative, that you never wrote what's in that material,” CrowdStrike co-founder Dmitri Alperovitch told POLITICO. “Even if you released the original email, how will you prove that it's not doctored? It's sort of damned if you do, damned if you don't.”

Several Democratic operatives said they even expect fake information, though mixed with enough truth to cause damage.

“The most powerful lie contains truth,” said Craig Varoga, a D.C.-based Democratic strategist. “Whether it’s the devil or it’s Russian intelligence services, they traffic in things that are true in order to put across a greater lie.”

Historically, it’s not unprecedented for intelligence agencies — including those in the U.S. — to release fake reports for propaganda purposes. The FBI’s [COINTELPRO](#) program infamously [used](#) forged documents and false news reports to discredit or harass dissenters during the 1950s and 1960s, including civil rights leaders, anti-war protesters and alleged communist organizations.

Hackers have adopted similar strategies.

In 2013, Syrian hackers backing embattled President Bashar Assad hijacked The Associated Press’ Twitter account, tweeting out falsified reports of two explosions at the White House that had injured Obama. The Dow plummeted in minutes, wiping out \$136 billion in market value, [according to](#) Bloomberg. It stabilized shortly thereafter, once the report was revealed to be a hoax.

Russia has long been known for engaging in such propaganda warfare, going back to the days of the Soviet Union, when the KGB spread conspiracy theories about the FBI and CIA’s involvement in President John F. Kennedy’s assassination. In the 1980s, the KGB planted newspaper articles [alleging](#) that the U.S. had invented HIV during a biological weapons research project.

The security agency also secretly helped an East German journalist write a book, “Who’s Who in the CIA,” that accurately outed numerous undercover CIA agents but also intentionally included a raft of people who were simply American officials stationed overseas, [according to](#) a former top Soviet security official.

In the weeks since the DNC email leaks, cyber specialists on Twitter have been [circulating](#) a [passage](#) from the memoirs of a former East German spymaster who wrote about the “creative” use of forgeries in conjunction with genuine leaks.

“Embarrassed by the publication of genuine but suppressed information, the targets were badly placed to defend themselves against the other, more damaging accusations that had been invented,” wrote Markus Wolf, who had headed East Germany’s foreign intelligence division for more than three decades. (On the other hand, he added that, “my principle was to stick as close to the truth as possible, especially when there was so much of it that could easily further the department’s aims.”)

In recent years, the Kremlin has adapted these tactics for a digital age.

The Kremlin was [caught](#) in 2014 manipulating satellite images to produce “proof” that Ukraine had shot down the Malaysia Airlines flight that was downed over Ukraine, killing 298 passengers. Last year, a Russian lawmaker’s staffer was [exposed](#) filming a fake war report, pretending to be near the front line in eastern Ukraine, where Moscow has seized territory.

“Standard Russian modus operandi,” said James Lewis, an international cyber policy expert at the Center for Strategic and International Studies, via email. “They’ve done it before in the Baltics and other parts of Europe: Leak a lot of real data and slip in some fakes (or more often, things that have been subtly modified rather than a complete fake).”

Digital forensics experts even noted that the metadata on some of the early documents leaked from the DNC — which included opposition research files — had been [altered](#), although it didn't appear that any content was compromised. But the discovery showed how easy such an edit would be.

“They have information warfare as a core tenet of what they do from a geopolitical perspective,” said Steve Ward, director of communications for digital security firm FireEye, which tracks many Russian hacking groups. “It's really in their wheelhouse.”

But Ward and other digital security experts acknowledge that the exact scenario Pelosi was discussing would be novel, and that so far, hackers have had little incentive to manipulate leaked data. As anonymous digital actors, hackers already have the deck stacked against them when trying to expose information.

“You've got to suspend disbelief and trust the bad guys when you're looking at this stuff,” Ward said. If they make just one discredited leak, hackers are “effectively losing the value of the operation by creating distrust with the data,” he added.

This leads many cyber experts to suspect that any release of faked emails, if it comes at all, would probably not come until days before the Nov. 8 election. At that point, the Democrats wouldn't have time to definitively prove a forgery.

So it makes sense, strategists said, for Democrats to put the concept in the public's mind now.

“What Pelosi is doing is making the response now,” said Brad Bannon, a longtime Democratic consultant. “Democrats do have their antenna up over this thing. They are anticipating.”

[\[Wired\] No One Wants to Buy Those Stolen NSA-Linked 'Cyberweapons'](#)

Andy Greenberg

16 August 2016

<https://www.wired.com/2016/08/no-one-wants-buy-stolen-nsa-linked-cyberweapons/>

WHEN AN ANONYMOUS group calling itself Shadow Brokers [put up for auction a collection of data it said it stole from the NSA](#), the group wrote that it would make the information public if it received the truly absurd “Dr. Evil” sum of one million bitcoins—at current exchange rates, about \$576 million. So far, however, it's achieved a more modest payday: \$937.15.

Over twenty-four hours have passed since the Shadow Brokers publicized its auction of a collection of encrypted information it claimed to have obtained from hacking the Equation Group, an elite team of hackers linked last year to the NSA. Shadow Brokers offered the data, which it claims includes a “full state-sponsored toolset” of “cyberweapons,” to the highest bitcoin bidder, with the promise that if the total bids reached a million bitcoins, it would publish the entire dataset.

But buyers aren't exactly clamoring to outbid one another for the secrets. So far, only one significant bid has been made, offering 1.5 bitcoins, or about \$865 dollars, based on the [publicly visible transactions](#) in bitcoin's accounting ledger known as the blockchain. The next highest bid for the cache is .04 bitcoins, or \$23.

The lack of bids doesn't come as much of a surprise, says Mikko Hypponen, chief research officer at the security firm F-Secure, given how bizarrely the terms of sale were defined. The Shadow Brokers

expected bidders to pay in advance with the understanding that only the highest bidder would receive the decryption key to access the data, and all others would forfeit their bids. “This is one weird auction,” says Hypponen. “It was very shady to begin with.”

But the absurd auction system contrasts with the security community’s growing consensus that the stolen data is real, and may indeed have come from a counter-hack of an NSA hacking team. A set of sample data released by Shadow Brokers yesterday included real—if perhaps somewhat outdated—code for hacking network appliances sold by Cisco, Juniper, Fortigate and TopSec. Some of the data matched a catalogue of hacking tools leaked by Edward Snowden in 2013. “The content is credible enough and properly reflects what we know of some of the program names in there,” Citizen Lab malware analyst Claudio Guarnieri told WIRED yesterday.

Snowden himself weighed in on Twitter early Tuesday, surmising that the hack was likely a real compromise of a staging server, one of the command-and-control computers NSA hackers set up outside the NSA’s own network as part of an espionage operation. “NSA malware staging servers getting hacked by a rival is not new,” the former NSA analyst [wrote](#). “A rival publicly demonstrating they have done so is.”

In fact, Snowden and others point out that the bitcoin bidding may not be the real intention of the Shadow Brokers operation. Berkeley computer science researcher Nicholas Weaver said yesterday that any serious auctioneer of hypersensitive stolen data would use bitcoin’s escrow features to allow bidders to make bids and then retract them if they don’t have the highest bid. Snowden argued that the real point of the hack, which may well have been the work of another group of state-sponsored hackers, wasn’t cryptocurrency profit so much as sending a message. And that message, he speculated, might be related to the fact that US policymakers are considering sanctions against Russia for its alleged hack of the Democratic National Committee. “This leak is likely a warning that someone can prove US responsibility for any attacks that originated from this malware server,” he wrote. “That could have significant foreign policy consequences. Particularly if any of those operations targeted US allies....Particularly if any of those operations targeted elections.”

F-Secure’s Hypponen says it’s too early to know if more real bids will be made in the Shadow Brokers’ auction. Other bids may have been made in secret backchannels, too. And Hypponen contends the auction may be nothing more than a publicity stunt meant to maintain the Shadow Brokers’ time in the spotlight. “They’re trying to gain maximum exposure,” he says. “An auction keeps people talking.”

[\[The Hill\] Snowden suggests Russia behind NSA code hack](#)

Joe Uchill

16 August 2016

<http://thehill.com/policy/cybersecurity/291588-snowden-suggests-russia-behind-nsa-code-hack>

National Security Agency (NSA) leaker [Edward Snowden](#) is backing a theory that Russia — not money-seeking hackers — is behind the release of possible NSA source code.

The Shadow Brokers, a previously unknown hacking entity, and WikiLeaks have both announced they have copies of the source code used by a vaunted cyber espionage operation called the Equation Group. The Equation Group is widely believed to be connected to the NSA.

The Shadow Brokers are auctioning off the code, and WikiLeaks says it will release it for free.

In a series of tweets on Tuesday, Snowden said he believed the effort to expose the source code was a shot from Russian intelligence operatives meant to warn the NSA against publicly attributing recent cyberattacks on the Democratic Party to President Vladimir Putin.

"This leak is likely a warning that someone can prove US responsibility for any attacks that originated from [a specific] malware server," Snowden tweeted.

The code was not necessarily taken from NSA headquarters. It could have been taken from an external command and control server running the Equation Group's software. Being able to identify that server could implicate the NSA in a variety of other attacks around the world.

"That could have significant foreign policy consequences. Particularly if any of those operations targeted US allies," Snowden tweeted.

He is not the first person to bring forward this idea, which has become a popular theory in the information security community.

Many security experts agree that Russia was behind hacks targeting the Democratic National Committee and Democratic Congressional Campaign Committee, and that the Obama administration is holding off from publicly blaming the country while officials contemplate the U.S.'s next move.

Russia's role the military campaign against the Islamic State in Iraq and Syria also makes it risky for the U.S. to shake the already fragile relationship between the countries.

Broadband

[Ars Technica] [Cable expands broadband domination as AT&T and Verizon lose customers](http://arstechnica.com/information-technology/2016/08/cable-expands-broadband-domination-as-att-and-verizon-lose-customers/)

Jon Brodtkin

16 August 2016

<http://arstechnica.com/information-technology/2016/08/cable-expands-broadband-domination-as-att-and-verizon-lose-customers/>

The cable industry's majority share of US broadband subscribers rose again last quarter, as Comcast and Charter gained nearly 500,000 subscribers, combined, while phone companies AT&T, Verizon, CenturyLink, and Frontier all lost Internet customers.

The 14 largest ISPs, accounting for 95 percent of the US market, gained 192,510 Internet customers in Q2 2016, bringing the total to 91.9 million, Leichtman Research Group [reported today](#). Cable companies accounted for all of the gains, adding 553,293 subscribers for a new total of 57 million. The phone companies lost 360,783 subscribers, bringing them down to 34.9 million. Phone companies' losses more than doubled since Q2 2015, when they lost about 150,000 subscribers.

"Over the past year, cable companies have added about 3.5 million broadband subscribers, while telcos have had net losses of about 500,000 broadband subscribers," the group's president, Bruce Leichtman, said in the press release.

Comcast and Charter, the two biggest ISPs, led the way in subscriber gains. Comcast added 220,000 broadband subscribers to boost its total to 24 million, while Charter (the [new owner of Time Warner Cable](#)) added 277,000 subscribers for a new total of 21.8 million.

AT&T lost 123,000 subscribers, lowering its total to 15.6 million. Verizon lost 83,000, leaving it with 7 million Internet customers. CenturyLink and Frontier lost 66,000 and 77,000, respectively, leaving them with totals of 6 million and 4.6 million. (Verizon [sold part of its wireline operations](#) to Frontier at the beginning of the quarter.)

The second quarter is generally poor. But broadband subscriber growth is slowing as overall broadband additions in Q2 2016 "were less than in any quarter in the past fifteen years" since Leichtman began tracking the industry.

While phone companies are generally gaining subscribers on their modern fiber networks, they've lost customers on their slower, copper-based DSL ones. This may be by design, as the companies would rather not invest more money in a less profitable part of their business. AT&T has allowed its copper network to decay so much that it claims it [doesn't have enough capacity](#) to connect new customers in certain neighborhoods, even if those customers move into homes that previously had AT&T service. Verizon is [facing criticism](#) from customers and government officials regarding allegedly poor copper maintenance.

The cable and phone companies' pay-TV businesses lost a combined 665,000 subscribers in the second quarter, as [reported yesterday](#).

Encryption

[Motherboard] Canadian Cops Want a Law That Forces People to Hand Over Encryption Passwords

Jordan Pearson 16 August 2016

<http://motherboard.vice.com/read/canadian-cops-want-a-law-that-forces-people-to-hand-over-encryption-passwords>

Encryption tools that keep your digital communications hidden from prying eyes are becoming more widespread, and Canadian police say they need a law that compels people to hand over their passwords so cops can access those communications.

The Canadian Association of Chiefs of Police ([CACCP](#)), a lobbying organization with membership from across the country, passed a resolution at its annual conference on Tuesday mandating that the group advocate for a law that would force people to provide their computer passwords to police with a judge's consent, [CTV reported](#).

"To say this is deeply problematic is to understate the matter," said Micheal Vonn, policy director for the [BC Civil Liberties Association](#). "We have all kinds of laws that do not compel people to incriminate themselves or even speak."

A law that compels people to give police access to their devices, which may contain messages, photos, and data that have nothing to do with any active criminal investigation, doesn't fit within Canada's current legal landscape and would be "tricky constitutionally," Vonn added.

"If an individual legitimately objects to handing over their password, that alone makes them criminal"

"I'd question whether this proposal is constitutional," said Tamir Israel, a lawyer for the [Canadian Internet Policy and Public Interest Clinic](#) at the University of Ottawa.

"It's rare to force people to help police investigate themselves, and for good reason," Israel continued. "It shifts the focus of criminal condemnation away from actual criminal activity and onto compliance. So if an individual legitimately objects to handing over their password, that alone makes them criminal."

The CACP has not responded to Motherboard's request for comment.

Recently, police across North America have been expressing concern over citizens "[going dark](#)"—using anonymity-boosting tools like the encrypted Tor browser to keep their communications a secret—and thus making the cops' job more difficult.

The CACP posted a report on "[the challenges of gathering electronic evidence](#)" from the International Association of Chiefs of Police as background for their annual conference, suggesting that the push for a law to get peoples' passwords is related to recent US cases like [Apple's refusal to unlock an iPhone](#) for the FBI.

The CACP is merely an advocacy body and resolutions they pass have no effect on the law of the land. Moreover, the organization has a history of asking for powers that go well beyond what the law currently allows.

At the CACP's 2015 national convention, the organization [resolved to support the creation of a law](#) that would allow police to access telecom subscriber information in real-time, and without a warrant. To date, no such law exists.

"This has been a standard component of what the chiefs of police do—they argue for laws that would make policing easier," Vonn said.

"But is it a good idea from a civil liberties perspective? No."

[Motherboard] [Wave of Spoofed Encryption Keys Shows Weakness in PGP Implementation](#)

Joseph Cox 16 August 2016

<http://motherboard.vice.com/read/wave-of-spoofed-encryption-keys-shows-weakness-in-gpg>

Don't always trust an encryption key.

Someone has generated a host of dodgy [PGP](#) keys, and by abusing the inherent weakness in the short identifying code attached to each, has made the keys appear to belong to a series of high profile individuals in the security community.

This means that someone trying to communicate with these people, which include developers of the Tor anonymity software, may accidentally use the wrong key, leaving messages potentially open to

snooping. Or, at best, recipients will simply not be able to decrypt some of the messages they receive. Many of the keys appear to relate to a 2014 research project, but their reemergence highlights a lingering security concern with PGP, which stands for “pretty good privacy”.

On Monday, a post on the unofficial Linux Kernel Mailing List claimed that encryption keys purportedly belonging to Linus Torvalds, [the creator of Linux](#), and Greg Kroah-Hartman, a [Linux kernel developer](#), were instead fake. The post pointed to keys stored on the MIT server, a popular repository where people upload their keys for others to more easily find.

The issue revolved around each key's “short ID,” a numerical code that is supposed to uniquely identify every key. In Torvald's case, the short ID of his real key was 00411886. But someone had created a key with exactly the same 8 digit code.

“The 32-bit short ID's of pgp are completely useless. They may be ‘convenient’, but they also entirely bypass the whole point of having a nice secure key,” Torvalds told Motherboard in an email. Kroah-Hartman also confirmed to Motherboard that one of the keys apparently belonging to him was fake.

Plenty of people list their short ID on their social media profiles, so anyone wanting to get in touch has a relatively easy way to check that whatever key they find is legitimate: If the short ID on the MIT key server is the same as the one on the person's Twitter profile, then you'd think there was a pretty good chance that they were in fact the same key. But, as this case shows, you would be wrong.

“This is not trivial to pull off, but it's exactly the scenario PGP is supposed to prevent”

Isis Lovecruft, a Tor developer, [also reported](#) on Tuesday that someone had created a fake key for her, [as well as others](#) from the Tor Project. And although it doesn't seem to be part of this more recent wave of spoofed keys, journalist Glenn Greenwald [tweeted a similar experience](#) back in 2014.

All of this is possible because generating a key with the same 8 digit code as another is pretty simple. Using a [tool called Scallion](#), a user can quickly cycle through different PGP keys until they create one that they're happy with.

This is [not a new problem](#): Back in 2014, German journalist [Hanno Boeck covered](#) the issue from DEF CON 22 (Boeck also [reported spotting a fake key](#) for himself earlier today).

At least some of the reported fake keys were part of the 2014 [Evil 32 project](#) which highlighted the dangers of short IDs, explained Eric Swanson, the co-creator of that project, [in a comment](#) on Y Combinator on Tuesday. Swanson added that he has generated revocation certificates for each key, meaning they can be marked as “revoked” on the key server.

The potential issue here is that if an attacker created a fake key, people started using it, and this attacker had the potential to intercept emails or otherwise access the target's email account, they might be able to read incoming encrypted messages. Of course, that would need to be a highly resourceful attacker.

But, as Boeck pointed out to Motherboard in an email, that is the whole point of PGP and end-to-end encryption: to stop someone who has the ability of interception from reading messages.

“So yes, this is not trivial to pull off, but it's exactly the scenario PGP is supposed to prevent,” he wrote.

However, perhaps the more likely situation is that someone will use the wrong key when trying to send a message, and the recipient won't be able to read it.

Even if someone is pretty vigilant and closely reads the longer, 40 character key fingerprint, another issue is that some PGP programs rely on short IDs for importing keys.

"The really bad thing is that the short ID is what you end up often using even with the tools, and there have even been bugs where the tools themselves used the short ID internally despite it not being secure," Torvalds continued.

"No security is ever 'absolute'. PGP has some very real technical strengths, but I have to say, it has a lot of weaknesses too. The weaknesses tend to be about the UI and usage, not about core algorithms, but with security, that's a big deal," Torvalds added.

Spectrum

[The Hill] FCC starts bidding in second part of wireless auction

David McCabe

16 August 2016

<http://thehill.com/policy/technology/291595-fcc-starts-bidding-in-second-part-of-wireless-auction>

Bidding began among mobile carriers and other buyers in a historic auction for wireless spectrum on Tuesday, launching the second phase of the sale.

Broadcast stations previously agreed to give up spectrum, the radio frequencies that carry wireless data, in exchange for a payout from the Federal Communications Commission. The agency will now repackage and sell those frequencies to buyers in the second portion of the auction.

The bidders — wireless carriers AT&T, Verizon and T-Mobile among them — will now have a chance to buy the spectrum in a traditional auction where the highest bidder takes the license to use the airwaves.

Bidding [began](#) at 10:00 a.m. and will continue until 4:00 p.m. It is scheduled to continue throughout the week — and officials have not set an end date.

"Unlike the reverse auction, in which there is a limited number of possible rounds, forward auction bidding rounds for a stage can continue without limit so long as demand outpaces supply for any product," said two FCC staffers leading the auction [in a blog post](#) last week. "As such, we cannot predict when the forward auction will conclude."

The auction's methodology is being used for the first time in an attempt to give more space on the airwaves to consumers using data-hungry smartphones. Some have warned for years warned of a crunch where demand for spectrum would outpace supply.

The spectrum being auctioned off is of particularly high quality for use by mobile devices.

It remains to be seen, however, if the wireless providers and other buyers will pony up for the \$86.4 billion in spectrum provided by the broadcasters. If they don't, the commission will have to redo the process while attempting to sell a smaller amount of spectrum.

The agency set the highest possible target for the sale, in terms of the amount of spectrum sold, earlier this year.

Privacy

[The Hill] Baltimore police facing scrutiny over cellphone tracking

Ali Breland 16 August 2016

<http://thehill.com/blogs/blog-briefing-room/291653-baltimore-police-are-facing-scrutiny-again>

The Center for Media Justice, Color of Change and the New America Foundation's Open Technology Institute are calling for the Federal Communications Commission (FCC) to investigate the Baltimore police for allegedly violating civil liberties laws, The Washington Post [reports](#).

The groups claim that Baltimore police are violating the Communications Act, which requires a license to access frequencies normally used by wireless carriers.

According to the Post, however, an official from the FCC said law enforcement is exempt from laws that normally require such licenses, and that the trackers in question did not access the frequencies for which a license is normally needed.

This directly contrasts with a 2014 public notice the FCC issued, citing that it is illegal for any group — including state and local law enforcement — to use devices that jam or interfere with cellphone signals.

The [FCC notice](#) does not specify or exempt particular frequencies for devices that interfere with phone signals.

The FCC has not yet responded to a request for comment from The Hill.

The devices used by Baltimore police, known as stingray phone trackers, gets nearby phones to connect with them instead of cellphone towers, and allows the stingray operator to gain data from the connected phones, like the phone's location. When the stingray is in use it interferes with the phone's ability to connect with cellphone towers and make calls.

While the device may be used elsewhere, experts speculate that Baltimore police are the most egregious violators.

"It seems quite likely that the Baltimore Police Department makes the heaviest use of this technology of any police department in the country," Laura Moy [told](#) the Baltimore Sun. Moy is a visiting professor at Georgetown University Law Center who is representing the groups.

The complaint comes shortly after a Department of Justice probe [slammed](#) Baltimore police for discriminatory policing practices.

Patents

[IP Watchdog] [FTC report on PAEs could have an outsized effect on U.S. patent reform debate](#)

William Cory Spence

16 August 2016

<http://www.ipwatchdog.com/2016/08/16/ftc-report-paes-effect-patent-reform/id=71954/>

In September 2013, the [Federal Trade Commission](#) (FTC) issued [a request for public comment](#) for information on patent assertion entities (PAEs) and their licensing activities in an attempt to add to the existing literature and evidence on PAE behavior. The PAE study is the result of media coverage and Congressional pressure regarding the potentially abusive behavior of PAEs and the potential that their licensing activities could be [“a drag on innovation, competition, and our economy.”](#)

For the purposes of the study, [the FTC has defined a PAE](#) as any business having a model which is primarily based upon purchasing patent rights and then enforcing that intellectual property against parties who are already practicing the technology in order to generate revenues. Along with publicly available information, the FTC will also be drawing from nonpublic information including licensing agreements, patent acquisition data as well as cost and revenue data from businesses. The FTC study specifically looks at PAEs in the wireless communication sector.

The information the FTC has been collecting regarding patent assertion entities is extensive. Along with standard corporate information, the FTC is making a survey of each patent in PAE portfolios going back to 2008 to investigate the date of patent acquisition, the patent’s maintenance fee status as well as the assertion history for all patents upon which the PAE has attempted to enforce its rights. Firms are also being asked to describe their business model, the methods used to organize their patent portfolios and the aggregate costs of patent acquisition and assertion. The FTC has sent information requests to 25 PAEs in order to build its evidence.

The second part of the PAE study will compare the business activities of PAEs to that of non-practicing entities (NPEs), companies which license technologies without manufacturing it themselves, as well as manufacturing firms. One aspect which the FTC is investigating is how behaviors differ among PAEs and other firms with respect to the threat of a countersuit in response to patent enforcement. The FTC surveyed 15 NPEs and manufacturing firms for this part of the report.

The FTC study follows [a June 2013 report](#) issued by the [White House](#) which lays out many of the issues that the FTC itself is likely investigating. It notes that PAEs, which the report also called “patent trolls,” have tripled the number of infringement suits filed and accounted for 62 percent of all infringement suits, up from 29 percent in recent years. The report notes the important place in the U.S. economy played by companies which own patents but license the technology to others instead of practicing it themselves. However, the report charges PAEs with harming innovation in health information technology and other sectors, taking advantage of the uncertain scope of their claims and preventing useful technologies from being used by society.

The FTC’s report on PAE business activities has taken longer to deliver than the federal agency had indicated as recently as a few months ago. This March, FTC chairwoman [Edith Ramirez](#) told a

subcommittee of the [U.S. Senate Committee on the Judiciary](#) that [the agency expected the report to come out this spring](#). As of August 1st, the report had not yet been issued by the FTC.

Many expect, however, that the FTC's PAE report will not look kindly upon those patent assertion entities which are surveyed. Some observers have cited [an FTC report on the intellectual property marketplace](#) which came out in March 2011 and stated that PAEs "can deter innovation by raising costs without making a technological contribution." The report held this view despite making note of the argument that PAEs can encourage innovation through inventor compensation. This report also reveals the different viewpoints which the FTC holds regarding PAEs and NPEs; NPEs like universities and semiconductor design houses develop technologies for licensing and are not involved in the PAE business model of purchasing patents for assertion.

There's also fear regarding how the report's small sample size will be applied to the patent reform debate which could affect the entire U.S. patent landscape. Analysis of the PAE study published by the [Center for the Protection of Intellectual Property](#) (CPIP) concluded that the report [won't show how PAEs affect innovation in a general way](#) because so few companies are being surveyed. Considering the FTC's past positions as well as public comments made by industry organizations regarding the study, however, CPIP believes that the study will be used by the anti-patent crowd to fuel fears in the marketplace regarding PAEs. Back in January 2015, FTC commissioner [Julie Brill](#) indicated that [patent system reforms brought to Congress should not be delayed](#) until the findings of the PAE study come out. She also held that state and federal agencies should take enforcement actions against abusive PAE tactics without waiting for the report to issue first.

There is also some belief that the FTC's PAE study will be informative. Although the sample size of companies surveyed is too small to support the case for major policy decisions, [the current study is the first empirical study conducted by the FTC on PAEs](#). Observers have acknowledged that the report's findings, though limited in scope, will at least create some hard data which is relevant to the debates surrounding PAEs and patent trolls.

At the end of the day, it's very likely that the FTC's findings on PAE behavior won't sway those who have already developed strong views on the subject. If the study is critical of PAEs, which seems to be expected, those pushing for patent reform will likely beat their drums louder. If the study only finds minor issues, that same crowd could argue that too few companies were surveyed. Whatever the long-anticipated study finds should spark a new round of conversations surrounding patent reform.

Artificial Intelligence

[The Atlantic] [How Artificial Intelligence Can Help Burn Victims](#)

Adrienne Lafrance

16 August 2016

<http://www.theatlantic.com/technology/archive/2016/08/how-machine-learning-could-help-burn-victims-recover-faster/495926/>

It takes years, decades even, for physicians to refine the expertise required to notice details that remain invisible to the untrained. This aptitude, depending on a doctor's specialty, might mark the difference between an oncologist knowing a malignant tumor from a benign cyst. It can help a cardiologist

determine the velocity of blood as it flows through a hole in the heart. Or it may tell a reconstructive plastic surgeon whether a severe burn is healing nicely or at risk of infection.

None of this is easy unless you know how to see in a certain way.

“The further along you get in your training, the better you are at picking up little subtleties,” says Jonathan Kanevsky, a plastic surgeon at the McGill University Health Center in Montreal. “But every physician is limited by the number of cases they’ve seen in their lifetime.”

Artificial intelligence could change all that. Medical specialties that rely heavily on imaging technologies are on the cusp of undergoing a major transformation in the era of machine learning, a type of AI in which computers exposed to massive datasets can automatically draw inferences from what they see. Using enormous troves of medical imagery could revolutionize health care because, Kanevsky says, “things that have a visual component can be translated to an image, which can then be translated to a data point, which can be used for machine learning.”

In other words, today’s machines are sophisticated enough to glean hidden insights from complex imagery—perspective that would otherwise evade even the most experienced human. With the right training, machines are able to show human doctors things they cannot see. “For example, what’s the pattern of a certain infection caused by a certain bacteria?” Kanevsky says. Such a pattern might be so subtle that it can’t be identified by a human, yet it may be discernible to a machine that’s drawing from a large enough dataset.

Kanevsky gives another example, recalling a recent patient who was injured in a propane-tank explosion. “Burns are tricky,” he says, and for a number of reasons. One of the first things he and his colleagues had to do in response was to estimate the extent of the person’s injuries. One of the traditional ways to do that in plastic surgery is to assume that 1 percent of a person’s body is equivalent to the surface area of the palm of that person’s hand. It isn’t precise [or even necessarily accurate](#)—“We use a very crude estimation,” Kanevsky says—but it’s important for doctors to guess. Knowing how much of a person’s body is burned is a predictor for mortality, and helps doctors make critical decisions about the best course of treatment; including assessing how much IV fluid is necessary in the initial days after the injury and determining what kind of surgical response is appropriate. Algorithms can already determine how deep a burn is—and accurately predict how long it will take for a burn to heal.

Already, “previously unimaginable” applications for machine learning are “within grasp” for individual patient care, according to a February [essay](#) about machine learning in the *Journal of the American Medical Association*. There are at least dozens of startups specializing in artificial intelligence with a focus on health-care. Yet there is still much work to be done before clinicians can turn over their clinics to machines. (In other words, docs, don’t worry about being replaced by bots just yet.) It takes time to teach a machine. Supervised learning requires giving a computer feedback, confirming when it’s right, tagging and cataloguing images, and “training the algorithm so it can say, ‘This is a wound that looks like it will heal,’” as Kanevsky puts it. With enough attention and pristine data, a machine’s way of seeing can quickly supersede human ability. For example, the deep-learning startup Enlitic boasts an algorithm that’s 50 percent more accurate than human radiologists at detecting lung cancer, [according to the company](#).

In other settings, machines have proved to be at least as good as human doctors at crucial tasks. “In many applications, the performance of the machine learning-based systems is comparable to that of experienced radiologists,” wrote the authors of a [2012 paper](#) published in the journal of *Medical Image Analysis*. (And that was four years ago, practically an eternity by AI standards.)

Kanevsky believes machine learning will allow for a sort of black box in medicine, with sophisticated algorithms recording and decoding intricate aspects of a person’s health on levels never before possible. Combine the promise of machine learning with the [troves of data](#) that could be collected through individual wearable devices, and doctors could begin to rely on “algorithms that continually optimize for personal information in real time,” as the authors of the JAMA essay put it, to detect abnormalities and select treatment courses.

All the while, the technology used to capture patient data is improving dramatically on its own. “Between artificial intelligence and the evolution of imaging technologies,” Kanevsky says, “the marriage of those two forces is going to be just out of this world.”

Drones

[Tech Crunch] [Apollo Shield’s new system detects and sends unwanted drones home](#)

Lora Kolodny 17 August 2016

<https://techcrunch.com/2016/08/17/apollo-shield-launches-system-that-sends-unwanted-drones-home/>

[Apollo Shield](#), which was originally incorporated as Airfence Inc., has launched an anti-drone system that detects drones flying where they’re not authorized or wanted, and forces them to fly home.

The startup intends to sell its technology to owners or managers of venues that have intense security needs such as oil refineries, nuclear facilities, airports, prisons, stadiums or hotels and buildings where high-net worth individuals or public figures may reside.

Co-founders Nimo Shkedy (CEO) and Gilad Beerli (CTO) explained that the Apollo Shield system includes a unit installed on the ground that contains a radio and antennae. Each unit scans an area for drone communications.

Stringing a few units together will let a user protect the entire perimeter of a venue of any size.

Data coming in from the system connects through a cloud-based “command center” online that the user can review manually or handle automatically.

The system detects not just whether or not there is a drone in the area, but what type of drone it is, and the unique ID of that drone. This allows users to tell potentially malicious drones apart from those welcome to fly.

It also allows a user to choose to intercept a drone, or apply counter measures to it, not forcing it to land but commanding it to return home.

Most drones have failsafe mechanisms to prevent them from running out of battery mid-air, so if a drone doesn’t have enough of a charge left to make it all the way home it should still land safely, the CEO explained.

Shkedy said Apollo Shield is akin to an “anti-virus for the sky.” The company is funded by Y Combinator and unnamed angel investors. It has raised about \$500,000 in funding to-date.

In the next year, the startup intends to improve its systems, especially to keep up with all the advancements in drone tech. The CEO said, “We intend to be the easiest, plug-and-play, no training necessary system available.”

The startup faces competition from drone detection firms like [DeDrone](#), and anti-drone tech providers including [DroneShield](#), [OpenWorks](#), or military anti-drone tech companies that could move into the consumer market like [SRC Inc.](#)

Autonomous Vehicles

[Washington Post] Ford will start selling driverless cars in 2021

Brian Fung

16 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/16/ford-says-its-vision-of-a-driverless-uber-is-only-five-years-away/>

Today, the software economy makes hailing a ride incredibly easy. Tap a button, and a driver will arrive at your door to whisk you away. But in just a few years, the car may show up without any driver inside at all.

Ford said Tuesday that it wants to be first to roll out a completely automated transportation service. By 2021, it expects to win the race by beginning to make and sell thousands of robotic cars that can ferry passengers to and fro, without any human input other than the destination.

Like the prototypes being developed by Google, Ford's self-driving vehicles won't even have brake pedals or a steering wheel, executives say.

"We're a high-volume manufacturer," Raj Nair, Ford's chief technology officer, said in an interview. "This is not a couple hundred development units in limited use. When we talk about high volume, it's thousands of units — and sometimes more."

No matter which company makes it there first, the technology will mark the beginning of a new era in car travel, potentially reshaping the face of America's cities, according to policy experts. Computers with lightning-fast reflexes will be able to respond to danger more quickly and effectively than humans, proponents say. Smarter vehicles will minimize accidents, traffic congestion and wasted time and money — and they may even be able to help cities repurpose land now wasted on parking lots.

To complete its push for self-driving cars, Ford plans to double the number of employees in its Silicon Valley workforce from 130 to more than 250. It will also work with or invest in a handful of startups that are developing self-driving technology, ranging from laser sensing to machine learning to digital mapping.

The company intends to make automated transportation a cornerstone of the business as it shifts from solely selling vehicles to selling and operating them as well.

Ford chief executive Mark Fields has described the new business model as one that leans more heavily on "vehicle miles traveled," an industry term that refers to the amount of ground covered by a car. Just as many taxi cabs charge on a per-mile basis, so, too, does Ford expect to turn its cars into a steady stream of recurring revenue.

Company executives said they are in active discussions with "everybody" in the ridehailing industry about its forthcoming autonomous car, and hinted at Ford's ambitions to become the standard hardware platform for such services everywhere.

"It's not just a traditional opportunity of building an automated vehicle, but generating revenue on vehicle miles traveled, it opens up the opportunity for us to offer transportation as a service," said Nair.

Much will depend on whether Ford and its partners can encourage enough Americans to use the robotic cars to make them economical. Although the company expects the cost of ridehailing to come down as human drivers are gradually phased out by computers, it may only be feasible in the densest parts of the country — and then only where the weather supports near-constant automated driving.

"What we've been doing over the last two years — and what we will continue to do — is research and development on advanced algorithms to increase the utilization," said Ken Washington, Ford's vice president of research and advanced engineering.

When the weather turns foul, Ford may consider turning to human drivers to keep the cars running, executives said. (The company has been [conducting tests](#) to improve its robotic vehicles' performance in snow and ice.)

Ford's cars will still require some supporting infrastructure, likely in the form of maintenance depots where cars can return for refueling or, if they turn out to be electric vehicles, for recharging.

But most consumers will likely never see these facilities. They'll be too busy reading, watching TV or looking out the car window to think about it.

[\[WSJ\] Ford Developing Fully Driverless Car](#)

Christina Rogers

16 August 2016

<http://www.wsj.com/articles/ford-baidu-lead-investment-in-autonomous-car-sensor-maker-velodyne-1471352564?mod=LS1>

[Ford Motor Co.](#) plans to release a fully driverless car without a steering wheel or pedals in the next five years, the latest salvo in a [technological arms race](#) engulfing the global auto industry.

The Dearborn, Mich., auto maker on Tuesday said it would initially target ride-sharing fleets and package-delivery services with the unnamed model, underscoring the [still-incremental approach](#) many car companies are taking before offering vehicles to consumers that don't require humans behind the wheel.

Ford expects the first of its driverless cars to be used by commercial-fleet operators looking to cut the costs of employing human drivers, company executives said. The vehicles largely will be confined to cities with pre-mapped zones designed for autonomous vehicles.

Separately, Ford said it had acquired an Israeli machine learning firm, SAIPS, which has 12 employees, and invested \$75 million in Morgan Hill, Calif.-based laser sensor maker Velodyne Inc. Both are aimed at boosting Ford's autonomous-vehicle know-how, with the latter working on sensors to help autonomous cars successfully recognize objects and navigate traffic. Chinese web-service provider [Baidu Inc.](#) invested in Velodyne alongside Ford.

The nation's No.2 car maker also plans to double the staff at its Silicon Valley office to 260 by the end of 2017, hiring researchers and business-development staff in an effort to expand into new transportation services.

Ford's forays mark the latest attempt to keep up as traditional car companies and Silicon Valley upstarts race to deliver automated-driving technologies. But those endeavors have come under increased scrutiny after the [May fatal crash of a Tesla Motors](#) Inc. car driving itself. Questions also remain over regulations and legal liabilities arising from the advancements.

[General Motors](#) Co. punched the accelerator earlier this year, taking a [\\$500 million stake](#) in ride-hailing startup Lyft Inc., with which it plans to soon start [testing a fleet](#) of driverless Chevrolet Bolt taxis. The Detroit car maker also has said it expects next year to roll out its SuperCruise feature that allows for hands-free driving on the highway. It this year acquired the Silicon Valley autonomous-driving startup Cruise Automation Inc. to aid development efforts.

'It is still going to be a relatively expensive vehicle.'

—Mark Fields, Ford CEO

Other global giants including [Toyota Motor Corp.](#), [Nissan Motor Co.](#) and [Volkswagen AG](#) have committed to putting self-driving cars on the road. Nissan pledged it would roll out 10 new models within the next five years with a range of self-driving features aimed at individual buyers, including a fully autonomous car. Tesla, which released its driver-assist Autopilot system last year, says it will be the first to put a fully driverless car on the road, although it hasn't set a specific date.

Google parent [Alphabet](#) Inc. recently said it was pairing with [Fiat Chrysler Automobiles](#) NV to [jointly test](#) self-driving technology in minivans.

Ford's driverless car won't be made available for sales to individual customers until later in the decade, Chief Executive Officer Mark Fields said in an interview.

"We've done a lot of work reducing the cost on the technical components, but at the outset, it is still going to be a relatively expensive vehicle," he said.

Ford declined to say whether it plans to operate its own robo-taxi fleet or sell its forthcoming driverless car to independent ride-hailing services such as Uber Technologies Inc.

Like other major auto makers, Ford is allocating significant resources to developing self-driving cars, viewing the technology as a way to reach consumers who live in large, congested cities and don't own a vehicle. Earlier this year, the company established a separate division, Ford Smart Mobility LLC, to explore new business models that will cater to that growing market.

But Mr. Fields said Ford isn't interested in being the first auto maker to put a fully autonomous car on the market, noting "we're not in a race to make announcements."

'The regulators are being very forward leaning on this.'

—Mark Fields, Ford CEO

Many car companies, including Ford, are installing semiautonomous features such as automatic emergency brakes and adaptive cruise control in vehicles. But Ford remains keenly focused on fully driverless cars, with product chief Raj Nair expressing concerns over whether drivers can take over quickly enough when driverless systems are disabled.

Other hurdles also remain. Regulators are still trying to sort out what rules and guidelines need to be in place before driverless cars start hitting roadways in large numbers.

“The regulators are being very forward leaning on this,” Mr. Fields said. “Our desire is to get a 50-state national framework” on operational standards for driverless cars, he added. The National Highway Traffic Safety Administration plans this summer to release guidelines for local rules on driverless cars.

Ford and Baidu’s investment in Velodyne also is aimed at helping the tech firm lower the costs of its sensors to between \$300 and \$500 a unit, inexpensive enough for mass adoption. The first Velodyne laser device cost \$75,000 and was large and obtrusive, sitting on the roof of the car.

[Bloomberg] Hyundai Motor Says It’s Discussing Partnerships With Google

Sohee Kim

16 August 2016

<http://www.bloomberg.com/news/articles/2016-08-17/hyundai-says-it-s-in-talks-about-further-partnership-with-google>

Hyundai Motor Co. is in discussions with Google about further partnerships as South Korea’s largest carmaker seeks external expertise to [remain competitive](#).

The two companies have some common areas that may require cooperation, Hyundai Motor President Jeong Jin Haeng said in an interview in Seoul after a meeting between the trade ministry and local carmakers. Hyundai has been among the most aggressive automakers adopting Apple Inc.’s CarPlay and Alphabet Inc.’s Android Auto, which integrate iPhone and Android handsets with car dashboards.

“Hyundai is lagging behind the competition to develop autonomous vehicles,” said Ko Tae Bong, senior auto analyst at Hi Investment & Securities Co. “It’s not a choice but a critical prerequisite for Hyundai to cooperate with IT companies, such as Google, to survive in the near future.”

Any potential collaboration between the two companies may be aided by John Krafcik, the former Hyundai U.S. chief who joined Google in 2015 to lead its self-driving car project. Jeong didn’t give further details or confirm if the automaker is considering developing autonomous cars with Google.

Unlike rival automakers, Hyundai and affiliate Kia Motors Corp. have shunned joint ventures or alliances to make high-cost, low-volume sports cars and electric vehicles. Hyundai is now seeking to transform its go-it-alone strategy and become more open to tie-ups with tech upstarts and Silicon Valley giants to stay relevant in the coming era of connected cars and autonomous driving.

Hyundai's shares rose 1.5 percent to 135,000 won in Seoul trading, the biggest gain in almost a week, while the benchmark Kospi Index fell 0.2 percent.

[Bloomberg] Amazon Courts Women Entrepreneurs With Event to Boost Sales

Spencer Soper

16 August 2016

<http://www.bloomberg.com/news/articles/2016-08-16/amazon-courts-women-entrepreneurs-at-conference-to-boost-sales>

Amazon.com Inc. is making an effort to woo more women entrepreneurs to its online marketplace, which attracts 300 million shoppers from 185 countries, by emphasizing the company's global reach and tools for efficiently building a budding business.

The company made its appeal Tuesday at its first Women's Entrepreneur Conference, which drew 300 e-commerce merchants to Amazon's global headquarters in Seattle. Amazon has hosted other events to help third-party merchants who sell goods on its marketplace, but this was the first specifically tailored to women.

Amazon sees women-owned businesses -- which are growing at five times the pace of business overall -- as fuel for its online marketplace, said Peter Faricy, Amazon's vice president of worldwide marketplace. About half of all goods sold on Amazon come from some 2 million third-party merchants, and promoting diversity among merchants helps broaden the inventory available.

"We want to focus on this high-growth segment," Faricy said.

Selling goods on Amazon eliminates a lot of barriers to start businesses because merchants can outsource marketing, warehousing, packing and shipping to Amazon and focus on finding great products and building brands, said Maria Renz, Amazon's vice president and technical adviser to founder and Chief Executive Officer Jeff Bezos. Renz delivered a keynote speech at the event, which drew women whose businesses sell items in 25 product categories on Amazon's marketplace.

"We're very well suited to serve the needs of women entrepreneurs," said Renz, who joined Amazon in 1999 and is one of its longest-serving employees. "We're trying to allow entrepreneurs to define success on their own terms."

Building Relationships

The event featured speeches by Amazon sellers and executives and workshops to give women advice about expanding their businesses globally, monitoring their businesses from smartphones using an Amazon mobile app designed for sellers on the move, and how to stock adequate inventory and set prices heading into peak shopping times.

Events that bring business women together are important because many business success stories are built on relationships and mentoring, said Marla Malcolm Beck, who co-founded the beauty and spa retailer Bluemercury, Inc. which she sold to Macy's Inc. for \$210 million last year.

Beck, who heard Bezos talk about e-commerce while she was a student at Harvard Business School, was a featured speaker at Amazon's event.

“A lot of entrepreneurship is role modeling,” she said. “There aren’t many female entrepreneurs who have built big companies who are role modeling.”

The conference also provided an external diversity initiative for Amazon, where more than 75 percent of the managers are men. Amazon’s total workforce is 61 percent male and 39 percent female, according to company reports.

Business Marketplace

A key opportunity for women selling goods is Amazon’s new business marketplace, which launched last year and hit [\\$1 billion](#) in sales in May. The marketplace offers tractor parts, latex gloves, file folders and millions of other products needed in offices, factories, farms, hospitals, schools, and government agencies as businesses shift their supply shopping online. The marketplace has thus far attracted 400,000 registered business customers.

Marketplace sellers can register as women-owned businesses, which appeals to government agencies and their contractors that are required to maintain a certain percentage of their spending with women-, minority- and veteran-owned businesses. The federal government spent \$17.8 billion last year with women-owned businesses, said John Shoraka, associate administrator of the Small Business Administration’s Office of Government Contracting.

Conference attendee and speaker Day Martin epitomized the successful marketplace entrepreneur. She founded [Stand Steady](#), which sells standing desks, in 2013 after getting injured in a car crash and having trouble finding a standing desk that didn’t cost thousands of dollars or require her to replace her entire cubicle. Her Fairfax, Virginia-based company now has six employees and does millions in annual sales, mostly on Amazon, which also packs and ships the products for her.

Martin expects the business-to-business marketplace to represent 50 percent of her sales within the next few years, up from 15 percent now, as more businesses shift their supply spending online and look for women vendors.

“I love that Amazon put together this conference and helped us be an example for the next generation of girls so that when they become women they can be entrepreneurs and CEOs,” she said. “When we get more women involved in manufacturing and design, we get more solutions.”

[\[The Hill\] Ford unveils plan for driverless car by 2021](#)

Melanie Zanona

16 August 2016

<http://thehill.com/policy/transportation/291642-ford-unveils-plan-for-fully-driverless-car-by-2021>

Ford Motor Co. plans to build a fully autonomous vehicle for ride-hailing services by 2021, the automaker announced Tuesday.

The goal is to create a driverless car with no steering wheel or pedals that can navigate pre-determined areas.

The vehicle will be specifically designed for commercial ride-hailing and on-demand taxi services.

The automaker did not indicate whether it plans to start its own ride-hailing service or partner with a company like Uber or Lyft.

“The next decade will be defined by automation of the automobile, and we see autonomous vehicles as having as significant an impact on society as Ford’s moving assembly line did 100 years ago,” said Mark Fields, president and chief executive officer of Ford.

“We’re dedicated to putting on the road an autonomous vehicle that can improve safety and solve social and environmental challenges for millions of people — not just those who can afford luxury vehicles.”

To fortify its efforts, Ford is working with several autonomous technology start-ups, doubling its Silicon Valley team and more than doubling its research and innovation center in Palo Alto.

One of those collaborations includes a \$75 million investment in Velodyne, which supplies the LiDAR technology that enables self-driving cars to detect their surroundings.

The automaker is also increasing investment in areas such as advanced algorithms, 3-D mapping and radar and camera sensors.

Ford said it will “triple its autonomous vehicle test fleet to be the largest test fleet of any automaker — bringing the number to about 30 self-driving Fusion Hybrid sedans on the roads in California, Arizona and Michigan, with plans to triple it again next year.”

TPP

[PC World] Tech industry desperate for US action on the Trans-Pacific Partnership

Grant Gross

16 August 2016

<http://www.pcworld.com/article/3107997/tech-industry-desperate-for-us-action-on-the-trans-pacific-partnership.html>

The Trans-Pacific Partnership, a controversial trade deal supported by many U.S. tech companies, is on death row, with both major party presidential candidates opposed.

It's a long shot, but some tech trade groups are hoping for last-minute clemency from Congress and outgoing President Barack Obama. The trade groups are pushing for Congress to vote to approve the deal after November's general election, in the lame-duck session before a new Congress and a new president takes office.

The TPP, a free-trade deal negotiated among the U.S. and 11 other Pacific Region nations for seven years, has become a major presidential campaign issue in recent months.

Supporters say it would open up new markets to U.S. companies and make it easier for them to sell the products. But critics --- including Republican presidential candidate Donald Trump and Democratic presidential candidate Hillary Clinton -- worry it would make it easier for U.S. companies to move jobs overseas, would drive down U.S. wages, and would balloon the country's trade deficit.

[Supporters of the deal](#) say it would eliminate 18,000 tariffs on U.S. products, would improve worker rights in many countries, and would require signatories to take steps to protect the environment. The TPP is especially attractive to the U.S. tech industry, which sees the Asia-Pacific Region as a growing market for its products.

"There are broad benefits for the economy and for consumers, who have access to [more] goods here in the United States as well," said Tiffany Moore, vice president of congressional affairs at the Consumer Technology Association (CTA).

Opponents say the deal will make it easier for U.S. companies to ship jobs overseas and will contribute to an [annual U.S. trade deficit](#) that was US\$531.5 billion in 2015. Critics of trade deficits say they discourage U.S. manufacturing.

The TPP also has detractors in the digital rights community, with groups like the [Electronic Frontier Foundation](#) saying the deal would enshrine controversial copyright protections and enforcement measures across the signatories. The deal would widen the adoption of [anticircumvention provisions](#) in the U.S. Digital Millennium Copyright Act, for example.

The copyright and other tech-related issues in the TTP have "definitely been overshadowed" by broader economic issues, said Jeremy Malcolm, senior global policy analyst at the EFF. The issues in the U.S. presidential campaign are "more politically volatile."

In addition to copyright concerns, the EFF has protested the TPP's provisions to criminalize disclosures of trade secrets, even for the purposes of journalism or whistleblowing. Other provisions relating to encryption and domain names, which opponents see as "inappropriate" for inclusion in a trade deal -- were negotiated without input from the wider Internet community, Malcolm said.

Opponents in the digital rights community are "riding on the wave of discontent about the agreement," Malcolm added. "We're not antitrade. We'd be happy with a trade agreement that didn't have the problems we've identified."

After either Clinton or Trump takes office, the deal is almost certainly dead in the U.S. But supporters, including the CTA, are pushing for congressional action late this year. Other tech trade groups declined to talk about their strategy in the coming months.

So is Obama. He promised to push for the deal during a [press conference](#) in early August. "Right now, I'm president and I'm for it and I think I've got the better argument," he said after questions about opposition from Clinton and Trump.

The U.S. is part of a global economy, he said then. "We're not reversing that," he added. "It can't be reversed because it is driven by technology, and it is driven by travel and cargo containers .. and our export sector is a huge contributor to jobs and our economic wellbeing."

CTA has called on the Clinton campaign to reverse its opposition to TPP, given that Clinton supported the deal while she served as Obama's secretary of state and that vice presidential candidate Tim Kaine voiced support for the deal as recently as mid-July.

However, the "best-case scenario is that somehow the bipartisan consensus on trade can prevail" in Congress by the end of this year, said CTA's Moore. "There's been so much work that's been done on TPP."

No matter who is elected president this fall, delaying action until next year would "restart the conversation" about TPP, she added. "If it doesn't happen this year, then we could be waiting for years. That makes it very difficult for our companies to compete in a number of markets."

Business/Market

[WSJ] Tencent Earnings: What to Watch

Juro Osawa 16 August 2016

http://www.wsj.com/articles/tencent-earnings-what-to-watch-1471320867?mod=WSJ_TechWSJD_NeedToKnow

Chinese internet giant [Tencent Holdings](#) Ltd. will report second-quarter earnings on Wednesday. China's biggest online games publisher by revenue, which also operates the popular WeChat mobile messaging application, is expected to report that its net profit rose more than 30% from a year earlier, according to analysts' estimates.

EARNINGS FORECAST: Tencent is expected to report that its net profit rose 34% to 9.81 billion yuan (\$1.48 billion) for the three months ended June 30, from 7.31 billion yuan a year earlier, according to nine analysts polled by Thomson Reuters.

REVENUE FORECAST: Revenue likely rose 42% to 33.18 billion yuan from 23.43 billion yuan a year earlier, according to the poll.

WHAT TO WATCH:

—**ADVERTISING REVENUE:** While online games are Tencent's biggest source of revenue, analysts and investors are counting on advertising to be the engine for Tencent's growth over the next few years. Investors will be closely watching the rate of growth in advertising revenue in the latest quarter. In May, Tencent executives warned of possible challenges to its ad business due to China's economic slowdown. During a conference call with analysts in May, Tencent President Martin Lau said that negotiations for some ad contracts were taking a little longer, while some advertisers were keeping more of the budget for later in the year.

—**SUPERCELL DEAL:** In June, Tencent [agreed to spend \\$8.6 billion with partners to buy an 84.3% stake in Finnish mobile game maker Supercell Oy](#), the developer of the popular "Clash of Clans" game. Tencent and its partners are still in the process of completing the deal so second-quarter results likely won't be

affected by the deal. Still, analysts and investors are expecting Tencent executives to share more details on the impact of the acquisition during a conference call on Wednesday.

Analysts and investors are also interested in how Tencent will help Supercell expand its business in China, the world's largest mobile games market by revenue. Last month, Tencent started distributing Supercell's latest game, "Clash Royale," through its WeChat and QQ social networking platforms.

—**MOBILES-GAMES REVENUE:** Tencent [generates more than half of its revenue from online games](#) distributed through its WeChat and QQ platforms, each of which has hundreds of millions of users in China. Over the past few quarters, Tencent has increased its revenue from mobile games by launching smartphone versions of some popular PC games. The company has also been trying to woo gamers through competitive gaming tournaments called eSports. Investors expect those efforts will ensure that Tencent will stay dominant as the biggest online game publisher in the Chinese market.

—**USER NUMBERS:** Tencent's WeChat and QQ messaging apps play crucial roles by generating traffic for moneymaking operations such as games and advertising. As of March, WeChat had 762 million world-wide monthly active users, mostly in China, while QQ's mobile app had 658 million. While WeChat and QQ are already ubiquitous in China, the ability of the apps to hold on to their users is a prerequisite for Tencent's continued growth and expansion into new services such as financial services.

[\[WSJ\] How Uber Rival's Founder Won Friends and Influenced Beijing](#)

Eva Dou and Juro Osawa

17 August 2016

<http://www.wsj.com/articles/how-didis-founder-won-tech-titan-friends-and-influenced-beijing-1471416208>

In the weeks before founding Uber Technologies Co. in 2009, Travis Kalanick, then 32, tweeted about rubbing elbows with entrepreneurs and celebrities, and posted pictures of a party he threw with \$100 bottles of wine.

The founder of Uber's nemesis in China appeared to be preoccupied with far less glamorous activities. Shortly before founding Didi Chuxing Technology Co. in 2012, Cheng Wei wrote a post on his personal blog about filial responsibility, pledging to call his parents weekly and take them on vacations.

"It's about time I really do something for my old mom," he wrote.

Four years later, the unassuming Mr. Cheng handed the brash Mr. Kalanick his first major defeat, with Uber capitulating to Didi to end a bloody [subsidy battle in China's ride-hailing market](#). Mr. Cheng's low-key personality and respect for his seniors helped win support in Didi's fight against Uber, people familiar with him say. He won over the founders of internet giants [Alibaba Group Holding Ltd.](#), and [Tencent Holdings Ltd.](#) to advise and fund Didi's expansion in China. Valued at \$36 billion, [Didi counts Apple Inc.](#) as an investor and added Chinese search giant [Baidu Inc.](#) to its list after its deal to buy Uber's China business earlier this month.

"It is unprecedented for all three internet giants to come together to create a China powerhouse in the sector," said Chris DeAngelis, general manager of consultancy ADG, which helps western tech companies expand in China. "The game has been won."

Still, Mr. Cheng's main challenge will be forging a growth strategy acceptable to his powerful backers with conflicting business interests, analysts and investors say.

Didi declined to make Mr. Cheng available for an interview. An Uber spokesman said the company had no comment.

"It is unprecedented for all three internet giants to come together to create a China powerhouse in the sector. The game has been won."

—Chris DeAngelis, general manager of consultancy ADG

As Uber ramped up its China campaign, Mr. Cheng sought advice from the founders of Tencent, Alibaba and [Lenovo Group](#) Ltd., Mr. Cheng recalled in a speech at an entrepreneurship conference last year. Lenovo founder Liu Chuanzhi counseled him to use guerrilla warfare against Mr. Kalanick to "pin him down and defeat him," according to a video of Mr. Cheng's speech posted online. Mr. Cheng also said in the speech that Tencent founder Pony Ma advised a direct confrontation to "annihilate him." Alibaba's Jack Ma told him that "imperialism is a paper tiger, so just drag it out a couple years and he will run into problems himself," Mr. Cheng recounted.

Tencent and Alibaba declined to comment. Lenovo referred questions to its parent [Legend Holdings](#), which didn't respond to a request for comment.

Support from this advisory team went a long way to explaining Mr. Cheng's success.

Advertisement

Born in China's eastern Jiangxi province in 1983, Mr. Cheng started at Alibaba as a salesman for its business-to-business e-commerce service after studying management at the Beijing University of Chemical Technology.

Mr. Cheng's blog posts from those years include photos of him and his then top boss, Jack Ma, where he looks like a typical person meeting a celebrity. In one, a baby-faced, bespectacled Mr. Cheng has his arm around Mr. Ma, but it hovers above his shoulder, as if he's unsure how a hug would be received.

But Mr. Cheng quickly gained a reputation as a talented manager despite his young age and shot through the ranks to become the company's youngest regional manager, said Wang Gang, his boss at Alibaba and Didi's angel investor.

"He was always very ambitious and never satisfied with himself," Mr. Wang said. Didi's success has far surpassed his and Mr. Cheng's initial hopes, he said.

Good timing also helped. Mr. Cheng launched Didi as Tencent was pushing into mobile payments to compete with Alibaba's Alipay. Tencent became an early investor in Didi because ride-hailing helped it boost mobile payments. The Tencent alliance was awkward for Mr. Cheng, an Alibaba alumnus, but that was smoothed over last year through the merger with Didi's Alibaba-backed rival Kuaidi Dache, a person familiar with the matter said.

As Didi grew, it landed more high-profile investors: [SoftBank Group](#) Corp., Singapore state investment fund Temasek Holdings Pte. Ltd. and China's top life insurer, [China Life Insurance](#) Co.

Managing conflicting interests required diplomacy. For instance, Didi ditched plans to acquire Tencent's mapping business and scaled back ambitions in auto sales due to Alibaba's ventures in similar businesses, according to people familiar with the matter.

In 2014, Mr. Cheng, 33, hired Jean Liu, a former [Goldman Sachs Group](#) Inc. executive and daughter of Lenovo's founder. A fluent English speaker, she became the face of Didi overseas and helped win Apple's investment.

"One thing that amazed me was how he brought in Jean and fully empowered her. It's not easy for founders to put aside their egos," said Jixun Foo, managing partner of GGV Capital, a Didi investor.

Mr. Cheng also wooed Chinese government regulators, who posed an existential threat. The first draft of China's national ride-hailing regulations would have crippled Didi's business, but after months of closed-door lobbying, [China's final rules](#) required few changes to Didi's model.

Mr. Cheng had praised regulators publicly and appeared alongside senior Chinese leaders, including President [Xi Jinping](#) at a Seattle tech summit in September.

"The nationalistic card is definitely a good card to play when you are competing against a foreign player," one Didi investor said.

Mr. Cheng's first blog post after founding Didi showed he had done his market research. He outlined three major China trends: urbanization, growing consumer sophistication and the mobile-internet revolution.

Didi, of course, fits all three.

[\[WSJ\] Tim Cook Pledges More Apple Investment in China](#)

Eva Dou

16 August 2016

http://www.wsj.com/articles/tim-cook-pledges-more-apple-investment-in-china-1471353668?mod=WSJ_TechWSJD_NeedToKnow

BEIJING— [Apple](#) Inc. Chief Executive [Tim Cook](#), in a meeting with senior Chinese government officials, pledged to increase investment in China, including creating Apple's first research center in the country.

Chinese state broadcaster CCTV reported in its evening news program on Tuesday that Mr. Cook met with China Vice Premier Zhang Gaoli.

The research center, which will open later this year, will focus on developing new products and services and "strengthening relationships with local partners and universities," an Apple spokesman said. "We look forward to expanding our operations in China with a new Research and Development center as we continue to grow our talented team here," he said.

Apple declined to provide further details on the research center, including its location, expected head count and the total amount the company will invest in the effort.

Warren Buffett's Berkshire Hathaway increased its investment in Apple by 55% as of June 30, according to SEC filings. WSJ Ahead of the Tape columnist Steven Russolillo joins Lunch Break and explains what the Berkshire investment means for the tech giant and for investors. Photo: Getty

The move comes as Apple faces multiple headwinds in China, including the shutdown of its online book and movies services, tighter cybersecurity regulations and slowing iPhone sales. Once Apple's fastest-growing region, China has been the biggest drag on Apple's sales in the past two quarters as Chinese rivals produce increasingly competitive products.

China has been leaning on Apple and other U.S. technology companies to store their data locally, share source code—a company's proprietary software—with the government and accept reviews to prove their products are secure, according to industry groups. Apple in 2014 moved Chinese customer data to a facility operated by local telecom carrier [China Telecom](#) Corp. and said the data was encrypted and wasn't accessible by China Telecom.

Apple revealed in April that it refused requests from Chinese authorities to share source code. That month, China also shut down Apple's online book and movie services, telling the company it lacked the necessary licenses, according to people familiar with the matter.

Mr. Cook, according to CCTV, also said he would support China's plan to update traditional manufacturing industries with automation and internet technologies.

Apple in May announced it would invest \$1 billion in Chinese ride-hailing company Didi Chuxing Technology Co.

Terry Gou, chairman of Apple's main contract manufacturer, [Foxconn Technology Group](#), was also shown at the Beijing meeting in the CCTV report. A Foxconn spokesman didn't immediately reply to a request for comment.

[\[WSJ\] Pinterest Jumps Into Video-Ads Fray](#)

Yoree Koh 17 August 2016

http://www.wsj.com/articles/pinterest-jumps-into-video-ads-fray-1471431601?mod=WSJ_TechWSJD_NeedToKnow

Pinterest Inc. is forging into video advertising, a potentially lucrative business that also is rife with competition from rival social-media players.

The image-discovery service said it would begin displaying promoted videos, allowing marketers to pitch their wares in video spots that can run as long as five minutes. The beta version will be available Wednesday, the company said.

Pinterest will present the ads differently than on [Facebook](#) and [Twitter](#), where the ads automatically start playing without sound as users encounter them within their news feeds. On Pinterest, the video ads that appear as previews in a user's feed would play as quickly or slowly as the page is scrolled, stopping when the scrolling stops.

Clicking on a video would produce a new page where the ad would play with sound. Underneath the video, marketers could place as many as six “featured pins” that could highlight specific products related to the video, like an appetizer accompanying a featured dinner recipe.

Pinterest is the latest web company to aggressively chase digital-video ad dollars, battling more established peers like Alphabet Inc.’s YouTube, Facebook Inc. and Twitter Inc., and fresher faces like Snapchat Inc.

As more consumers cut the cord, marketers and their massive TV budgets are following them to smaller screens. Advertisers are projected to spend \$12.82 billion on digital-video ads in 2018, up from \$7.7 billion last year, according to research firm L2.

“I think there’s plenty of room for all of us to play, and everybody’s got their strengths,” said Jon Kaplan, Pinterest’s head of global sales.

Pinterest believes its strength lies in user intent. People go to the site to discover new ideas on topics such as fashion, home décor and weddings by browsing through millions of images, or “pins.” Pinterest shows those users advertisements that coincide with images that show up in their home feed.

Because many people use Pinterest to research specific projects like making dinner or decorating a nursery, the site can more easily predict their interests or catch a person in the mood to buy something, such as the lipstick featured in a how-to style video.

Pinterest has already tested the video-ad product with 12 partners that include Universal Pictures, [General Mills’s Old El Paso](#) and [L’Oreal’s Garnier](#) haircare brand.

Old El Paso tested a 30-second recipe video on how to make mini churro taco boats—a cinnamon churro crust filled with yogurt and fruit. “This is just one video so we can only draw so much from it, but we were excited to see that people were engaging and spending time with the pin differentially,” said Michelle La Berge, senior marketing manager at Old El Paso.

The number of people who watched the video to the end exceeded the company’s expectations, Ms. La Berge said, but she declined to disclose the specific video-viewing completion rate. She also declined to say whether the brand would buy video ads on Pinterest in the future.

Pinterest has been ramping up its ad business over the past few years in a bid to justify the \$11 billion valuation investors assigned it in 2015. Last year, the company generated roughly \$100 million in revenue, a person familiar with the matter has said. In March, [Pinterest hired Mr. Kaplan, a 12-year Google Inc. veteran where he worked on ad sales at YouTube](#), to bolster its ad offerings.

U.S. and U.K. businesses that already work with Pinterest will initially have access to the promoted video. The ad would typically appear in the fourth slot in the user’s home feed as well as when users are scrolling through category feeds.

[\[The Hill\] Apple chief vows to boost China investment amid tensions](#)

David McCabe 16 August 2016

<http://thehill.com/policy/technology/291572-apple-chief-said-to-pledge-investment-amid-tensions-in-china>

Apple CEO [Tim Cook](#) is back in China as he looks to smooth over regulatory tensions in the country.

He reportedly told government officials that Apple would increase its investments in China and build a research facility there, according to a state television report [cited by The Wall Street Journal](#).

Quartz [reported](#) that Cook was documenting his trip to the country on Sina Weibo, a popular Chinese social media tool. He visited with a Chinese fashion designer who uses an iPad and a gym where students were using Apple Watches.

His visit — [said to be his ninth](#) to China — comes as the tech giant looks to overcome regulatory problems it has faced with local authorities.

China blocked Apple's iTunes movie and e-book stores this spring, prompting concerns over whether the company's generally good relationship with the country was souring.

Cook [said in May](#) that Apple was "pretty confident and optimistic that we'll be back online and offering those to our Chinese customers soon."

The dustup was notable because Apple has traditionally enjoyed a better relationship with China than many other American technology firms. Both Google and Facebook are currently not accessible to users in mainland China.

Apple's business in China has also recently [fallen off](#), with revenues in China, Hong Kong and Taiwan falling by 33 percent since last year.

[\[WSJ\] China's Tencent Scores Profit Gain on Mobile Gaming](#)

Juro Osawa 17 August 2016

http://www.wsj.com/articles/chinas-tencent-scores-profit-gain-on-mobile-gaming-1471427425?mod=WSJ_TechWSJD_NeedToKnow

HONG KONG— [Tencent Holdings](#) Ltd. reported a better-than-expected 47% rise in second-quarter net profit, as the Chinese internet giant's revenue from mobile games more than doubled.

The strong second-quarter results come as Tencent is in the midst of completing its acquisition of Finland's Supercell Oy, the [maker of the popular "Clash of Clans" mobile game](#), in a move that could further boost its revenue from games.

China's biggest social-network company, which operates the popular WeChat messaging application, generates roughly half its revenue from games distributed through its two major social platforms and its own app store.

MORE TECH COVERAGE

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Shenzhen-based Tencent said Wednesday that its net profit for the three months ended June 30 rose to 10.73 billion yuan (\$1.61 billion) from 7.31 billion yuan a year earlier. Revenue jumped 52% to 35.69 billion yuan. Analysts polled by Thomson Reuters had expected a 34% rise in net profit and a 42% increase in revenue for the quarter.

Tencent's revenue from smartphone games more than doubled to 9.6 billion yuan in the second quarter.

In April, May and June, the company's "Honor of Kings," a battle strategy game, was the top-grossing mobile game by monthly revenue in Android app stores in China, according to market research firm Newzoo. Several other Tencent games were also among the 10 highest-grossing titles in China during the quarter.

Robust growth in mobile games made up for a slowdown in games played on personal computers. Tencent's overall online-games revenue rose 32% to 17.12 billion yuan in the second quarter.

While Tencent's mobile games dominate the Chinese market, the company is also looking to increase its presence in the global market through the Supercell deal. In June, Tencent said a consortium led by the Chinese company that also includes other co-investors would buy an 84.3% stake in Supercell for \$8.6 billion. The deal is structured in a way that Supercell wouldn't be consolidated in Tencent's earnings. The Chinese company would instead reap any financial gains as a stakeholder through the consortium that owns Supercell. Tencent said in June that it planned to own a 50% voting interest in the consortium.

To finance the deal, bankers have recently arranged a \$3.5 billion loan for Tencent, a person familiar with the matter said.

Beyond games, Tencent has been expanding its advertising business over the past year, including ads displayed on WeChat's timeline page similar to [Facebook](#) Inc.'s sponsored posts.

Investors and analysts view [advertising as a source of growth for Tencent](#) for the next few years.

In the second quarter, [Tencent's ad revenue rose 60%](#) to 6.53 billion yuan, slower than the first-quarter's growth of 73%. In May, Tencent executives warned of possible challenges to its ad business due to China's economic slowdown.

Tencent also earned more revenue from its online-payments business as its market share in China's fast-growing mobile-payments sector increased over the past year.

While Tencent doesn't break out its revenue from payments, revenue for the segment that includes payments more than tripled, it said.

Tencent's WeChat and QQ apps come with [mobile-payment functions](#), allowing app users to pay for taxi rides, restaurant meals, movies and various other services. For each transaction, it collects a small fee from the merchant offering the service. The payment business is growing faster than most other businesses, though its revenue is still much smaller than that of games or advertising.

Tencent's WeChat and QQ play crucial roles by generating traffic for moneymaking operations such as games and advertising. As of June, WeChat had 806 million world-wide monthly active users, up from 762 million in March, the company said. Users of QQ's mobile app increased slightly to 667 million from 658 million.

Competition

[NY Times] Tech Giants Gobble Start-Ups in an Antitrust Blind Spot

Steven Davidoff Solomon

16 August 2016

http://www.nytimes.com/2016/08/17/business/dealbook/expect-little-antitrust-challenge-to-walmarts-bid-for-jet-com.html?_r=0

[Walmart's \\$3.3 billion acquisition of Jet.com](#) can be expected to sail through antitrust review, eliciting barely a peep of objection from the federal government.

Like Facebook's acquisition of WhatsApp, the Walmart deal will probably end up being another example of an upstart internet company being swallowed up to preserve the stranglehold of a giant.

This happens because antitrust regulators are stuck in an outdated view of the world, while the internet giants are more attuned to their nascent competitive threats. The deal for Jet.com is just the latest defensive internet acquisition of an emerging start-up that will preserve the hegemony of a select few.

Jet.com was created to take on the dominant force in internet sales, [Amazon.com](#). Although traditional brick-and-mortar retailers like Sears are dying slowly, unable to adapt to the internet, Jet.com — founded by Marc Lore, who sold the parent company of [Diapers.com](#) and other sites to Amazon for \$545 million — has been different.

Opening for business just about a year ago, Jet.com was able to achieve scale remarkably quickly, [reportedly increasing revenue to more than \\$1 billion](#), with more than 3.5 million registered shoppers.

Yes, Jet.com has been losing money on every shipment, but remember that Amazon went years without turning a significant profit. Jet.com is still a minnow — Amazon clocks in \$100 billion in annual revenue — but it is, as [Investor's Business Daily put it](#), "one of the few e-tail companies in the U.S. that's openly challenging Amazon's dominance."

And now it is being swallowed up by Walmart.

This could be seen as a victory for competition. Walmart will now have a more dynamic management and brand to buttress its own internet sales operation, which trails Amazon by quite a distance. This will allow it to better compete against Amazon. The likely result is that competition in online retailing will eventually be a slugfest between Amazon and Walmart with everyone else thrown by the wayside.

The problem with this narrative is that it cements the positions of Walmart and Amazon as the only players in town.

This is the modus operandi of the big internet behemoths. They live in fear of new technology disrupting their businesses and killing them off.

Antonio García Martínez's recent book about Silicon Valley, "[Chaos Monkeys](#)," tells how Facebook operates on the model of "we might die any day."

Mr. García Martínez was a Facebook product manager when the company faced its greatest threat: Google Plus. Facebook won because it enforced an ethos of all work, all the time, spurred by constant fear of extinction.

Facebook and its elite brethren will do anything to make sure they are not the next Yahoo or Radio Shack, killed by disruption and failure to innovate. This translates into paying obscene sums for technology that might challenge their dominance one day.

If you don't believe this, there is a poignant passage in "Chaos Monkeys" where Mr. García Martínez notes that Mark Zuckerberg saw that there were two companies with "hockey stick growth" that matched Facebook's own: Instagram and WhatsApp. Both were amassing users at an amazing rate and both were an existential threat to Facebook.

Did Mr. Zuckerberg rev up the Facebook machine to try to outcompete them? No. Instead, he bought Instagram for about \$1 billion and WhatsApp for an astounding \$21.8 billion.

Today, Facebook is dominant, with more than 1.7 billion monthly active users. WhatsApp has more than 1 billion monthly active users and Instagram, more than 500 million.

This is par for the course in Silicon Valley. Google bought Waze for \$1 billion in part to prevent Facebook from getting it and in part to buttress its own dominant map technology. The result is that Google remains dominant with only Apple as its main competitor. For a time, the only other competitor to these two was Nokia's Here maps, which was sold to a group of car companies in 2015 for use in driverless cars and has [disappeared as a competitor](#). The result is a duopoly in map technology.

Another Google example is YouTube, which was bought for \$1.65 billion in 2006 and is now a constant stream of users for Google. Indeed, YouTube, with more than one billion active monthly users, is a top driver of Alphabet's user growth.

Billions of dollars are made in Silicon Valley by selling nascent upstarts to the giants. And the dominant players pay eagerly to remain dominant. That is what is going on with the Jet.com acquisition and perhaps even the \$26.2 billion purchase of LinkedIn by Microsoft.

Where are the antitrust authorities in all of this? The guiding standard under the law is that no acquisition should be allowed if it would "lessen competition."

Under the traditional view of antitrust, when Facebook, for example, tries to buy a company like Instagram, it can argue that anyone can start such a website. And there are other competitors like Google and Snapchat. And so this gets past the antitrust authorities, who seem more concerned with how the data will be used rather than the accumulation of users. Both United States and European Union regulators examined the WhatsApp deal, but it passed muster because WhatsApp was viewed as a messenger service, something where there was alternative competition.

This misses the point that domination is all about users and views. Those companies with users and page views can dominate, and accumulating those users is everything, something only an infinitesimally small number of companies can find the key to doing.

The antitrust system results in the increasing oligopoly that we have, where a few companies dominate major industries, accruing the wealth and power that go with it as potential disrupters are swallowed at birth, the way Cronus, the titan in Greek mythology, ate his young to prevent their uprising.

No one knows what might happen to Jet if it remained independent. Perhaps it would fail. Amazon is dominant and Walmart may truly be the only real competitor. The same could be said of any of these acquisitions of high-growth companies. So preventing this acquisition may result not in creating a competitor to Amazon but in the eventual death of Jet. This of course would leave its founder and investors much poorer, a true cost.

The flip side of this risk is that the big tech companies continue unchallenged in their dominance. Perhaps it is time to rethink antitrust enforcement, and take the risks associated with a different view of antitrust that looks at potential dominance and at breaking up oligopolies. Rhea protected Zeus from Cronus, which eventually led to Cronus's destruction.

If antitrust authorities do not adapt and emerging competitors continue to be bought up, we should not be surprised of the continued dominance of a very few companies like Facebook, Google, Amazon and Walmart.

[\[Politico\] Obama allies cry foul over Aetna snub](#)

Paul Demko and Rachana Pradhan

16 August 2016

<http://www.politico.com/story/2016/08/aetna-obamacare-backers-227086>

Obamacare backers are suspicious of the timing of Aetna's decision to back out of most of the law's insurance markets, suggesting the nation's third largest carrier is trying to strong-arm the Obama administration into approving its controversial merger with another insurer.

Aetna CEO Mark Bertolini dealt a big blow to Obamacare on Monday night, announcing the company will pull out next year from all but four of the 15 state online markets where it sells health plans. He cited unsustainable losses of \$430 million since 2014.

Only four months ago, though, Bertolini was bullish on Obamacare. "We see this as a good investment," the insurance chief told investors on a call in April, touting the 1.2 million new customers that had flocked to Aetna under the health care law's new online markets.

One thing that changed since April: The Department of Justice has sued to stop Aetna's proposed \$37 billion merger with Humana. The two sides go to court in December.

The juxtaposition of that lawsuit last month and the company's exit plans triggered the questions.

“What they’re saying doesn’t hold a lot of water,” Topher Spiro, of the liberal Center for American Progress, said of Aetna’s turnabout. “So you have to wonder, what is the real motivation?”

Democrats on the Hill also voiced doubts. “Aetna’s CEO had touted the ACA Marketplace as a good investment in April, which raises very serious concerns about Aetna’s sudden change of heart,” said [Frank Pallone](#) of New Jersey, the top Democrat on the House Energy and Commerce Committee.

Aetna denies a link between the DOJ lawsuit and its decision to exit most of the Obamacare markets, saying its prior bullish comments were made when the company still thought it would break even. Now, it expects to lose \$300 million this year on the Obamacare marketplace. And it says it still expects to win approval of the merger at the end of the day.

The Obama administration and the insurance industry have been uneasy allies on the health care law — and this confrontation between the administration and Aetna shows an increasingly frayed alliance. Aetna’s withdrawal from most of the state exchanges next year further undermines the stability of the exchanges — already hit by some other insurer defections and the likelihood of bigger rate increases for next year.

In some states, consumers may have only one or two insurers to choose from in the exchanges next year — and people eligible for Obamacare subsidies can’t get that financial assistance if they try to find a health plan outside the exchange.

“I’m very worried,” said Greg Scott, head of Deloitte’s health plans practice, of the possibility of more insurers fleeing the exchanges, which have attracted customers older and sicker than some insurers had anticipated. He said he knows “there are some regional plans that are very much intent on staying in the markets,” but the exchanges are burning through money.

The Aetna dust-up points to a dangerous reality for the Obama administration as it seeks to leave its signature domestic achievement on firm ground before leaving office: The insurers that are a linchpin of the law are increasingly unhappy with how it is playing out in the Obamacare markets.

“These are two parties that have to live with each other whether they like it or not,” said Tom Miller, a health expert at the conservative American Enterprise Institute. “The insurers may have a little more marginal leverage to ask for something back in return in order to play ball. But ultimately, neither side can walk away from the table.”

The Obama administration reiterated its faith in the stability of the markets, saying that health plans are still adapting to new rules of the road. Under the health care law, they must “compete for business on cost and quality rather than by denying coverage to people with preexisting conditions.” The administration just a few days ago released new data that it says show a stabilizing market.

But Aetna is the third major national carrier to announce a significant withdrawal from the Obamacare marketplaces as insurers across the board ask for bigger premium spikes next year. UnitedHealth is pulling out of all but a handful of the 34 states where it now competes; it

anticipates \$650 million in losses this year. Humana is leaving nearly 90 percent of the counties where it currently does Obamacare business.

In addition, at least a half dozen insurers are suing the administration over programs that were supposed to protect them from big losses in the first turbulent years.

Big rate hikes are the norm for plans that are remaining in the markets. Independent analyst Charles Gaba estimates that plans are seeking average increases of 24 percent nationwide — though regulators will roll some of them back before the start of enrollment in the fall.

“The Affordable Care Act just does not work in its current structure,” said Raymond Farmer, the top insurance regulator in South Carolina, an anti-Obamacare state that’s seen an exodus of insurers. “Companies are leaving the marketplace for a reason. They don’t leave the marketplace if they’re making a profit.”

That’s precisely the point Aetna is making — it isn’t anywhere close to making a profit on its Obamacare business.

“As a result of these losses, significant structural challenges facing the public exchanges, an uncertain policy outlook and so many other payers exiting the exchanges, we can’t responsibly maintain our current footprint,” Aetna spokesman T.J. Crawford said. As of now, it’s staying only in Virginia, Delaware, Iowa and Nebraska.

Health care experts from across the political spectrum agree the government will have to take steps to strengthen and stabilize the exchange markets in the coming months. But with the Obama administration approaching lame-duck status — and the next occupant of the White House unknown — how that happens is uncertain.

Larry Levitt, senior vice president of special initiatives at the Kaiser Family Foundation, says dealing with the repercussions of plan exits will likely be a top priority next year.

“Where that goes seems awfully unpredictable,” he said.

[\[Motherboard\] The FCC Keeps Running Into Opposition With Its Plan to Open Up Cable Boxes](#)

David Bixenspan

16 August 2016

<http://motherboard.vice.com/read/fcc-cable-boxes-competiton-opposition>

Have you looked at your cable bill lately?

These days, one item jumps out more than any other; after all, it’s not necessarily the service itself that’s overpriced these days if you get a bundle (and you use your landline phone plan). Cable box rental fees, however, are out of control. Some providers have even hiked rates past the \$10 per box per month mark, so the hardware costs more than a Netflix subscription. And that doesn’t even include DVR fees! If you buy a TiVo or build a home theater PC, you can buy a tuner that uses a CableCARD, but the card itself still has to be rented from the cable company, even if the price may be less than that of a box.

There has to be a better way to do this.

The FCC agrees, and [in February, it started to make the steps to push forward a proposal for an alternative](#). “Instead of mandating a government-specific standard that might impede innovation,” its

statement explained, “the Commission recommends that these three streams be available to the creators of competitive solutions using any published, transparent format that conforms to specifications set by an independent, open standards body.” The cable companies, not wanting to abandon a source for \$19.5 billion in annual revenue, have their own proposal, as well. Their proposal is built around “enforcing an industry-wide commitment to develop and deploy video ‘apps’ that all large MVPDs would build to open HTML5 web standards.”

But what does that exactly mean? For starters, who would ensure who makes what apps for what devices? It’s not like, for example, Roku’s devices have HTML5 web browsers, after all. When speaking to Motherboard, John Bergmayer, Senior Staff Attorney at Public Knowledge, told us that there are more than just technological hurdles. “How does it actually get on this device, and how does it work, and so forth, they’re not really guaranteeing that these apps will have the same programming as is on set top boxes, much less the same features. That’s giving quite an advantage to the cable box over the competitive solution, to where I think it is almost a proposal that is seemingly designed to fail.”

The only idea that really makes sense is to establish a standardized protocol for an internet protocol-based cable TV solution that various apps can then handle in their own ways with their own interfaces. The smaller cable companies have even objected to the cable company proposal would cost them twice as much to implement as the FCC proposal.

“I can’t vouch for their specific numbers,” Bergmayer added, “but one of the reasons why we supported the initial approach, to just send video and metadata to third party devices and let them handle the presentation of programming to customers, is that it’s much simpler to support. [Whether] for cable companies, satellite companies, and so on, to the point we put on demos of it working back in December. It’s not really a technological lift to support something like this, in fact, the cable companies already use similar technology internally.”

Which way will it go? It’s not necessarily looking good since the US Copyright Office is buying into the cable industry’s obfuscation over the other proposals enabling piracy. The industry is going to fight to keep from losing those billions in revenue: Even before most cable companies went all-digital, they still made you rent a box to get scrambled content like HBO, Showtime, and pay-per-view channels, which you couldn’t get by plugging the coaxial cable into your TV. With their money and influence, getting them to let that go is going to be difficult. But, as Bergmayer notes, there is one wrinkle that means that, if the FCC really wanted to get their way, they could.” The FCC is directed by statute to promote a competitive market for devices that can access all of the same content that someone subscribes to.”

Of course, there are a lot of things that the FCC is *supposed* to do.

[\[NY Times\] Expect Little Antitrust Challenge to Walmart’s Bid for Jet.com](#)

Steven Davidoff Solomon

16 August 2016

<http://www.nytimes.com/2016/08/17/business/dealbook/expect-little-antitrust-challenge-to-walmarts-bid-for-jet-com.html?ref=technology>

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Yes, Jet.com has been losing money on every shipment, but remember that Amazon went years without turning a significant profit. Jet.com is still a minnow — Amazon clocks in \$100 billion in annual revenue — but it is, as [Investor's Business Daily put it](#), “one of the few e-tail companies in the U.S. that's openly challenging Amazon's dominance.”

And now it is being swallowed up by Walmart.

This could be seen as a victory for competition. Walmart will now have a more dynamic management and brand to buttress its own internet sales operation, which trails Amazon by quite a distance. This will allow it to better compete against Amazon. The likely result is that competition in online retailing will eventually be a slugfest between Amazon and Walmart with everyone else thrown by the wayside.

The problem with this narrative is that it cements the positions of Walmart and Amazon as the only players in town.

This is the modus operandi of the big internet behemoths. They live in fear of new technology disrupting their businesses and killing them off.

Antonio García Martínez's recent book about Silicon Valley, “[Chaos Monkeys](#),” tells how Facebook operates on the model of “we might die any day.”

Mr. García Martínez was a Facebook product manager when the company faced its greatest threat: Google Plus. Facebook won because it enforced an ethos of all work, all the time, spurred by constant fear of extinction.

Facebook and its elite brethren will do anything to make sure they are not the next Yahoo or Radio Shack, killed by disruption and failure to innovate. This translates into paying obscene sums for technology that might challenge their dominance one day.

Walmart's New E-Commerce Strategy

Marc Lore, left, the chief executive of Jet.com, and Doug McMillon, the chief executive of Walmart, are teaming up against Amazon.

If you don't believe this, there is a poignant passage in "Chaos Monkeys" where Mr. García Martínez notes that Mark Zuckerberg saw that there were two companies with "hockey stick growth" that matched Facebook's own: Instagram and WhatsApp. Both were amassing users at an amazing rate and both were an existential threat to Facebook.

Did Mr. Zuckerberg rev up the Facebook machine to try to outcompete them? No. Instead, he bought Instagram for about \$1 billion and WhatsApp for an astounding \$21.8 billion.

Today, Facebook is dominant, with more than 1.7 billion monthly active users. WhatsApp has more than 1 billion monthly active users and Instagram, more than 500 million.

This is par for the course in Silicon Valley. Google bought Waze for \$1 billion in part to prevent Facebook from getting it and in part to buttress its own dominant map technology. The result is that Google remains dominant with only Apple as its main competitor. For a time, the only other competitor to these two was Nokia's Here maps, which was sold to a group of car companies in 2015 for use in driverless cars and has [disappeared as a competitor](#). The result is a duopoly in map technology.

Another Google example is YouTube, which was bought for \$1.65 billion in 2006 and is now a constant stream of users for Google. Indeed, YouTube, with more than one billion active monthly users, is a top driver of Alphabet's user growth.

Billions of dollars are made in Silicon Valley by selling nascent upstarts to the giants. And the dominant players pay eagerly to remain dominant. That is what is going on with the Jet.com acquisition and perhaps even the \$26.2 billion purchase of LinkedIn by Microsoft.

Where are the antitrust authorities in all of this? The guiding standard under the law is that no acquisition should be allowed if it would "lessen competition."

Under the traditional view of antitrust, when Facebook, for example, tries to buy a company like Instagram, it can argue that anyone can start such a website. And there are other competitors like Google and Snapchat. And so this gets past the antitrust authorities, who seem more concerned with how the data will be used rather than the accumulation of users. Both United States and European Union regulators examined the WhatsApp deal, but it passed muster because WhatsApp was viewed as a messenger service, something where there was alternative competition.

This misses the point that domination is all about users and views. Those companies with users and page views can dominate, and accumulating those users is everything, something only an infinitesimally small number of companies can find the key to doing.

The antitrust system results in the increasing oligopoly that we have, where a few companies dominate major industries, accruing the wealth and power that go with it as potential disrupters are swallowed at birth, the way Cronus, the titan in Greek mythology, ate his young to prevent their uprising.

No one knows what might happen to Jet if it remained independent. Perhaps it would fail. Amazon is dominant and Walmart may truly be the only real competitor. The same could be said of any of these acquisitions of high-growth companies. So preventing this acquisition may result not in creating a competitor to Amazon but in the eventual death of Jet. This of course would leave its founder and investors much poorer, a true cost.

The flip side of this risk is that the big tech companies continue unchallenged in their dominance. Perhaps it is time to rethink antitrust enforcement, and take the risks associated with a different view of antitrust that looks at potential dominance and at breaking up oligopolies. Rhea protected Zeus from Cronus, which eventually led to Cronus's destruction.

If antitrust authorities do not adapt and emerging competitors continue to be bought up, we should not be surprised of the continued dominance of a very few companies like Facebook, Google, Amazon and Walmart.

Miscellaneous

[NY Times] Donald Trump Wants to Cut Visa Program He Used for His Own Models

Ron Nixon

16 August 2016

<http://www.nytimes.com/2016/08/17/us/politics/donald-trump-wants-to-cut-visa-program-he-used-for-his-own-models.html?ref=technology>

WASHINGTON — On the campaign trail, Donald J. Trump has excoriated the nation's visa program for high-skilled workers as a job killer, pledging to end it with "no exceptions." But his own companies have used it to bring in hundreds of foreign workers, including fashion models for his modeling agency who need exhibit no special skills.

The little-known corner of the H-1B visa program for models has been controversial for years, questioned not only by Americans facing competition from foreign models but by technology companies whose engineering and scientific visas may instead go to men or women with no more specialized skills than their cheekbones.

Mr. Trump, the Republican nominee for president, has said the H-1B program allows companies to import foreign workers to replace American workers at lower pay.

"I will end forever the use of the H-1B as a cheap labor program, and institute an absolute requirement to hire American workers first for every visa and immigration program. No exceptions," [Mr. Trump said in March](#).

But his companies have asked the federal government for permission to bring in more than 1,000 foreign workers on guest visas, according to Labor Department data. More than 200 of them were fashion models for [Trump Model Management](#) who qualify by possessing only "distinguished merit and ability," unlike other H-1B applicants who must possess "[highly specialized knowledge](#)."

The issue has been further muddied by questions about the immigration status of his wife, Melania, when [she arrived for a nude modeling session in 1995](#), a year before she says she was legally able to work the United States. Ms. Trump has said she never violated the nation's immigration laws. She also said she might not have been paid for the nude modeling shoot, but her legal pathway from tiny Slovenia to the runways of New York remains murky.

Such questions have reinvigorated opponents of the H-1B visas for fashion models, shining a fresh light on the people who shaped it and used it — including Mr. Trump; Senator Edward M. Kennedy, who sponsored legislation to add fashion models to the H-1B program; and the disgraced former New York

congressman Anthony Weiner, who tried to reshape it. Mr. Weiner's wife, Huma Abedin, is a senior aide to Hillary Clinton.

The Trump campaign did not respond to requests for comment.

Legal authorization for a model is easier to attain than it is for most professionals. United States Citizenship and Immigration Services declined to say how government screeners evaluated applicants who were models on their "distinguished merit and ability." Angelo A. Paparelli, an immigration lawyer in Los Angeles, said, "As the Supreme Court said: It's like porn. You know it when you see it."

Photo

National Convention in Cleveland last month. CreditDamon Winter/The New York Times

Such standards raise concerns about exploitation. A Jamaican model sued Mr. Trump's modeling agency in 2014, saying she was paid a fraction of what she was promised when she was brought to the United States on an H-1B visa. Those concerns fit with broader worries that [the visa program is being used to import cheap labor at the expense of American workers](#).

Since 2001, American companies have filed nearly 5,000 applications to hire fashion models from abroad, according to Labor Department data. Last year, 67 applications were filed for 76 models (employers can ask for more than one worker on an application). The high-water mark for fashion models was 2004, when there were more than 800 requests. Since then, the numbers have declined to fewer than a hundred a year on average, the data shows.

Once the Labor Department approves an application, it is forwarded to the Citizenship and Immigration Services, which decides whether to approve the H-1B classification for the worker. The State Department then issues a visa.

The immigration agency declined to say how many visas it had approved for fashion models.

The H-1B program for fashion models has long been a source of controversy. The suit against Mr. Trump's modeling management company in 2014 was filed by Alexis Palmer of Jamaica, who said that instead of being paid the \$75,000 a year she had been promised, she received less than \$4,000 over four years.

The company found work for her just 21 days during the years she worked for Mr. Trump's modeling agency, Ms. Palmer said in her lawsuit.

Alan Garten, a lawyer for Mr. Trump's agency, said Trump Modeling Management helped Ms. Palmer with the immigration process and fronted her the money to pay for it against future earnings.

"But she was never an employee, she was self-employed," he said. "She hired us to be her manager. The way she was handled is standard across the fashion industry."

Judge Analisa Torres of Federal District Court dismissed the case this year, saying Ms. Palmer should have first exhausted the administrative procedures at the Labor Department or raised it in a state court.

"This is not the end of this case by any means," said Naresh Gehi, an immigration lawyer in New York representing Ms. Palmer, who added that the case was pending at the Labor Department.

A broader controversy has been stoked by the technology sector. Businesses clamor for the H-1Bs, which are intended to help companies fill positions for high-skilled jobs when they cannot find Americans with the necessary qualifications. Trade groups for engineers and programmers complain that including models in the visa program eats into the supply of skilled scientists, engineers and other professionals they need. The visas are capped by Congress at 65,000 per year.

Last year, it took just five days for the number of H-1B applicants to reach that limit, according to the Department of Homeland Security. The visas are initially approved for three years and can be extended for another three.

“It is odd that fashion models are grouped in with visas for these high-skilled workers,” said Neil G. Ruiz, director for the Center on Law, Economics and Finance at George Washington University Law School. “And it makes you scratch your head that it’s the only H-1B category that does not require a bachelor’s degree.”

Mr. Ruiz said that while the number of visas for models was small — fewer than 1 percent — it still affected the overall program because every visa granted to a model means one less goes to other workers in the H-1B categories.

Fashion models, which were overlooked in the original 1990 immigration reform laws that created the worker category in the H-1B visa program, were added a year later by Mr. Kennedy, a liberal stalwart and pro-union Democrat.

Other categories were created that allowed the universities and sports teams to bring in workers with “extraordinary ability” in the areas of science, the arts, education and athletics.

In 2006, Mr. Weiner tried to move models into the category of actors and athletes but he was criticized after it was disclosed that a lawyer representing fashion models had sponsored a fund-raiser that added \$10,000 for his failed campaign in 2009 to be mayor of New York City.

In an interview, Mr. Weiner said he sought the change after the being approached by New York publishing and modeling industry representatives about the effect of having models compete for visas in same category as tech workers.

“They had to jump through all these hoops for people who come in for a day or two at a time to do a photo shoot and then want to go back home,” he said. “Some people just got tired and said, ‘We’ll just go to Europe and do the shoots.’ It was creating a burden for the industry here.”

[\[WSJ\] How Tiny Wireless Tech Makes Workers More Productive](#)

Mark Roberti 16 August 2016

<http://www.wsj.com/articles/how-tiny-wireless-tech-makes-workers-more-productive-1471388575>

The numbers don’t look good: Last week the Bureau of Labor Statistics reported that worker productivity dropped 0.5% in the second quarter of 2016—the third quarterly decline in a row.

Productivity growth, a key driver of improved living standards, [has averaged](#) only 1.3% a year over the past decade, compared with 2.9% from mid-1995 through the end of 2005.

Why the slowdown? One theory is that markets have already wrung the easy efficiencies out of current technology. Federal Reserve Chair [Janet Yellen](#) noted in June that some economists “believe that the low-hanging fruit of innovation largely has been picked and that there is simply less scope for further gains.”

Count me in the optimistic camp. Low-cost wireless technologies are only beginning to break down the wall between the physical and digital worlds, and early-adopting companies are already achieving astounding productivity gains.

Four years ago [Macy’s](#) began deploying passive radio-frequency identification (RFID). Suppliers are now asked to place small RFID tags in the packaging of items shipped to Macy’s stores. The cost per tag varies by volume, but generally it’s under 25 cents. Roughly 30% of items in a typical store now carry tags, according to the company, mostly in men’s clothing, shoes, jeans and some fashion aisles.

Employees can take inventory by waving an RFID reader over a shelf or a rack. A [2009 study](#) by the University of Arkansas found scanning 10,000 items took 53 hours using bar codes, but only two hours with RFID. That efficiency allows Macy’s to inventory items every month rather than once or twice annually. Pam Sweeney, Macy’s senior vice president of logistics systems, tells me that RFID has pushed inventory accuracy in these departments to 95%.

RFID isn’t limited to retail. Since 2011, [Delta Air Lines](#) has installed more than 240,000 tags on its oxygen generators, life vests and other emergency equipment. These are higher-end tags meant to last the life of the asset, yet each costs “less than the price of a Happy Meal at [McDonald’s](#),” says Rick Lewis, a Delta analyst for aircraft maintenance.

It used to take approximately eight man-hours to check the expiration dates on oxygen generators aboard a 757. Now Delta can do it in less than two minutes, Mr. Lewis says. Even greater value, he adds, comes from having “accurate data to do predictive maintenance, and improve your planning and inventory management.”

[American Woodmark](#), which manufactures and distributes cabinets and vanities, tracks materials at seven facilities with RFID. The firm uses nine million tags annually, according to David Johnson, the company’s materials technology and project manager. He reports that RFID has reduced the labor for cycle counting—a regular inventory process—by 66% and improved accuracy from roughly 80% to near 100%.

Even the government is taking notice. In May the Transportation Security Administration began a pilot program in Atlanta with RFID. Passengers at multiple stations place carry-on items into a bin containing a transponder. The bin travels on an automated conveyor through security, while passengers go through separately. The agency hopes eliminating bottlenecks—say, when the whole line waits for one person to remove his belt—will increase the speed of screening up to 30%. In July the TSA announced that it intends to add the technology at other airports this fall.

Adoption of low-cost wireless technologies like RFID and ZigBee is still in its infancy but presents an enormous opportunity. Managing physical assets—containers, tools, work-in-progress—is a grossly

inefficient and time-consuming business. These technologies revolutionize the job. They also deliver managers a wealth of data to help them forecast, plan and execute more effectively.

As the cost of RFID tags falls to only cents apiece, the applications widen. Imagine checking out at the grocery store one day simply by running your cart through a scanner in a few seconds—no bar codes required. How many hours a year would that save consumers and employees both? If you want a million minuscule reasons to be bullish about productivity, look no further than tiny RFID tags.

[\[NY Times\] A Break in the Assange Saga](#)

Editorial Board 17 August 2016

<http://www.nytimes.com/2016/08/17/opinion/a-break-in-the-assange-saga.html?ref=technology>

[Ecuador](#) and Sweden [finally agreed last week](#) that Swedish prosecutors could question [Julian Assange](#) at the Ecuadorean Embassy in London, where he has been holed up since 2012. The sooner the better.

Mr. Assange, the founder of [WikiLeaks](#), is central to a critical debate about secrecy, privacy and the public interest in the digital age. And if the United States or any other government has a legal case against him — whether over allegations of rape, which is why the Swedes want to question him, or the publishing of confidential documents, which is what WikiLeaks does — it should no longer be held up by a procedural dispute.

Mr. Assange's long years in the Ecuadorean Embassy have not silenced WikiLeaks, as the recent distribution of hacked emails from the [Democratic National Committee](#) demonstrated. Nor have his years in the embassy resolved questions about the legality or morality of Mr. Assange's self-appointed mission.

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Unlike Pvt. Chelsea Manning and the other celebrated leaker of United States government documents, Edward Snowden — both of whom worked directly or indirectly for the government and released documents they knew they were not allowed to release — Mr. Assange and his organization publish materials others have purloined. The legal issues are therefore different, and it is far from certain that the United States could build a successful case against Mr. Assange, an Australian national.

Mr. Assange's principles are also a different story. He has been accused even by those who have hailed his exposés of government secrets — including the director of a film about WikiLeaks, Alex Gibney, in an Op-Ed article [in The Times](#) on Aug. 8 — of recklessness with personal information and of using leaks to settle scores. The publication of Democratic Party emails came days after Mr. Assange's denunciation of Hillary Clinton and just before she was officially named the Democratic presidential nominee; neither he nor other WikiLeaks officials would confirm or deny that the hacked information came, as widely suspected, from Russia.

More troubling, the D.N.C. trove included individual [Social Security](#) and credit card data whose disclosure served no public purpose.

The 2010 allegations about which Swedish prosecutors want to question Mr. Assange have not led to legal charges, but until recently Sweden insisted that the questioning be done in Sweden. Mr. Assange presumed that would also lead to his extradition to the United States to face charges over the Manning leaks, and so took diplomatic refuge in the embassy.

Whether or not Sweden decides to formally charge Mr. Assange after questioning him, he may still be reluctant to abandon the Ecuadorean Embassy. But at least the focus of this curious saga will move closer to the serious legal, ethical and security issues at its core.

[NY Times] [A Charming Alternative Universe of You, Your Friends and No News](#)

Farhad Manjoo

17 August 2016

<http://www.nytimes.com/2016/08/18/technology/a-charming-alternative-universe-of-you-your-friends-and-no-news.html?ref=technology>

This column is about escapist social networks, but let's start with [Donald J. Trump](#) because he seems more or less inescapable right now.

According to the research firm mediaQuant, the Republican presidential nominee has received the equivalent of [around \\$4.3 billion](#) in media coverage over the last year. Almost no other person or brand even comes close; Hillary Clinton is at \$2.6 billion.

But when you open [Instagram](#) or Snapchat, Mr. Trump all but disappears. While [Facebook](#) and Twitter have lately become relentlessly consumed with news, on these picture-based services Mr. Trump is barely a presence; he (and his Democratic rival) are about as forgotten as [GoTrump.com](#), Mr. Trump's [failed travel search engine](#).

I was first struck by this absence earlier this month, when [Instagram unveiled Stories](#), a diarylike video scrapbook (which I'll describe in more detail below) that the app appropriated from Snapchat, the picture-messaging sensation that your kid probably can't stop using.

In the few weeks since the introduction of Stories, Instagram seems to be on the path to becoming a different kind of place — a network where you can experience the most intimate and endearing moments of your friends' and acquaintances' lives in an environment blessedly free of the news.

This might sound corny. But as more of our digital spaces become stuffed with news — and, perhaps more alarmingly, suffused with an anxiety to always put forward your best self — there seems to be a growing appetite for honest, unself-conscious personal sharing online. That is helping to fuel not only Instagram Stories but also Snapchat, which [recently surpassed](#) the unceasingly newsy Twitter in daily use, and [Musical.ly](#), a two-year-old app [on which young people \(mostly\) make music videos](#).

These are among a handful of apps that are creating a charming alternative universe online — a welcome form of earnest, escapist entertainment that makes you feel warm and fuzzy inside, in a way that recalls an earlier epoch in carefree internet socializing.

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“The irony is that if you’d asked people in 2008 about Facebook, they would have said the same thing — that Facebook was the first thing that felt raw, personal and emotional rather than, ‘Here’s a link to another story about Donald Trump,’” said Josh Elman, a partner at the venture capital firm Greylock Partners. He has worked at Twitter and Facebook and is an investor in social apps including Musical.ly.

But as Facebook became more popular, Mr. Elman said, it started to feel less reflexively “safe.” The more people who were on it, the more you had to pause to consider who and where your message was going out to and what the countless people who’d be able to see it forever might think of you.

That stands in stark contrast to some other social apps now. Take Snapchat, whose growth has been fueled by an insistence on authenticity. The app began in 2011 as a way to send pictures that disappear, a feature that lowered people’s inhibitions (sometimes in worrying ways) and created a mind-set of pervasive, disarming goofiness.

In 2013, Snapchat created Stories, which lets you turn your disappearing pictures into a kind of journal that would be displayed on your followers' timelines.

Stories works like this: As you go about your day, you might snap a shot of yourself eating breakfast, walking the dog, going to work, making some dumb joke in the mirror or otherwise having a grand old time. Each of these sounds banal, but because the diaries expire after a day, and because it's video rather than text, people tend to be forthcoming about their lives — so you get a very intense, close connection with people of the sort that feels rare online.

The differences are instructive. On Facebook, my friends will post about their promotions; on Snapchat, they tell you about their anxieties at work. On Facebook, they show off smiling photos of their perfect kids on some perfect vacation. On Snapchat, they show pictures of their kids in the midst of some disastrous tantrum, throwing food all over the floor, peeing in the tub, covered in mud and paint and food, because hey, that's life, O.K.?

Kevin Systrom, one of Instagram's founders and its chief executive, told me that his company, which Facebook purchased in 2012, had long aspired to capture every moment of people's lives — both the showy ones and the casual, tossed-off moments in between. But the culture on Instagram, he said, was constrained by growth.

"As we got bigger and bigger and bigger, people got more and more followers, including people you don't know following you," Mr. Systrom said. "Then you have brands and celebrities posting more and more awesome photos. And you start to say to yourself: 'Can I exist in that world? Is this world right for me?'"

The inferiority complex that Instagram could sometimes induce has been well documented. My colleague [Jenna Wortham called it FOMO](#) — a "fear of missing out" that produces "a blend of anxiety, inadequacy and irritation" as you skim through all those beautiful people doing beautiful things in your timeline.

In Slate, the writer [Jessica Winter called Instagram](#) "even more depressing than Facebook," and described an "envy spiral" in which every beautiful picture raises the stakes for everyone else, so that in time the place came to be seen as fit only for the most luxurious shots. To escape the spiral, some young people were even creating underground private accounts [known as "finstagram," or fake Instagrams](#), which they kept on the down-low to show off their real, often drunken selves.

This is why Stories has felt like a sea change for Instagram. The feature — which works exactly like Snapchat's version, complete with a one-day disappearing trick — seems to have pushed loads of acquaintances [to stop being polite and start getting real](#).

Though Stories is only a few weeks old, I have already learned a lot about my friends. It turns out they do not live in perfect houses — some of theirs are as messy as mine — and don't always have perfectly combed hair. They don't always get things done; they sometimes eat less than stellar-looking food; their kids sometimes misbehave just as much as mine.

Mr. Systrom had a similar verdict. "I feel like I get to see all these people I've known all these years, but now I actually get to hear from them and see what they do," he said. "It's not just their beautiful photos, but it's who they are."

Whether this lasts is another question. Instagram has 500 million users around the world, 300 million of whom use the app every day. Snapchat has 150 million daily active users. As these networks grow ever larger, even disappearing photos will be subject to anxiety — and people could well move on to other services where they feel more protected to show off their true selves.

“Give it a couple months, watch other people’s stories, and then you’re going to be like: ‘Hmm, my kid threw up, I had to clean it up, I finally got her to bed and now I’m just on the couch watching TV — I’m just not going to share that,’” said Mr. Elman at Greylock. “Because your five other friends posted pictures from some great concert at the beach, and you can’t compete.”

For now, at least, I’m enjoying watching people let their freak flag fly. In a strange way, loading up these escapist apps and watching friends and strangers act the fool feels wonderfully carefree, like a throwback to another old-fashioned pastime that has been outmoded by technology: channel-surfing on TV.

There’s a constant reality show on your phone, but an honest one, starring your friends. And Mr. Trump is nowhere to be found.

[\[NY Times\] An Ecosystem Where Start-Ups Help Other Start-Ups](#)

John Wasik

17 August 2016

<http://www.nytimes.com/2016/08/18/business/smallbusiness/an-ecosystem-where-start-ups-help-other-start-ups.html?ref=technology>

When start-ups begin their sojourn, it’s akin to Joseph Campbell’s mythical hero’s journey. Instead of battling hydras and gorgons alone, entrepreneurs often help each other face obstacles like entrenched markets, financing and abject fear of failure.

It is a symbiotic relationship that makes sense to Shradha Agarwal and Rishi Shah, both 31 and co-founders of [ContextMedia](#), a health care media company in Chicago. The two entrepreneurs are expanding their 10-year-old company, which they started when they were students at Northwestern University. They have made a point of supporting other start-ups by financing an angel fund called Jumpstart Ventures. The fund has backed more than 45 businesses, giving \$20 million since 2011.

Although there are no precise estimates on how many such ecosystems exist, the Kauffman Foundation, a research organization focusing on entrepreneurship, found that nearly every one of the more than 360 major metropolitan areas in the United States had such a network in place.

ContextMedia provides customized health care information on screens at doctors’ offices and other sites. Doctors can show patients digital 3-D anatomical diagrams of procedures using ContextMedia “wallboards” or tablets. Their material is now viewed by more than six million patients a month at 25,000 medical practices or health care locations.

The company is also working with the Mayo Clinic to bring their media content directly to hospitals and physician offices.

More than 400 people work at the company, whose revenue last year was \$63.5 million. It hopes to add more than 200 workers by the end of the year.

Although ContextMedia has made inroads into a notoriously difficult market to crack — doctors' waiting and examination rooms — it was done without venture capitalists, who weren't willing to take a risk, Ms. Agarwal said. Support from the Chicago entrepreneurial community not only got her company started, but it also helped the company clear some high hurdles.

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Professors at Northwestern first helped Mr. Shah and Ms. Agarwal. And the founders “bootstrapped,” or self-funded, their enterprise during the recession.

“In 2008-2009, we slowed down,” Ms. Agarwal said, “so we had to reconnect to our journey, which was our passion for changing health care.” With the Jumpstart fund, she says she now wants to “pay it forward” to other entrepreneurs.

These support systems need to be diverse to be effective, though. [According to the World Economic Forum](#), which surveyed more than a thousand entrepreneurs around the world, what start-ups value most are accessible markets, funding, regulatory framework, an educated work force and major universities. That doesn't mean, however, that the network always provides robust financial backing from big-money players like large venture capital firms.

An ecosystem also offers social and psychological support. What fuels entrepreneurial success, Ms. Agarwal noted, are passion and purpose. When she started her company, she wanted an enterprise that would have a positive social and personal impact. She started with [diabetes](#) education, a disease that affected both her and Mr. Shah's relatives in India.

When Ms. Agarwal interviews candidates for the Jumpstart Ventures portfolio, she wants to find like-minded people who are “passionate about their mission.”

Mert Iseri, co-founder and chief executive of SwipeSense, a company focused on reducing hospital infections, was someone who fit the bill. Also a former Northwestern student, he met Ms. Agarwal in 2012.

Mr. Iseri, 28, was focused on providing [a digital hand hygiene solution](#) to combat the 100,000 annual deaths in the United States from hospital-acquired infections. Such infections cost \$28 billion a year in related health care expenses.

“Shradha became our first investor and gave us our first check for \$25,000 and employed ‘radical candor,’” in her mentoring, Mr. Iseri said. That included discussions about tough decisions that had to be made when building a business, such as hiring, firing and determining long-term goals.

“It is always difficult to fire someone,” Mr. Iseri said. He described one situation where a sales representative was a high performer but didn't fit the culture at SwipeSense. “Shradha was very clear;

her direct feedback was to part ways right then and there, and she highlighted that no amount of short-term results can justify holding on to folks who won't be long-term members of the team."

SwipeSense's initial presentation at Healthbox, a Chicago-based incubator, raised \$1 million in 2011 after one of its first demonstrations. Mr. Iseri credited Ms. Agarwal's continuing support with helping his company [secure more than \\$12 million](#) through several rounds of financing.

Mr. Iseri would not disclose his company's sales but said it had "annual revenues in the seven figures" and was "experiencing significant month-over-month growth" with its customers.

Ms. Agarwal, her employees, co-investors and angel investors have also bolstered entrepreneurs by simply being nearby and giving direct guidance.

For instance, ContextMedia provided office space to Packback, which [offers online learning communities and digital textbooks](#) for college students. Ms. Agarwal and ContextMedia employees often interacted with the firm's workers to offer advice.

"We've been in seven office spaces since we were founded four years ago," said Jessica Tenuta, a co-founder and head of design of Packback. "Shradha showed us how to hire and incorporate our values while mentoring us. We made great connections while being in their space."

Packback now has 24 employees and a \$250,000 investment from Mark Cuban, [who took a 20 percent stake in the company](#) after the co-founders presented on the reality show "Shark Tank" two years ago.

Ms. Tenuta and Packback's co-founders — Kasey Gandham, Nick Currier and Mike Shannon — have also garnered support in other ways. The company works with 1871, a business incubator in Chicago that offers classes, co-working spaces and access to venture capitalists.

Ms. Tenuta did not disclose her company's sales revenue but said the firm expects to have 30,000 students using Packback in the 2016-17 school year, up from 10,000 students in the previous year.

For their part, Mr. Iseri and Ms. Tenuta were inspired by their experiences to mentor other start-ups. These may be at university-based or private incubators and accelerators, in co-working environments or through other angel investors and venture capitalists.

Ms. Agarwal characterized the payoff as "the communal support through learning, wellness and volunteer opportunities."

She added that her enterprise and those she backs have "a bias toward action and scaling to the market." That means an entrepreneur's vision must eventually translate into revenues, profit, growth and a commitment to giving back to the community and other entrepreneurs.

The network of support offered by start-up ecosystems, though, won't get entrepreneurs entirely past the fear of failure and rejection. A plunge into the unknown is part of making it past those perilous first years.

"When I was a girl, my mother pushed me into the deep end of a pool to get me to swim," recalled Ms. Agarwal, who grew up in India. "She said it was the only way to learn. She was one of four daughters in her family, all of whom were pushed to earn college degrees by my grandmother."

If Ms. Agarwal and her peers succeed, their companies will also contribute to social good such as better medical education and improved health outcomes.

They will, in her words, be “solving problems worth solving.”

[WIRED] The Internet’s Safe Harbor Just Got a Little Less Safe

Klint Finley

17 August 2016

<http://www.wired.com/2016/08/internets-safe-harbor-just-got-little-less-safe/>

ONE OF THE most important laws protecting online speech is also one of the worst. You’ve probably heard of it. In 1998, President Bill Clinton passed the Digital Millennium Copyright Act, or DMCA. It’s the law that, for example, makes it all too easy for companies to have embarrassing content removed from sites like YouTube by issuing bogus takedown requests, claiming that the content violates their copyright—no presumption of innocence required. But the DMCA also contains one [incredibly important section](#): the so-called safe harbor provision. Thanks to safe harbor, companies can’t be held liable for copyright violations committed by their users, so long as the companies take reasonable steps to ensure that repeat offenders are banned from their services. Post a pirated copy of Ghostbusters to YouTube via your Comcast Internet connection? That’s on you, the DMCA says, not on YouTube or Comcast.

Companies fearing they’ll lose their safe harbor might start policing the content posted by their users.

But after a recent court decision, that safe harbor doesn’t look so safe anymore.

Last week a federal judge ruled that cable Internet provider Cox Communications must pay \$25 million in damages to BMG Rights Management, which controls the rights to the music of some of the world’s most popular artists. The court found that Cox was liable for the alleged copyright infringement carried out by its customers, safe harbor or not. The decision might not rattle the giants of the Internet business, like Comcast, Verizon, Google and Facebook—at least not yet. But it could be bad news for smaller companies that can’t afford such costly legal battles. And if companies start fearing they’ll lose their safe harbor, they might have to start more carefully policing the content posted by their users.

Turning Off Notifications

It’s hard to overstate the importance of the DMCA’s safe harbor provision to the growth of the early Internet. Had providers and platforms faced liability for what users published, far fewer social networks and web hosts would have existed because of the legal risk. Those that did exist would have had to carefully screen what users posted to ensure no copyright violations were taking place. In short, the DMCA, for all its problems, enabled the explosion of online speech over the past two decades.

But that explosion has not been kind to some businesses, such as the music industry, which has seen its margins erode since the 1990s due to peer-to-peer file sharing. To fight back, BMG in 2011 hired a company called Rightscorp to monitor file sharing networks and catch people illegally sharing music that belonged to BMG. Whenever Rightscorp believed it had detected a copyright violation, it would forward notifications to the offending user’s Internet provider. The twist was that Rightscorp added a bit of language to its letters offering to settle the copyright dispute if the user was willing to pay a fee of around \$20 to \$30 per infraction. Cox refused to forward these letters on to its users because it believed

the settlement offers were misleading, arguing the notifications of infringement were not in and of themselves proof that a user had actually broken the law.

Rightscorp refused to alter the language of the letters, so Cox refused to process any further notifications from the company. In 2014, BMG sued Cox.

Last year, US District Court Judge Liam O’Grady judge found that by refusing to process Rightscorp’s requests, Cox had failed to live up to its responsibilities under the safe harbor provision, and therefore was not eligible for its protections. A jury found Cox liable for \$25 million in damages. Cox filed for a new trial but O’Grady denied the request last week, allowing the previous decision to stand.

Just a Pipe

While the decision does not set a binding precedent, some open Internet advocates worry the decision could embolden copyright holders to sue smaller companies. A company like Google can afford expensive lawyers. It can invest in multi-million-dollar digital rights management software to keep offending content off its sites. But smaller ISPs or web sites can’t. “If safe harbor is for anyone, it’s for Internet service providers that do nothing but carry information from sites to specific homes,” says Charles Duan, staff attorney at Public Knowledge.

Safe harbor issues aside, BMG’s argument also depends on the idea that users should be denied Internet access because of the mere accusation of copyright infringement, even if the accuser has never proven in court that those users had actually broken the law.

“It doesn’t take into account all the things people use the Internet for,” says Mitch Stolz, a staff attorney with the Electronic Frontier Foundation. “People use it for their jobs, to interact with government. The circumstances in which it’s reasonable to cut someone off are narrower now than 20 years ago.”

However flawed it is, the DMCA enables online speech to flourish. But if the BMG case does become a precedent, online service providers of all types will have to crack down on their users—even if no one has proven in court that those users committed a crime. If you don’t like what someone has to say, you could accuse them of copyright violations and not only have a video banned from YouTube, but have that person kicked off the Internet entirely. That’s not a future in which the Internet flourishes.

[\[Bloomberg\] FCC VETERAN RETURNS TO HEAD POLICY PLANNING DIVISION](#)

16 August 2106

Kyle Daly

<http://www.bna.com/fcc-veteran-returns-b73014446427/>

A veteran of the Federal Communications Commission is returning to the agency to head up the division that quietly plays a substantial role in shaping the commission’s policy priorities.

Paul de Sa led the FCC’s Office of Strategic Planning and Policy Analysis under former Chairman Julius Genachowski before leaving in 2012 to become the senior U.S. telecommunications analyst at Bernstein Research. He’s returning to his earlier role, the FCC announced Aug. 16, replacing acting OSP Chief Elizabeth Biley Andrión.

De Sa’s return to the fold naturally raises a question: Just what regulatory philosophy will he bring to an agency that, when he last served, still had a reputation for inertia but has since been kicked into

hyperdrive under Chairman Tom Wheeler? What sorts of forward-looking priorities will the OSP set under de Sa? As it happens, de Sa took part in an October 2014 panel discussion that may offer some hints.

The discussion, available [on YouTube](#), was part of a conference the Duke Law Center for Innovation Policy convened on the theme of internet regulation in the year 2020. De Sa was there largely to talk about what direction he thought the telecom market might take by 2020 — he foresees relative stability, with no real shakeups in either the fixed or mobile broadband markets — but he also addressed regulators’ roles.

As a general rule, de Sa said he doesn’t see a problem with a telecom duopoly in any given area, even if one of the service offerings available is inferior to the other.

“I’d be willing to stipulate two pipes,” he said. “There’s generally room for segmentation, so not every product has to be homogeneous ... Even if you have two pipes, even if you were to stipulate one pipe is — on a physical, supply-side, technical basis — inferior, that doesn’t necessarily lead to an immediate conclusion about consumer welfare, or pricing, or anything, really.”

De Sa said it’s “not clear if it’s good public policy” to try and use Universal Service Fund subsidies or other means to spur the building out of networks to compete with such a duopoly.

He also had no qualms about zero rating, the practice of exempting certain services from data caps that is a hot topic in the ongoing net neutrality debate. De Sa said he saw more zero-rating deals between content providers and broadband providers and more zero-rating of providers’ own content as the biggest coming change in the market.

[\[WSJ\] Intel Shows Off ‘Project Alloy’ Virtual-Reality Headset](#)

Don Clark

16 August 2016

http://www.wsj.com/articles/intel-shows-off-project-alloy-virtual-reality-headset-1471370661?mod=WSJ_TechWSJD_NeedToKnow

SAN FRANCISCO— [Intel](#) Corp. stepped up an effort to shape the fast-moving market for virtual-reality technology, demonstrating an unusual headset prototype it hopes other companies will manufacture and sell.

The chip maker, which also announced plans to collaborate with [Microsoft](#) Corp. in the field, said its “Project Alloy” prototype differs from other virtual-reality headsets in several ways, most notably because it doesn’t need to be connected to a high-performance personal computer as [Facebook](#) Inc.’s Oculus Rift device does.

Project Alloy headsets also have front-facing 3-D camera technology, known as RealSense, which allows the wearer to see objects surrounding them in the physical world and to use hand gestures to execute commands rather than a separate controller device. The camera also eliminates the need to deploy sensors to prevent users from walking into walls.

Separately, Intel announced an agreement with [ARM Holdings](#) PLC, the British company whose technology is used in most mobile chips. The arrangement will make it easier for one of Intel's emerging businesses, which manufactures chips for other companies, to fabricate ARM-based products using a new production process Intel plans to introduce next year.

Intel's headset approach could be considered a variation on augmented reality, a term that usually refers to headsets that combine digital images with the physical world. The company on Tuesday applied the term "merged reality" to Project Alloy, stressing the benefits of RealSense in making simulated experiences more useful and convenient.

"When sight and computing come together, it gives the device the ability to understand and respond to its environment," said Brian Krzanich, Intel's chief executive, at the company's annual gathering of developers here.

The Wall Street Journal in March reported that [Intel was working on an augmented-reality](#) headset using RealSense.

Mr. Krzanich said on Tuesday the company would share specifications for Project Alloy to allow other companies to make their own versions of the product in the second half of 2017. No pricing was discussed for the technology.

Intel's moves coincide with Microsoft's own efforts in virtual and augmented reality, which include a [headset dubbed HoloLens](#) and software known as Windows Holographic. Terry Myerson, a Microsoft executive vice president, said his company would work with Intel to define specifications to help developers create software that would work with both companies' technology.

Intel isn't the only chip maker interested in virtual reality and related fields, which are expected to spur demand for advanced semiconductors. Rivals offering technology that powers virtual- and augmented-reality products include [Nvidia](#) Corp., [Advanced Micro Devices](#) Inc. and [Qualcomm](#) Inc.

Intel hasn't specialized in high-end specialty graphics chips, like AMD and Nvidia, which have been used with the latest VR headsets.

Patrick Moorhead, an analyst with Moor Insights & Strategy, called Intel's demonstration on Tuesday "a bit rough." He speculated that the technology to be introduced later this year may be based on chips Intel hasn't yet announced.

The Santa Clara, Calif., company has more reason than some other firms to search for new markets. Intel's fate for decades has been tied to the health of the personal-computer industry, where it is the dominant supplier of processor chips. But PC sales have been shrinking, and Intel in April announced plans to reduce its workforce by 12,000 by mid-2017, which Mr. Krzanich said was necessary to adapt to strategy changes and other pressures. Intel's second-quarter profit fell 51%, reflecting \$1.4 billion in charges related to the restructuring.

Mr. Krzanich, who became CEO in May 2013, has been trying to extend Intel's technology into what Silicon Valley calls the Internet of Things. The phrase refers to adding sensors, computation and communications capability to all kinds of everyday products. As part of that effort, Intel has invested heavily in wearable-device technology, drones and other applications.

Besides the virtual-reality effort, Intel on Tuesday unveiled a candy-bar-size device called Euclid that incorporates RealSense and related chips to help developers create hardware and software that exploits the technology. The company also unveiled Joule, a small circuit board with Intel chips that is designed to help developers create augmented-reality glasses and other products.

[The Hill] Google unveils state-by-state voting guide

Ali Breland 16 August 2016

<http://thehill.com/policy/technology/291628-google-unveils-state-by-state-voting-guide>

Google unveiled a [new tool](#) on Tuesday designed to make it easier for voters to learn how to cast ballots in November.

When users search “how to vote,” a [summary box](#) now appears, detailing voting requirements, early voting dates and times, as well as links to registration websites based on the voter's state.

The tool is similar to Google’s voting registration guide box, which the tech company released last month. When users search “voting registration,” a box appears atop the search results detailing information on when, where and how to register to vote in 2016.

According to Google, millions of users have used the voting registration guides. The company said that compared to four years ago, voter registration searches are up 190 percent.

This isn’t Google’s first stab at creating voting guides, nor is it the first company to do so. Google released a similar tool for the 2014 elections.

That same year, Microsoft’s Bing search engine created a comprehensive elections guide that included nearby polling stations, a state-by-state guide to results, along with Bing’s own predictions for who would win Senate, House and gubernatorial elections.

In 2010, Facebook placed a “get out the vote” message on its users’ news feeds.

The impact of Google's new voting tool is still unclear. Research suggests that such prompts from widely accessed websites spur voter turnout.

The 2010 Facebook message garnered an extra 60,000 to 340,000 voters, according to [one study](#). Even so, 340,000 more voters is still less than 1 percent of the 90 million-plus individuals that voted in 2010.

[Washington Post] Google wants to help you vote. Could it affect the election?

Brian Fung 16 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/16/google-wants-to-help-you-vote-could-it-affect-the-election/>

One of the things that make Google so powerful is that the sheer amount of data the search engine gathers allows us to explore what people as a whole are interested in.

Now the company is using all that data to make it easier for Americans to vote.

Google says it will provide what it calls an "in-depth" search result when users look for information on how to cast a ballot — a search that's seen triple-digit growth in contested states such as [Arizona](#) since the last presidential election. The new search function can tell you the registration deadlines and exactly what you need to bring to the polls. The information, which is tailored to the state you live in, will also explain how to register to vote.

Google gives in-depth results when it has the exact answer to a question. The company has increasingly been using these to supply information directly, as opposed to presenting users with links to sources that may have the right information.

Here's what happens right now, for instance, when you plug in "how to vote" from here in Washington:

You can try it from where you live, too.

What will be the practical outcome of all this information? Since Google accounts for roughly two-thirds of the U.S. search market, according to the research firm [comScore](#), it seems reasonable to conclude that equipping all those people with better resources may encourage them to vote at greater rates. That's backed up by years of political science research that shows a link between ease of voting and voter turnout.

"When people have access to more information about an election, they tend to be more likely to turn out," said Danny Hayes, an associate professor of political science at George Washington University. "But I'd expect any effects to be small."

For instance, as far back as 1997 scholars [were studying](#) the effect of lowered registration barriers on elections.

"It is well established that a substantial reduction in registration barriers such as a state's adoption of election day registration (EDR) increases turnout, although the exact magnitude of the effect remains in some dispute," wrote Craig Brians of Virginia Tech and Bernard Grofman of the University of California at Irvine. The researchers went on to examine a 20-year stretch of voting data and concluded that same-day registration had a remarkable impact on the likelihood of "medium education and medium income" Americans to vote.

This is a timely debate. Courts across the country have been striking down voter-ID laws, making it easier for Americans to exercise their civic rights. But given the changes in the law, voters may be more confused about what they need to do. The in-depth results from Google spell things out clearly.

Whether higher turnout tends to benefit Democrats or Republicans is a perennial question for scholars. One [2007 study](#) by New York University found that nonvoters tend to identify more with liberal causes than with conservative ones. Other research suggests that higher-income Americans are more likely to vote. [The Atlantic](#) has a pretty good rundown from last year on this topic, with lots of charts, as well as an explanation for why everyone should hope for better turnout, regardless of which party it benefits.

There's been lots of [breathless reporting](#) on the potential for Google or Facebook to tilt an election just by giving people certain search results or by structuring social news feeds to prioritize certain information. It's not an idle concern, particularly as these online services come to dominate how we work, play and socialize. But, Hayes said, most elections won't be decided by small changes in turnout.

More importantly, he said, Google's potential influence on electoral behavior would not be much different from the League of Women Voters facilitating civic participation.

"Anything that encourages people to vote could in theory affect an election, but that doesn't mean that it's done with some partisan intent," Hayes said.

Providing people with the information they need to enjoy their political freedoms — information they're already looking for — is a little bit different from "tilting" a contest. What's more, it stands to give Americans greater faith in an institution that's critical to the healthy functioning of the republic.

[The Hill] [Lawmaker pushes back at Peter Thiel's mention of her 'revenge porn' bill](#)

David McCabe 16 August 2016

<http://thehill.com/policy/technology/291617-lawmaker-pushes-back-on-gawker-case-backer-thiels-mention-of-her-bill>

The lawmaker behind a bill to stop “revenge porn” pushed back Tuesday on tech investor Peter Thiel’s decision to invoke the legislation while defending his controversial legal campaign against Gawker Media.

Thiel is the financial backer behind a lawsuit wrestler from Terry Bollea, better known by the stage name Hulk Hogan, filed against Gawker Media for publishing parts of a sex tape he was featured in.

On Monday, Thiel [published a New York Times op-ed](#) invoking Rep. Jackie Speier’s (D-Calif.) bill, which makes sharing a sexually explicit image of someone without their consent punishable by a fine or jail time. He mentioned it in making the case that his backing of the lawsuit was about protecting privacy.

He also claimed the law has been nicknamed “the Gawker Bill,” despite little evidence that such a moniker is in use outside of some conservative circles.

In a statement, Speier rebuffed the suggestion that the bill was crafted with the Gawker case in mind.

The “[Intimate Privacy Protection Act] was not created to address any one case specifically,” she said. “At the core of my legislation is the critical need for the federal government to deter this destructive conduct and to provide victims — no matter who they are — with access to justice.”

And she pushed back against the use of the “Gawker Bill” moniker in Thiel’s piece.

“It is not ‘the Gawker bill’ or the ‘revenge porn bill,’” she said. “It is the Intimate Privacy Protection Act, and it does exactly what its name suggests: protects the intimate privacy of all individuals.”

Thiel is a well-known investor in Silicon Valley, having founded PayPal and been an early backer of Facebook. But his financial support for the wrestler’s case has brought him new attention.

His campaign against Gawker Media began, he says, after one of the company’s blogs published a post that discussed the openly gay investor’s sexuality publicly for the first time. Thiel has been successful in putting Gawker Media in a bind: Bollea’s case put financial pressures on the company that led it to put itself up for sale this week.

The investor is also the most prominent tech industry supporter of Republican presidential nominee [Donald Trump](#). He spoke at the Republican National Convention earlier this year, where he was the first speaker in the history of the party's gathering to openly discuss being gay.

[\[NY Times\] Chattanooga's Innovation District Beckons to Young Entrepreneurs](#)

Keith Schnieder

16 August 2016

<http://www.nytimes.com/2016/08/17/realestate/commercial/chattanooga-innovation-district-beckons-to-young-entrepreneurs.html?ref=technology>

CHATTANOOGA, Tenn. — From [Boston](#) to [Seattle](#), cities across the country are vying to create technology hubs, spurring real estate developments to attract start-ups and young entrepreneurs.

To the south, this smaller but thriving city is seeing returns on its effort to do the same. Chattanooga has leveraged its lightning-fast broadband connections to develop a tech scene in its recently designed [innovation district](#), a 140-acre section of its compact central business district.

At the district's core, the [Edney Innovation Center](#) draws young entrepreneurs who pace across the polished concrete floors and talk business from couches and beanbag chairs that give the 90,000-square-foot office building the feel of a college study hall.

The Edney Center is a crucible for advancing their ideas. Purchased and renovated for \$4.4 million by Talon Partners, a group of local developers, the 10-story building opened in October at Market and 11th Streets. It is seen by Chattanooga's civic leaders as the gateway to the city's [commanding new business enterprise](#) — using the six-year-old ultra-high-speed broadband network to attract and assist high-tech start-ups in becoming mature, homegrown companies.

Tenants in the Edney Center include a nonprofit start-up incubator, a business developer for the technology sector and over a dozen entrepreneurial internet, information technology, design and app development companies that are owned and managed by young entrepreneurs.

“What we're generating here is an ecosystem for business development,” said Andy Berke, the city's first-term Democratic mayor. “We are promoting access to state-of-the-art broadband and recruiting entrepreneurs with the skills to use it.”

Chattanooga's development strategy, focused in the innovation district and its internet, which is as fast as 10 gigabits per second, is creating results. More than \$700 million in new retail, office and residential space is under construction or about to start in the district, according to the River City Company, an economic development nonprofit organization.

Several of the innovation district projects are directed at young entrepreneurs. The [Lamp Post Group](#), a private investment firm that provides business development and venture capital to high-tech start-ups, also owns and manages Lamp Post Properties, a real estate development division that started in January. The division focuses on developing historic properties for entrepreneurs that the parent company incubates in its downtown office.

The real estate division is moving quickly. It is close to finishing the \$8 million renovation of the 35,000-square-foot, 128-year-old Ross Hotel into 39 residential units, and three ground-floor retail spaces in the [Tomorrow Building](#). The fully furnished apartments range from 280 to 500 square feet and are

priced at about \$950 to \$1,200 a month. They are aligned around communal kitchens and dining areas on the two upper floors, and a second-floor common area fitted with high-speed broadband.

Tiffanie Robinson, 31, the president of Lamp Post Properties, said the market for the co-living project is young entrepreneurs who can spend time in Chattanooga to see if it suits them.

“There is a really big need for smart real estate investment within the innovation district,” Ms. Robinson said. “The point is to create density for start-ups and technology companies in our community. We want to show how real estate can mold a city and mold next-generation companies.”

A few blocks away, Lamp Post is renovating the Mayfield Annex, a 28,000-square-foot, 109-year-old building that was once an Elks lodge and offices for Hamilton County. It is being turned into a \$3.2 million office building for new-media companies and is scheduled to open next spring.

Another of Lamp Post’s downtown projects is converting the 45,000-square-foot Newton Chevrolet dealership, which operated for 68 years before closing in 2007. It will become a distillery for Tennessee Stillhouse, the maker of Chattanooga Whiskey. The \$6 million project is scheduled to open in March.

Almost a dozen other residential, retail and office projects are under construction, many of them designed for the high-tech business market or to coax young tech entrepreneurs to live and work downtown.

AMCA, a Virginia developer, is spending \$31 million to renovate the 10-story Chattanooga Bank and Trust building on Broad Street. The 89-year-old building will be turned into a 162-room Aloft Hotel with two ground-floor restaurants.

On the other side of Broad Street, Heritage Land and Development, a Memphis company, is renovating the 92-year-old Maclellan Building. The 100,000-square-foot space once housed an insurer and has been empty for 11 years. It will be converted into 90 apartment units for \$13.5 million.

The district’s newest large development project, announced in July by DeFoor Brothers Development, a local builder, is an \$88 million plan to convert the landmark Gold Building [into a Westin Hotel](#) with about 260 rooms. The plan also calls for transforming smaller buildings in a three-block section nearby into a pedestrian-friendly neighborhood of restaurants, residences and offices.

Many of Chattanooga’s city leaders and business development executives anticipated the growing popularity of the downtown area. In the late 1960s, the newly formed Environmental Protection Agency declared Chattanooga the most polluted city in the nation. Three decades of investment cleared pollutants from the Tennessee River and the air, replaced old riverfront plants with parks and trails, strengthened the 11,000-student University of Tennessee at Chattanooga campus and constructed attractions, like a freshwater aquarium that opened in 1992.

In 2009, Chattanooga and EPB, the city-owned utility, installed a \$330 million fiber electric metering network that provided some of the [fastest internet speeds](#) in the world. At the time, it was unmatched globally among small cities.

Chattanooga started to market itself to young entrepreneurs and attracted some well-known brands. For instance, the online reservation service OpenTable bought Quickcue, a local workflow app

developer, for \$11.5 million in 2013. OpenTable, based in San Francisco, also opened a Chattanooga office in a newly renovated innovation district building at Cherry and Seventh Streets.

"I can't think of another place that has made this kind of infrastructure investment to promote job growth and real estate development," said R. Byron Carlock Jr., the national real estate practice leader for PricewaterhouseCoopers. "Typically, it's creating venture capital or grant funds."

Last year, Bento J. Lobo, a finance professor at the University of Tennessee at Chattanooga, completed [a study that found](#) the value of the fiber infrastructure to the local economy from 2011 to 2015 amounted to roughly \$1 billion above the cost of installation, generating 2,800 to 5,200 new jobs.

"Both the broadband and the smart grid infrastructure were built out ahead of schedule," Mr. Lobo said in an email. "The fiber investment in Hamilton County appears to deliver benefits at a faster pace than previously predicted."

Just as rail links galvanized 19th-century communities and interstate highways spurred 20th-century development, Chattanooga's fast broadband network changed the city's view of itself and encouraged new development.

Fletcher Bright, who has developed property in Chattanooga since 1953, said the city was experiencing a stronger surge in downtown construction than at any other time in his career.

"All of a sudden, people want to be downtown," said Mr. Bright, the chairman of the Fletcher Bright Company. "That was unheard-of just a few years ago."

[\[NY Times\] Google Duo Challenges FaceTime](#)

Pui-Wing Tam 16 August 2016

<http://www.nytimes.com/2016/08/17/technology/google-duo-challenges-facetime.html?ref=technology>

Google and [Apple](#) dominate the mobile world. Now the issue for those companies is how to get people to switch from Apple's mobile ecosystem to Google's or vice versa.

For Google, the strategy has been to release mobile apps that are more flexible than Apple's because they can be used on more devices, [writes Brian X. Chen](#). Google Photos, Google Docs and others can all be used across Macs, Windows PCs, iPhones and others, while Apple apps typically can only be used on Apple devices.

Google cemented its method on Tuesday with the release of Google Duo, a new video-calling app. Unlike Apple's FaceTime app, which can only be used to call people with Apple gadgets, Duo can be used to place video calls between Android and Apple phones. That increases the universe of people that consumers can call with Duo.

Better yet, Brian tests Duo versus FaceTime to check out the pros and cons of the video-calling apps. [Read on](#) for his conclusions.

[NY Times] China Launches Quantum Satellite in Bid to Pioneer Secure Communications

Edward Wong

16 August 2016

<http://www.nytimes.com/2016/08/17/world/asia/china-quantum-satellite-mozi.html?ref=technology&r=0>

BEIJING — [China](#) launched the world's first quantum communications satellite from the Gobi Desert early Tuesday, a major step in the country's bid to be at the forefront of quantum research, which could lead to new, completely secure methods of transmitting information.

Researchers hope to use the satellite to [beam communications](#) from space to earth with quantum technology, which employs photons, or particles of light. That type of communication could prove to be the most secure in the world, invulnerable to hacking. Scientists and security experts in many countries are studying the technology.

The satellite is expected to circle the earth every 90 minutes after entering orbit at an altitude of about 310 miles, according to [a report by Xinhua](#), the state news agency.

China's many high-tech scientific endeavors, including [its ambitious space program](#), have enormous backing from the central government. The country's 13th Five-Year Plan, an economic blueprint that was announced in March, listed quantum technology as a focal point for research and development.

Traditional communications satellites send signals using radio waves. But a quantum communication satellite uses a crystal that produces a pair of [entangled photons](#) whose properties remain entwined even as one is transmitted over a large distance. Messages could be sent by manipulating these properties.

An article about the Chinese program [published by the journal Nature](#) in July said any tinkering with quantum communications would be detectable, which is why the method is secure. "Two parties can communicate secretly," the article said, and could be "safe in the knowledge that any eavesdropping would leave its mark."

Get news and analysis from Asia and around the world delivered to your inbox every day in the Asian morning.

If China succeeds in its satellite launch, the article said, that could mean many more such Chinese satellites in orbit, "which will together create a super-secure communications network, potentially linking people anywhere."

"But groups from Canada, Japan, Italy and Singapore also have plans for quantum space experiments," the article said.

While the communication would be unbreakable, the data transmission rate would also, at least at first, be glacial, more akin to the telegraph than the internet.

The Chinese researchers hope to use the satellite and quantum communications to establish secure transmissions between two ground sites. In theory, the satellite can provide the connection between them. The first major link in China would be between Beijing and Shanghai, and might open this year, according to Xinhua.

The satellite, which weighs over 1,300 pounds, is called Quantum Experiments at Space Scale, or Ques, and nicknamed Micius, after a Chinese philosopher and scientist in the fifth century B.C.

Pan Jianwei, the chief scientist of the quantum satellite project, told Xinhua earlier that the overall project involved building four ground stations for quantum communication and one station in space for experimental quantum teleportation.

[A 2012 article](#) in Nature said Mr. Pan was in his early 30s when, in 2001, he set up China's first laboratory for manipulating the quantum properties of photons.

"The lucky thing was that, in 2000, the economy of China started to grow, so the timing was suddenly right to do good science," Nature quoted him as saying.

[\[WSJ\] Video Job Interviews: Hiring for the Selfie Age](#)

Dahlia Bazzazz 16 August 2016

http://www.wsj.com/articles/video-job-interviews-hiring-for-the-selfie-age-1471366013?mod=WSJ_TechWSJD_NeedToKnow

For job seekers looking to make a good first impression, a working webcam and a tidy room might be the new firm handshake.

First-round job interviews are the latest part of the hiring process to undergo digitization as companies use video interviews to cut recruiting costs and times. [Cigna Corp.](#), [Goldman Sachs Group Inc.](#) and [International Business Machines Corp.](#) are among the employers now asking some applicants to log on to a website and submit video responses to interview questions in lieu of talking with a human. The method has grown in recent years as nearly everyone has access to a laptop or smartphone with a front-facing camera, and companies say it is an efficient, fair and inexpensive way to process hundreds of applicants.

Salt Lake City, Utah-based HireVue Inc., which provides video interviewing software for Goldman Sachs and 600 other firms, said it hosted nearly three million video interviews last year, up from 13,000 five years ago.

LIGHTS, CAMERA...INTERVIEW

Pointers for a successful video interview from recruiters and former applicants at IBM and Cigna:

- Treat video interviews like an in-person interview: dress appropriately, maintain eye contact and silence cellphones and other devices.
- Check your internet connection, camera and audio levels before starting the interview.
- Secure a quiet room, free of housemates or pets. Make sure distracting posters or art cannot be seen in the camera frame.
- For the camera-shy, resist the urge to play back responses or watch yourself record.

Most video-interviewing programs require applicants to click a link or install an app. Interviews begin with a prompt such as "Tell us about a time you had to deal with a conflict" that stays on-screen for

about 30 seconds. Then, the camera turns on and the candidate has anywhere from 30 seconds to 5 minutes to respond before the next question pops up.

Human-resources staff then review the videos and pass along promising applicants to managers for consideration. Applicants who make the cut are typically invited to a one-on-one interview. That doesn't always mean it will be in-person, though. Varsha Paidi, a software engineer hired by IBM last year, had subsequent online interviews and eventually received her job offer via text message.

Speeding up the hiring process allows recruiters to look at more applicants than before, giving companies wider reach, said Obed Louissaint, the human-resources lead for IBM's Watson division.

Applicants, however, say that computer-guided interviews take some getting used to. Amy Hall was never the type to get nervous during job interviews, but when the 29-year-old had to complete a video interview last year for an internal job switch at Cigna-Healthspring, she recalled feeling apprehensive and camera-shy. She waited until after work hours and used a computer in the IT department. With the door closed, she clicked a link to Cigna's video-interviewing site.

Replaying footage of her interview responses was "very uncomfortable" at first, she said. She resubmitted two responses, but ultimately found her stride and even preferred the video format because, she recalled, "you're not trying to perform." Last January, she got the job as a senior data analyst managing records for Medicare doctors.

Video interviews have significantly reduced travel costs for Cigna recruiters. Frank Abate, a senior recruiter there, said one of his colleagues racked up more than \$1 million annually just traveling to meet candidates. Since adopting video interviews four years ago, that colleague's expenses are now under \$100,000.

Companies say they seek similar traits in video interviews as they do in traditional interviews. Recruiters at IBM and Cigna said they evaluate candidates based on how well the person communicates his/her thought process, whether the person answers all parts of the question—and whether he/she makes eye contact.

According to Mary Wilson, a Cigna hiring manager, Ms. Hall's interview stood out because her responses seemed like they were addressed to an actual person, not a camera.

"Others tend to fidget or look away, but she looked directly into the camera and answered the questions thoughtfully and completely," she said.

HireVue, InterviewStream, WePow and other vendors that make video-interviewing software say their programs make hiring more fair because all applicants must answer the same questions, placing substance over schmoozing and small talk.

Video interviews might also present some problems because managers cannot ask follow-up questions or engage candidates further on a point, said Carol Miaskoff, assistant legal counsel for the Equal Employment Opportunity Commission. In letters to vendors, Ms. Miaskoff has suggested that companies assign more than one person to review individual videos to ensure hiring decisions aren't made hastily.

Taking robo-recruiting one step further, some HireVue customers have an algorithm review the video interviews for them. Using data about the skills and attributes companies are seeking for a given role, a

program called HireVue Insights scans videos for verbal and facial cues that match those skills then ranks the top 100 applicants.

Human evaluation can help when things go wrong mid-interview. Bruce DelMonico, the assistant dean for admissions for the Yale School of Management—which requires M.B.A. program applicants to respond to video prompts—said that unforeseen interruptions like a roommate barging in mid-interview show how applicants think on their feet.

“All is not lost,” said Mr. DelMonico. “We pay attention to how well you respond and recover.”

[WSJ] Trump Misses the Point on Tech Visas

Jason Riley

16 August 2016

<http://www.wsj.com/articles/trump-misses-the-point-on-tech-visas-1471388482>

It was an example of what Rush Limbaugh calls “drive-by media” coverage—the sensational and superficial reporting of a story while skimming on context.

In June of last year, the [New York Times](#) wrote on its front page that the [Disney](#) World resort in Orlando, Fla., had furloughed about 250 tech workers. The employees were offered severance packages and bonuses if they remained for a few months to train their replacements. One hundred and sixty of the displaced workers retired or were rehired in new jobs by Disney. About 90 took the severance.

No one likes to read about someone losing his job, but Disney employs more than 70,000 people in Orlando alone. The fact that 90 of them ultimately were pushed out is free-market economic churn and wouldn't normally be news. The reason the Times highlighted the story is because some of the replacement hires were high-skill immigrants. The layoffs at Disney and other companies, such as Southern California Edison, said the Times, “are raising new questions about how businesses and outsourcing companies are using the temporary visas, known as H-1B, to place immigrants in technology jobs in the United States.”

The suggestion here is that U.S. companies are gaming the visa system by using foreign-based outsourcing firms to replace more-expensive Americans with less-expensive immigrants. It's what those who see labor markets in zero-sum terms—an immigrant worker's gain is a U.S. worker's loss—would have us believe. [Donald Trump](#) invited the laid-off Disney workers to a rally in Alabama in February, showing once again that the Republican presidential nominee's opposition to immigration isn't limited to the illegal [variety](#).

But a [report](#) released last week by the National Foundation for American Policy challenges some of the basic assumptions in the outsourcing debate. For starters, both government and academic research shows that H-1B visa-holders, on balance, are not paid less than comparable U.S. workers. In fact, the data show the opposite. “After comparing the median reported salaries of U.S. workers and H-1B professionals in the same fields and age groups, the Government Accountability Office (GAO) found H-1B professionals generally earn the same or more than their U.S. counterparts,” says the new report.

Nor is it clear that eliminating these visas would stop or even reduce the likelihood that a company would outsource. Typically, companies outsource so that they can focus more on their core activities,

and handling accounting or IT functions in-house no longer makes sense. “Companies are not replacing long-time employees with new workers doing the exact same jobs,” according the study, “but rather replacing the employees with new systems in an attempt to perform the function in a more efficient way.”

The study’s author, Stuart Anderson, told me that scapegoating immigrants for these layoffs assumes that immigration law is driving the decision to outsource. In reality, hiring a contractor is often done through a competitive bidding process, and the company doesn’t know beforehand whether or to what extent the winning bidder will use H-1B visa holders.

But the bigger oversight is the assumption that these U.S. workers would have retained their jobs if Disney and other companies that outsource had chosen firms that employ only U.S. workers. Mr. Anderson found no evidence to support that. Once the contracting decision was made, some employees unfortunately were going to lose their jobs, either to a visa-holder or another U.S. worker.

U.S. employers turn to high-skill immigrants for the same reason they turn to low-skill immigrants—out of necessity. Foreign nationals, who tend to be either more skilled or less skilled than the typical U.S. worker, fill niches in our labor markets and make them more efficient and productive. Between 2006 and 2012, immigrants started one-third of U.S. venture-backed companies that became publicly traded. In recent years, more than half of the billion-dollar startups based in the U.S., including Uber and SpaceX, had at least one immigrant founder.

The technology revolution that began in the 1990s has dramatically increased the demand for workers in the fields of math and science. But more than 70% of full-time graduate students in electrical engineering and computer science at American universities are international students. Over the past three decades, college-degree holders outside of the U.S. have more than doubled, while the U.S. share of those with college degrees has declined by 30%. Employers want access to this international pool of talent because that’s where the people with desirable skill sets are concentrated.

[Hillary Clinton](#) (on trade) and Donald Trump (on trade and immigration) are too busy scaring voters to be bothered with a sober discussion on the causes and effects of outsourcing. But the winner in November will have to produce faster economic growth if he or she wants a second term. And that won’t happen if U.S. companies can’t hire and retain the workers they need to stay competitive in a global economy.

[\[WSJ\] Twitter Turns Your Photos Into Ads With Promoted Stickers](#)

Nathan Olivarez-Giles

16 August 2016

<http://www.wsj.com/articles/twitter-turns-your-photosinto-ads-with-promoted-stickers-1471379275?mod=ST1>

It’s no secret that social networks use you to sell ads, but now [Twitter](#) Inc. wants you to go make the ads and share them yourself. On Tuesday, Twitter announced promoted stickers with its first sticker partner, [PepsiCo](#) Inc.

“Photos with a brand’s stickers are shared with all of a user’s followers, allowing brands to be featured by their fans in a truly authentic way,” [Twitter said in a statement](#). Pepsi has designed nearly 50

different stickers for the promotion, but Twitter users will only see eight Pepsi stickers specific to one of 10 different countries, including the U.S., India, Russia, Canada and Mexico.

If you're in a country where Pepsi stickers are available, the next time you add a sticker to a photo you want to tweet, the first stickers you'll see will be from Pepsi. In the U.S., the options include two Pepsi cans side by side, a couple of smiley-faced emojis, a barbecue grill and a ballet dancer's feet tiptoeing in red dance shoes. Pepsi also paid for a promoted hashtag, #SayItWithPepsi, as a part of the promoted sticker deal.

Besides nabbing the top sticker spot in Twitter's photo-editing tools, promoted stickers work exactly the same as non-branded stickers. They can only be applied to photos, and only with Twitter's Android and iOS apps. All stickers can be viewed across mobile apps and the web.

MORE FROM TECH

Both regular and promoted [stickers act as visual hashtags](#), which means anyone viewing your photo on Twitter can tap or click the sticker to see other images that use it.

Twitter's decision to sell stickers as an advertising product to brands is a common tactic to monetize what people share via social media. On Snapchat Inc., [brands can buy video filters](#), and on [Facebook](#) Inc.'s popular Facebook Messenger app, brands can pay to have sticker packs show up for users as well.

Twitter and Pepsi declined to say how much the drink maker paid for the promoted sticker campaign, or when it would end. But the companies did say [in a statement](#) that the deal was the "largest partnership between the two brands to date."

Promoted stickers are Twitter's latest attempt to create new revenue streams for the company, which is fighting [dwindling revenue and stagnant user growth](#). Twitter has recently signed deals that will let it live stream [National Basketball Association programming](#) and the [National Football League's Thursday night games](#).

[\[WSJ\] Too Big to Frack? Oil Giants Try Again to Master Technology That Revolutionized Drilling](#)

Bradley Olson and Sarah Kent

16 August 2016

http://www.wsj.com/articles/too-big-to-frack-oil-giants-try-again-to-master-technology-that-revolutionized-drilling-1471362741?mod=WSJ_TechWSJD_moreTopStories

PERRYTON, Texas—The oil-and-gas well [BP PLC](#) is drilling here in the Texas Panhandle looks ordinary enough from the surface. Yet a mile-and-a-half underground, horizontal pipes shoot off for at least a mile in three directions, like a chicken's foot.

The idea, part of an experiment by BP executive David Lawler, is to make three wells from one. It also is designed to help turn the London-based energy giant into a shale-oil innovator that can better compete with the entrepreneurial outfits that pioneered the business of hydraulic fracturing, or fracking.

Big oil companies like BP are in need of a jolt. The multibillion-dollar projects they specialize in—giant offshore oil rigs and gas-export projects—are often prohibitively expensive in a world of \$45-a-barrel oil. U.S. wells are a tempting option, but major oil companies have yet to prove they can master the techniques pioneered by shale drillers, whose innovations fueled a rebirth in U.S. energy production.

London-based BP is moving into shale-oil drilling with wells such as the King Harry 1H in the Texas Panhandle, which descends 8,000 feet before splitting into three shafts. *PHOTO: DAVID BOWSER FOR THE WALL STREET JOURNAL*

If BP, [Exxon Mobil](#) Corp. and others can figure out how to coax enough oil out of fracked wells cheaply enough to make it profitable, it could help them maintain production levels. Failure could make it harder to replace the oil from declining older megaprojects, and leave them further behind on innovations transforming the industry.

Six years after the Deepwater Horizon accident in the Gulf of Mexico caused the worst offshore spill in U.S. history, BP is turning again to America. Mr. Lawler, a former college football linebacker turned engineer, is in charge of the push into shale oil and gas. If the Perryton well succeeds, Mr. Lawler could try the same thing with drilling leases BP has in Oklahoma, Texas and beyond, potentially yielding oil and gas on a large scale.

He isn't the only Lawler in the fracking business. His older brother, Robert, known as Doug, is chief executive of [Chesapeake Energy](#) Corp., the trailblazer founded by fracking pioneer [Aubrey McClendon](#), who died in a car crash in March.

The Lawler brothers are part of the second wave of the fracking revolution: a move away from debt-fueled drilling mania to what they hope will be a more financially sustainable future.

Doug's challenge is to take debt-laden Chesapeake and its attractive drilling leases and turn it into a profitable business. David's mission is to crack the code of shale drilling for BP, something that the world's biggest energy companies haven't been good at.

Processes designed for huge offshore platforms are a poor fit for fracking, which requires endless tinkering to be successful. Frackers must also develop a substantial tolerance for failure. They often must drill dozens of wells to figure out the best techniques for particular locations.

So far, big oil companies have compiled a poor record in U.S. fracking. Their fracked wells don't produce as much as those of industry leaders because they haven't mastered the technology. They have taken more than \$20 billion in write-downs, some stemming from top-of-the-market acquisitions of fracking companies, and the plunge in crude prices has made things worse. Exxon has lost money in its U.S. drilling business for six straight quarters.

In 2014 and 2015, shale wells drilled by BP, [Royal Dutch Shell](#) PLC, Exxon and [Chevron](#) Corp. were one-third less productive, on average, than the top 10 operators, according to data from analytics firm NavPort. Their wells have improved each year, but so have those of the top operators. Many big companies—often called “integrated” firms because they have production and refining operations—say they are getting better and have drilled some profitable wells.

“You have to be quick, you have to be nimble, you have to be flexible,” says shale pioneer Mark Papa, former chief executive of [EOG Resources](#) Inc. “The track records of the integrateds is really not very pretty.”

David Lawler, 48 years old, acknowledges the challenges BP faces trying to go small. Exxon, Shell and [Total](#) SA all notched losses or write-downs from their shale businesses, even before oil prices began falling two years ago.

Yet Mr. Lawler says he is optimistic that BP can make shale profitable at today’s prices, even if it isn’t blessed with what others in the industry see as good rock—land in the country’s most prized oil-and-gas basins. “It’s about how fast we can change,” he says.

If he succeeds, it would bolster the view that the shale age could last decades as the drilling bonanza extends to new areas, not just in the U.S. but around the world.

So far, BP has managed to slash its shale production costs, and it believes it can produce as much as 7.5 billion barrels economically. While some analysts see only about half that as viable at today’s prices, it still amounts to enough drilling locations to last 30 years.

Some of its Colorado wells each have produced enough natural gas to power 9,000 U.S. homes for a year. A well in a Wyoming field that no one had tapped in eight years yielded the equivalent of almost 50,000 barrels of oil in its first month. An earlier test in Texas, he says, suggested BP’s land could hold the equivalent of 400 million barrels of oil.

Currently, most of BP’s planned growth is coming from nonshale production in places such as Azerbaijan, Oman and Egypt. The U.S. shale business is responsible for only about 13% of its production.

“The point for us is that it’s an optionality,” said Bernard Looney, BP’s head of exploration and production, adding that shale has “the potential to be a material source of growth.”

BP initially was unsure about the prospects of shale. As smaller competitors began demonstrating the magnitude of the oil and gas trapped in shale rocks, other big companies piled in with costly acquisitions, such as Exxon’s \$31 billion purchase of XTO Energy in 2010. BP signed smaller transactions to jointly develop wells with Chesapeake—deals not struck by the Lawlers.

When the Deepwater Horizon accident took place in April 2010, BP’s shale ambitions took a hit. The company needed cash to pay tens of billions of dollars in cleanup costs and legal penalties. It sold off holdings in West Texas, home to the Permian basin, which some analysts and executives see re-emerging as one of the most important oil formations in the world.

The company underwent a major restructuring after the spill. Executives were divided over how to improve the U.S. shale unit’s middling record. In the end, they decided to give the business freedom to run almost as an independent.

“We’ve chosen a model to separate the business, and it’s working,” said Mr. Looney, who was involved in the discussions. “Not just sort of working, but really working.”

Mr. Looney attributes much of the success to Mr. Lawler, who took over BP’s shale operations in 2014.

Mr. Lawler's brother Doug, who became Chesapeake's chief executive in 2012 and has slashed that company's near-term liabilities roughly by half, says David "attacked" the opportunity with zeal.

Doug Lawler predicts that his brother will help extend the life of the shale revolution at BP as engineers expand the areas that can be considered prime drilling turf. "There are definite sweet spots," he says. "But through technology, ingenuity, innovation, those can be expanded."

Part of David Lawler's challenge upon taking over was teaching BP employees that some failures were acceptable. At major oil companies such as BP, executives are used to tackling multibillion-dollar projects. In deep-water exploration, a dry hole can cost \$100 million or more. In shale, it is just \$5 million in many areas.

"If we drill a well and it doesn't work, no one is blamed," Mr. Lawler says. "We had to fight back against an unwillingness to try new things."

Mr. Lawler outsourced less work to contractors so BP could gain from any advantage gleaned from experimentation, and he gave individual managers control of how they drilled wells in different areas—a common approach among successful shale producers.

BP says it has seen improvement. In Oklahoma and Texas, it has reduced well costs by almost two-thirds, and is now drilling wells in 37 days on average, compared with 67 in 2012. The wells are on track to produce 44% more natural gas than those drilled three years ago.

Although the wells of big companies have lagged behind those of top shale operators, the big companies are getting better. Exxon, Chevron, [Statoil ASA](#), [ConocoPhillips](#) and [Occidental Petroleum](#) Corp. are among the top 20 in terms of U.S. well performance so far in 2016, according to NavPort.

BP has high hopes for its "multilateral" wells—the "chicken-foot" type—which involve drilling horizontally in more than one direction from one vertical well bore. Doing so would allow the company to tap more than one layer at about half the cost of drilling multiple wells.

After a test proved the concept with two horizontals, Mr. Lawler decided to go for three in the Texas Panhandle on the King Harry lease, and to do it six times—18 horizontal wells from six vertical well bores, draining 3 square miles. The wells are expected to begin flowing this month.

A two-lateral well drilled late last year produced the equivalent of 1,040 barrels a day, mostly natural gas. That is much less than some of the biggest natural-gas wells in Ohio and Pennsylvania, but it is more than three times the average in the basin, an area that most other operators have abandoned.

At the current price of \$2.62 per million British Thermal Units, about half that of two years ago, the wells have a rate of return between 10% to 20% over their productive lives, Mr. Lawler says. The results, he says, point to the viability of 500 potential new wells across the area.

"We had to create a way to make money," he says, "and we're doing it."

[\[WSJ\] Facebook's Point System Fails to Close Diversity Gap](#)

Deepa Seetharaman and Georgia Wells

16 August 2016

<http://www.wsj.com/articles/facebooks-point-system-fails-to-close-diversity-gap-1471387288?mod=LS1>

Two years ago, [Facebook](#) Inc. offered its in-house recruiters an incentive to help diversify its largely white, largely male workforce.

Previously, recruiters were awarded one point for every new hire. Under the new system, they could earn 1.5 points for a so-called “diversity hire”—a black, Hispanic or female engineer—according to people familiar with the matter. More points can lead to a stronger performance review for recruiters and, potentially, a larger bonus, the people said.

When the numbers didn’t move, Facebook sweetened the deal. Starting last year, recruiters earned two points for a minority hire, or twice as much as for white or Asian males, who already were well-represented within its technical ranks.

Even so, Facebook has shown little progress. Last month, the company said 4% of its U.S. employees were Hispanic and 2% were black, the same as the two prior years. Women made up 33% of its global workforce, up from 31% in 2014.

A Facebook spokeswoman declined to comment on the incentive and wouldn’t say if it is still in use. “We continue to experiment with a variety of approaches to help in our efforts to increase the diversity of our workforce,” she said.

The move shows how Facebook is applying its trademark data-driven approach to one of the tech industry’s most stubborn problems: the homogeneity of its nearly 15,000-person workforce. But its lackluster results reflect the limits of that method when tackling deep-rooted issues such as inequality.

“All of us are lost with diversity,” said one former Facebook recruiter. “We’re all rushing and sprinting to get diversity numbers higher and higher than other companies. It’s become a competitive number.”

Facebook says it wants its workforce to better reflect the diversity of its 1.7 billion monthly users—85% of which are outside the U.S. and Canada. But last month, it said it couldn’t substantially increase the diversity of its workforce because there [weren’t enough qualified women or minority candidates](#). That drew fire from tech diversity and inclusion leaders on social media.

In Silicon Valley’s competitive job market it is difficult for recruiters, even at top-tier companies such as Facebook, to meet their hiring goals. That especially is true as tech giants jockey to make their offices more diverse.

[Intel](#) Corp. has paid its employees double referral bonuses for women, minorities and veterans. Other companies take into account how many women top managers hire when calculating their bonuses.

Incentives such as those used at Facebook and Intel signal a desire for more diversity, but they are “not a really effective way to change behavior. It can backfire,” says Harvard University professor of sociology Frank Dobbin, who recently wrote an article titled “Why Diversity Programs Fail.” Using a hiring incentive program can create the assumption that these candidates are “just an add-on to the real interview list,” he said.

The Facebook spokeswoman said the company makes clear that diversity “is necessary and not an add-on.”

The extra incentive points—awarded in job categories that are too homogenous—are an unusual effort to expand Facebook’s “pipeline,” which is the pool of candidates recruiters identify to interview for a position.

At Facebook, like at other tech companies, recruiters bring in candidates, but it is up to hiring managers to make job offers. Therefore, attracting more candidates doesn’t necessarily result in a more diverse workforce.

“Diversity efforts often focus heavily on recruiters and not enough on hiring managers,” said Joelle Emerson, chief executive of Paradigm, a diversity consultancy that works with many Silicon Valley startups.

Facebook recruiters often mined LinkedIn profiles for details that could serve as a proxy for race or gender: attending a historically black college, membership in an organization for Hispanic engineers, or a profile picture. Some compiled lists of the 100 most-common Hispanic names in the U.S. to plug into search strings, according to people familiar with the matter.

A recruiter only got the diversity credit if a candidate—either internal or external—identified himself or herself as a member of an underrepresented group during Facebook’s application process, the people said.

What counts as a “diversity” hire depends on the job. Technical roles are filled mostly by white and Asian men, creating a disproportionate desire for black, Hispanic and female engineers, as well as veterans and people with disabilities.

In divisions such as communications and human resources, where women already are well-represented, there was no bonus for hiring a woman.

Former Facebook recruiters say they had mixed feelings about the extra-credit program. Some were encouraged by the incentive, and identified a more diverse group of candidates. Still, they said it wasn’t enough to overcome a broader bias within Facebook and other tech companies for candidates who attended prestigious schools.

Facebook says it recruits from hundreds of colleges in the U.S. alone.

In the second half of last year, a number of Facebook recruiting teams failed to reach their goals for diversity hiring, said some people familiar with the matter. There were signs of progress, however: Facebook’s newly hired senior leaders were more diverse. While existing leadership was 3% black and 3% Hispanic, 9% of Facebook’s senior hires between July 2015 and July 2016 were black, while 5% were Hispanic.

[\[Bloomberg\] Can Tech Tools Make Apartment-Hunting in New York Affordable?](#)

Patrick Clark 17 August 2016

<http://www.bloomberg.com/news/articles/2016-08-17/can-tech-tools-make-apartment-hunting-in-new-york-affordable>

Moving to Manhattan? Here's a [listing](#) for a three-bedroom apartment in a doorman building in the East Village, offering 900 square feet for the low price of \$3,384. It would be a steal, if only the houndstooth

rug and surfboard art shown in the photos didn't so closely resemble the décor seen in [this listing](#) for a one-bedroom across the river in Brooklyn.

This kind of thing is old hat in the hectic world of New York real estate, where demand outpaces the supply of units and where rental agents outnumber would-be clients—but a new crop of tech startups here aims to ease such apartment-hunting pains.

In the all-too-common scheme, a broker's first move is to publish a fictitious listing that seems (and is) too good to be true. The next is to inform the earnest nest-seeker that the (fake) listed apartment has just been rented and offer a guided tour of apartments that are smaller, or more expensive, and farther-flung.

“That’s the way the rental brokerages operate,” said Ori Goldman, a cofounder at Loftey, a year-old startup that promises to save renters money when they move. The tactic, Goldman said, is commonplace in a city where about 30,000 brokers—many part-time—compete to help renters sign about 5,000 or so leases every month. “The only way they know how to get clients is to bait-and-switch.”

Obnoxious as it may be, sorting through fake listings is only the beginning of the ordeal for renters, who often parade through other people’s apartments at odd times of day in a high-pressure race against their own expiring lease. At the hunt's end comes one last indignity: Paying the broker, who in New York typically collects 15 percent of the annual rent on the apartment. That works out to an average broker fee of \$5,600, according to Julia Ramsey, chief executive at Joinery, another startup tackling apartment-hunting pains.

“There are a couple ways that renters are getting screwed,” Ramsey said. “The sheer amount you’re paying a broker is probably the biggest one.”

Even traditional brokers say the process could be more efficient. Eric Benaim, chief executive at Modern Spaces, lamented the bait-and-switch listings, which he blamed on small-time players. Agents, he added, do lots of extra legwork showing apartments to renters who are working with more than one brokerage. “The average rental tenant isn't particularly loyal,” he said.

Ramsey co-founded Joinery last year with Vianney Brandicourt, her former colleague at Google, to apply some sharing-economy idealism to ease the broker-fee burden. The idea is to give tenants tech tools to help them find their own replacements: When they're getting ready to move out, they post a listing for their apartment to Joinery's website, where apartment-hunters can view listings, schedule viewings and fill out applications. When the process works, the first tenant collects a fee that's capped at 5 percent; Joinery takes a smaller cut. The landlord gets a vetted tenant, and the new renter saves thousands in fees.

To a large extent, the phenomenon the company is attacking is unique to New York City, where two out of three households [rents](#). (By comparison, even though the U.S. homeownership rate has sunk to a [50-year low](#), more than 60 percent of households live in homes they own.) In New York, high demand for rentals lets landlords subject tenants to extra expense and inconvenience without worrying they don't be able to fill their units. As long as rents are rising, landlords have proven willing to let brokers capture commissions that might otherwise go to further rent hikes.

Those conditions have made New York fertile ground for startups trying to upend the rental industry. (There are also [rental startups](#) with national ambitions, including Apartment List, RadPad and Zumper; they tend to be focused on publishing listings and processing digital payments.) In addition to Joinery, companies like Flip Lease and Padspin offer platforms to help renters cut brokers out as the middleman in rental transactions.

Goldman, for his part, is betting that what New York's rental market really needs is another layer of intermediation between tenants and landlords. When a renter finds a listing he likes, he sends it to Loftey, which serves as his go-between with the landlord or listing broker. Loftey collects a piece of the commission, then passes on savings to the renter by negotiating rent discounts or covering moving costs. The company, which launched last spring, is expanding from eight to 12 rental agents, Goldman said.

While Goldman complains about the fake listings he finds on rental sites, he says the commission system isn't actually as bad as it seems, because broker fees are a one-time charge. If more landlords eliminated fees and instead raised rents, tenants could wind up paying more. "That would be horrible for tenants, and very good for landlords," he said.

[\[Bloomberg\] Uber Sues Over TfL Rules Making Drivers Take English Exams](#)

Jeremy Hodges

17 August 2016

<http://www.bloomberg.com/news/articles/2016-08-17/uber-sues-london-over-rules-forcing-drivers-to-take-english-exam>

Uber Technologies Inc. is suing London's transport regulator in the latest skirmish over rules that may harm the controversial company's business.

Uber will ask London judges to decide the legality of rules that require drivers from non-English speaking countries to pass a language exam, the company said in a statement. The measures also force Uber to notify Transport for London of any changes made to its mobile-phone app.

"This legal action is very much a last resort," Tom Elvidge, Uber London's general manager, said in the statement. "We're particularly disappointed that, after a lengthy consultation process with Transport for London, the goalposts have moved at the last minute and new rules are now being introduced that will be bad for both drivers and tech companies."

San Francisco-based Uber has fought with regulators around the globe over the technology that traditional taxi companies say threatens their existence. In London, Uber [won](#) a suit against TfL over the use of its app as a taxi meter and is still waiting for a ruling in an employment dispute with drivers.

TfL, which oversees London's buses, subways and cycle paths as well as private-hire cars, said that the new rules were designed to boost safety.

"We responded to Uber's letter and will be robustly defending the legal proceedings," TfL said in a statement. The rules "have been introduced to enhance public safety when using private hire services and we are determined to create a vibrant taxi and private hire market with space for all providers to flourish."

Uber rivals were quick to back TfL, with Addison Lee Ltd. saying that Uber had reversed its position on the new measures.

"Having previously backed the proposals it's hard to understand Uber's resistance to implementation of these new regulations," Andy Boland, Addison Lee's chief executive officer, said in a statement Wednesday. "The whole industry was fully involved in the consultation."

[WIRED] Can't Afford Coding Camp? The Feds May Have a Loan for You

Issie Lapowsky 16 August 2016

<http://www.wired.com/2016/08/white-house-rolls-student-loans-coding-camps/>

WHEN HE WAS just a senator from Illinois, Barack Obama ran for President on the [platform](#) that college should be affordable to anyone who wants to go.

Now that he holds the office, his approach has shifted ever so slightly. College should be affordable, yes, but also, not everyone should have to go to a four-year college to land a job.

A new Department of Education program focused on skills training aims to address that second part. Announced last year, the so-called Educational Quality through Innovation Partnerships program will offer federal student aid to students enrolled at non-traditional institutions like coding bootcamps and skills-training programs.

Today, the Department of Education [revealed](#) the eight organizations and educational institutions with programs that will be covered as part of the EQUIP pilot program. For now, the programs are located on both coasts and in Texas. They include bootcamps like The Flatiron School, as well as newly launched training programs from companies like General Electric. The Department of Education chose the programs from dozens of applications, and each organization will partner with an established, accredited college or university. Meanwhile, third-party quality assurance partners have signed up to monitor students' results.

The goal of EQUIP is to help low-income students get by in an economy that increasingly demands some type of advanced degree or certification. Around 1,500 students will be eligible for \$5 million in Pell Grants during the first year. Though that will help pay for these classes, some will also need to take out student loans or pay partially out of pocket.

"Higher education has never mattered so much to so many as a means of social mobility, as an engine of our economy, and a way for individuals to better themselves and move into the middle class," said Department of Education Under Secretary Ted Mitchell on a press call today. But while the United States still boasts some of the top colleges in the world, he added, "We're still catching up to the needs of today's new normal college student."

Lawmakers are currently going through something of an evolution on the question of higher education. While some, like Sen. Bernie Sanders, are still beating the drum about making four-year college free for all, others, like [President Obama](#) and Democratic nominee Hillary Clinton, have begun talking up alternative education, and pushing the idea that not everyone needs a four-year degree.

It's not enough to measure only access or simple enrollment. We need to have a laser like focus on outcomes. UNDER SECRETARY TED MITCHELL

During an economic speech just last week, Clinton told a crowd gathered in Michigan that by the year 2020, [half of the available jobs](#) in the United States won't require a college degree.

"We've got to reverse what has become a commonplace view, which is everybody needs to go to college," she said. "There are really good jobs for people right now, and there will be more in the future, if you get the skills in high school, at community college, in an apprenticeship, or other training program."

Clinton hasn't been the only one hyping these training programs. Sen. Marco Rubio was also a major proponent of skills-based training during his primary bid, [telling](#) a crowd in Wisconsin last year, "I want to be the vocational education president."

"I do not understand for the life of me why we became a society that told young Americans that trade schools and vocational training are for kids that weren't smart enough to go to college," he said.

It's a rare intersection on the Venn diagram of electoral politics. And yet, it's not wholly without controversy. The Department of Education, Mitchell says, has been extremely "circumspect" in the roll out of this program, because, he points out, not all training programs are created equal.

Stories [abound](#) of students graduating from coding bootcamps only to find themselves out several thousand dollars and jobless. The metric of success for the EQUIP pilot programs will be whether they can actually land students in jobs when the classes end.

The Department of Education has put some security measures in place for that specific purpose, Mitchell says. In some cases, students will receive a full refund if they don't find a job. In others, the institution providing the training will no longer be allowed to participate.

"I want to be clear, with these and all higher education programs," Mitchell said. "It's not enough to measure only access or simple enrollment. We need to have a laser like focus on outcomes."

For Adam Enbar, co-founder and president of Flatiron School, that type of oversight is crucial in order to take the type of education he's offering mainstream. Flatiron already issues an annual report about how many of its students land jobs in technical fields after graduation, and he hopes EQUIP will encourage others to do the same.

Enbar says both students and the government are right to be "very, very, very skeptical" of any for-profit educational institutions, including bootcamps. "We look friendlier than these big for-profit universities, but don't look at us any differently. Be skeptical of us," he says. "Reporting needs to be really rigorous and really transparent."

The programs vary in cost and length. Flatiron's will take nine-months and cost about \$15,000. Others, like the one being offered by the coding school Epicodus and Marylhurst University in Oregon, will last weeks and result in a certificate in web and mobile development. And some, like the partnership between General Electric and Northeastern University, in which employees can pursue a bachelor of science degree in advanced manufacturing, could take years.

According to Deb Adair, CEO of Quality Matters, which is one of the quality assurance groups that will be assessing these programs, “The jury is still out,” on how and when EQUIP will scale beyond this initial pilot program.

Of course, the task of expanding it may well fall to the next administration. While it seems to be in keeping with Clinton’s vision of the future of education, Donald Trump has alternately [said](#) he’d both eliminate the Department of Education and cut it “way way down.” So there’s that.

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ICANN

[Fortune] [Why Republicans Are Against Obama Privatizing Internet Governance](#)

Chauncey Alcorn

17 August 2016

<http://fortune.com/2016/08/17/obama-internet-privatized/>

It's a change to who controls domain registrations.

The Obama administration raised partisan concerns in Congress Tuesday, after members of his administration announced final plans to effectively privatize Internet governance.

The administration's National Telecommunications & Information Administration yesterday announced it will transfer internet domain name authority (IANA) from the federal government to the Internet Corporation for Assigned Names and Numbers (ICANN) on Oct. 1, a bipartisan effort that's spanned three Presidents, according to NTIA Administrator Lawrence Strickling.

"The IANA stewardship transition represents the final step in the U.S. government's long-standing commitment, supported by three Administrations, to privatize the Internet's domain name system," Strickling wrote in a [Tuesday blog post](#).

The NTIA says the move won't affect internet users in any meaningful way, according to a [Wall Street Journal](#) report, but it's necessary to prevent governance fragmentation between nations as the Internet continues to grow and expand.

"For the last 18 years, the United States has been working with the global Internet multi-stakeholder community to establish a stable and secure model of Internet governance that ensures that the private

sector, not governments, takes the lead in setting the future direction of the Internet's domain name system," Strickling noted.

Republicans in Congress argue the move constitutes a federal government internet "giveaway," according to The Journal," and effectively monopolizes web domain pricing.

Republican Senators Ted Cruz, Mike Lee, and Sean Duffy on Friday sent a letter to the White House rebuking the anticipated move, which was originally reported by the NTIA earlier this year.

The senators' primary beef was with the Internet domain name registration company Verisign [VRSN](#) - 0.99% , which ICANN exclusively works with to register web domains. The lawmakers complain fully transferring the federal government's domain naming process over to ICANN gives Verisign exclusive authority to name its own price for the domain name registration process.

"Verisign's government-approved control of the .com registry allows it to operate as a monopoly," the senators wrote.

They referenced a .com registry agreement between the NTIA and the IANA that expires in 2018, saying the NTIA, ICANN, and Verisign are working to amend the agreement and extend it through 2024, which the senators argue would give Verisign too much pricing power.

"It appears that the Department of Justice may be prevented from having meaningful input into the prices that Verisign charges for registering a domain name within the .com domain for an extended period," the senators wrote.

[\[BBC\] US ready to 'hand over' the internet's naming system](#)

Dave Lee 18 August 2016

<http://www.bbc.com/news/technology-37114313>

The US has confirmed it is finally ready to cede power of the internet's naming system, ending the almost 20-year process to hand over a crucial part of the internet's governance.

The Domain Naming System, DNS, is one of the internet's most important components.

It pairs the easy-to-remember web addresses - like [bbc.com](#) - with their relevant servers. Without DNS, you'd only be able to access websites by typing in its IP address, a series of numbers such as "194.66.82.10".

More by circumstance than intention, the US has always had ultimate say over how the DNS is controlled - but not for much longer.

It will give up its power fully to Icann - the Internet Corporation for Assigned Names and Numbers - a non-profit organisation.

The terms of the change were agreed upon in 2014, but it wasn't until now that [the US said it was finally satisfied that Icann was ready to make the change.](#)

Icann will get the "keys to the kingdom", as one expert put it, on 1st October 2016. From that date, the US will lose its dominant voice - although Icann will remain in Los Angeles.

If anyone can, Icann?

Users of the web will not notice any difference - that's because Icann has essentially been doing the job for years anyway.

But it's a move that has been fiercely criticised by some US politicians as opening the door to the likes of China and Russia to meddle with a system that has always been "protected" by the US.

"The proposal will significantly increase the power of foreign governments over the Internet," warned a letter signed by several Republican senators, including former Presidential hopeful, Ted Cruz.

Whether you think those fears are justified depends on your confidence in the ability of Icann to do its job.

It was created in 1998 to take over the task of assigning web addresses. Until that point, that job was handled by one man - Jon Postel. He was known to many as the "god of the internet", a nod to his power over the internet, as well as his research work in creating some of the systems that underpin networking.

Mr Postel, [who died not long after Icann was created](#), was in charge of the Internet Assigned Numbers Authority (IANA). Administration of the IANA was contracted to the newly-formed Icann, but the US's National Telecommunications and Information Administration (NTIA), part of the Department of Commerce, kept its final say over what it was able to do.

It's that final detail that is set to change from October. No longer will the US government - through the NTIA - be able to intervene on matters around internet naming.

It rarely intervened. Most famously, it stepped in when Icann wanted to launch a new top-level domain for pornography, ".xxx". The government wanted Icann to ditch the idea, but it eventually went ahead anyway.

From October, the "new" Icann will become an organisation that answers to multiple stakeholders who want a say over the internet. Those stakeholders include countries, businesses and groups offering technical expertise.

Best option

"It's a big change," remarked Prof Alan Woodward from the University of Surrey.

"It marks a transition from an internet effectively governed by one nation to a multi-stakeholder governed internet: a properly global solution for what has become a global asset."

Technically, the US is doing this voluntarily - if it wanted to keep power of DNS, it could. But the country has long acknowledged that relinquishing its control was a vital act of international diplomacy.

Other countries, particularly China and Russia, had put pressure on the UN to call for the DNS to be controlled by the United Nations' International Telecommunication Union.

A treaty to do just that was on the table in 2012 - but the US, along with the UK, Canada and Australia, refused, citing concerns over human rights abuses that may arise if other countries had greater say and control over the internet and its technical foundations.

Instead, the US has used its remaining power over DNS to shift control to Icanm, not the UN.

In response to worries about abuse of the internet by foreign governments, Icanm said it had consulted corporate governance experts who said its the prospect of government interference was “extremely remote”.

"The community’s new powers to challenge board decisions and enforce decisions in court protect against any one party or group of interests from inappropriately influencing Icanm,” the group said in [a Q&A section on its website](#).

As for how it will change what happens on the internet, the effects will most likely be minimal for the average user.

"This has nothing to do with laws on the internet,” Prof Woodward said.

"Those still are the national laws that apply where it touches those countries.

"This is more about who officially controls the foundations of the Internet/web addresses and domain names, without which the network wouldn't function."

[\[CNET\] US prepares to hand over power of the internet's naming system](#)

Katie Collins

18 August 2016

<http://www.cnet.com/news/us-prepares-to-hand-over-power-of-the-internets-naming-system/>

The US government's 20-year role in governing a crucial part of the internet is about to come to an end.

From October 1, the US will no longer have power over the internet domain naming system, or DNS, the US Department of Commerce [announced on Tuesday](#).

The DNS is one of the core components of the internet, linking every web address to the sites' servers using a unique set of numbers, commonly referred to as an IP address. Control of the system will be passed from the US government to a multi-stakeholder nonprofit organization based in Los Angeles called the Internet Corporation for Assigned Names and Numbers, or ICANN.

For the world's internet users, the hand-off will go largely unnoticed -- day-to-day use of the internet will not be affected. Instead, it has been designed to ensure the DNS continues to be a strong and reliable pillar of the internet for years to come. Proponents of the move, including the Obama administration, believe privatization will help maintain international support for the system and prevent governance of the internet becoming a point of dispute in the future.

But some US politicians, including former Republican presidential hopeful Ted Cruz, are critical of the decision to transfer control of the DNS away from the US government. In a speech at the Republican National Convention last month, [Cruz said](#) he feared the system will now be open to interference from foreign governments after being safely guarded for years by the US.

The switchover has not come as a surprise to anyone, though. In fact, it has been many years in the planning. The US government's caretaking of the system was always supposed to be a temporary measure and its partnership with ICANN stretches back as far as 1998.

The agreement to complete the transition [was made back in 2014](#), and as of Tuesday, the government is satisfied that ICANN is ready to take charge of the system, said Assistant Secretary for Communications and Information Lawrence E. Strickling in a blog post confirming the switchover date.

"For the last 18 years, the United States has been working with the global Internet multi-stakeholder community to establish a stable and secure multi-stakeholder model of Internet governance that ensures that the private sector, not governments, takes the lead in setting the future direction of the Internet's domain name system," Strickland said.

The model has been vital the internet's evolution into "a dynamic platform for innovation, economic growth and free expression," he added.

Patents

[\[EFF\] Tell Your University: Don't Sell Patents to Trolls](#)

Elliot Harmon

17 August 2016

<https://www.eff.org/deeplinks/2016/08/tell-your-university-dont-sell-patents-trolls>

When universities invent, those inventions should benefit everyone. Unfortunately, they sometimes end up in the hands of patent trolls—companies that serve no purpose but to amass patents and demand money from others. When a university sells patents to trolls, it undermines the university's purpose as a driver of innovation. Those patents become landmines that make innovation more difficult.

A few weeks ago, we wrote about the problem of [universities selling or licensing patents to trolls](#). We said that the only way that universities will change their patenting and technology transfer policies is if students, professors, and other members of the university community start demanding it.

It's time to start making those demands.

We're launching [Reclaim Invention](#), a new initiative to urge universities to rethink how they use patents. If you think that universities should keep their inventions away from the hands of patent trolls, then [use our form to tell them](#).

EFF is proud to partner with [Creative Commons](#), [Engine](#), [Fight for the Future](#), [Knowledge Ecology International](#), and [Public Knowledge](#) on this initiative.

A Simple Promise to Defend Innovation

Central to our initiative is the [Public Interest Patent Pledge](#) (PIPP), a pledge we hope to see university leadership sign. The pledge says that before a university sells or licenses a patent, it will first check to make sure that the potential buyer or licensee doesn't match the profile of a patent troll:

When determining what parties to sell or license patents to, [*School name*] will take appropriate steps to research the past practices of potential buyers or licensees and favor parties whose business practices are designed to benefit society through commercialization and invention. We will strive to ensure that any company we sell or license patents to does not have a history of litigation that resembles patent

trolling. Instead, we will partner with those who are actively working to bring new technologies and ideas to market, particularly in the areas of technology that those patents inhabit.

One of our sources of inspiration for the pledge was the technology transfer community itself. In 2007, the Association of University Technology Managers (AUTM) released a document called [Nine Points to Consider](#), which advocates transferring to companies that are actively working in the same fields of technology the patents cover, not those that will simply use them to demand licensing fees from others. More recently, the Association of American Universities (AAU) launched a working group on technology transfer policy, and [that group's early recommendations closely mirror AUTM's](#) (PDF). EFF has often found itself on the opposite side of policy fights from AUTM and AAU, but we largely agree with them on this issue that something needs to change.

Despite that good advice, many research universities continue to sell patents to trolls. Just a few weeks ago, we wrote about My Health, a company that appears to do nothing but file patent and trademark lawsuits. Its primary weapon is a patent from the University of Rochester. Rochester isn't alone: [dozens of universities regularly license patents](#) to the notorious mega-troll Intellectual Ventures.

Good intentions and policy statements won't solve the problem. Universities will change when students, professors, and alumni insist on it.

Local Organizers: You Can Make a Difference

We're targeting this campaign at every college and university in the United States, from flagship state research institutions to liberal arts colleges. Why? Because patents affect everyone. The licensing decisions that universities make today will strengthen or sabotage the next generation of inventors and innovators. Together, we can make a statement that universities want more innovation-friendly laws and policies nationwide.

It would be impossible for any one organization to persuade every college and university to sign the pledge, so we're turning to our network of local activists in the [Electronic Frontier Alliance](#) and beyond.

We've designed our petition to make it easy for local organizers to share the results with university leadership. For example, [here are all of the people who've signed the petition](#) with a connection to the University of South Dakota. If you volunteer for the USD digital civil liberties club—or if you've been looking to start it—then your group could write a letter to university leadership urging them to sign the pledge, and include the names of all of the signatories. We're eager to work with you to make sure your voice is heard. You can [write me directly](#) with any questions.

Reclaim Invention represents a new type of EFF campaign. This is the first time we've launched a campaign targeting thousands of local institutions at once. It's a part of our ongoing work to unite the efforts of grassroots digital rights activists across the country. Amazing things can happen when local activists coordinate their efforts.

Competition

[\[The Hill\] Russian court said to turn down Google antitrust appeal](#)

David McCabe

17 August 2016

<http://thehill.com/policy/technology/291698-russian-court-said-to-turn-down-google-antitrust-appeal>

A Russian court on Wednesday rejected Google's appeal in a case brought by local antitrust authorities.

Reuters [reported](#), citing local media, that the court had turned down Google's request to review the case. That outcome came [after Russian authorities](#) and the search giant was reportedly unable to reach a settlement in the case.

Regulator FAS leveled a roughly \$6.8 million fine last week over allegations that Google violated antitrust laws when it required some applications be packaged with phones running its popular Android operating system. Russian search leader Yandex filed the complaint that sparked the inquiry.

A spokesperson for Google did not respond to a request for comment.

Google isn't a stranger to antitrust headaches, having drawn the attention of regulators around the world as it has expanded in size and scope. Competitors argue that Google is able to leverage its dominance in areas like search and mobile operating systems to unfairly maintain its advantage and hurt smaller players.

The European Union's antitrust watchdog, led by competition Commissioner Margrethe Vestager, has [brought three sets](#) of preliminary charges against Google in recent years. It alleges that Google has inappropriately favored its own comparison shopping service in search results, taken advantage of its dominant advertising platform and unfairly required manufacturers to install applications on Android phones.

Antitrust officials in South Korea have [also confirmed](#) that they are investigating Google but have not specified the nature of their concerns.

These balance transfer cards could help you save big. See the top rated cards of 2016 [Read More](#)

Stateside, the Federal Trade Commission has proved more reticent about alleging the company has violated the law.

The agency spent years investigating Google's dominance in search but [ultimately decided](#) not to take legal action, although the company agreed to make some changes to its practices. Politico reported earlier this year, however, that the regulator is [once again examining](#) Google's search business.

[\[WSJ\] Russian Appeals Court Rejects Google Appeal in Antimonopoly Case](#)

Olga Razumovskaya

17 August 2016

<http://www.wsj.com/articles/russian-appeals-court-rejects-google-appeal-in-antimonopoly-case-1471466149?mod=LS1>

MOSCOW—A Russian appeals court has rejected [Alphabet](#) Inc.'s Google's appeal in an antimonopoly case, a spokesman for the Russian antitrust watchdog said Wednesday.

Google has been entangled in an antitrust dispute with the Russian Federal Antimonopoly Service over its practices of bundling apps for its Android platform. The court's current decision was largely expected.

Last week, [the watchdog fined](#) Google 438 million rubles (about \$6.8 million) for abusing its dominant position of its Android mobile-phone operating system.

Earlier this week, the antitrust regulator said FAS and Google have failed to settle the dispute out of court.

The court's decision isn't the final step for Google in disputing the charges, the FAS spokesman told The Wall Street Journal. Google may still file a cassation appeal, he said.

A Google Russia spokeswoman said that Google hasn't yet received the text of the decision. "As soon as we get it, we will study it and determine further steps," she said.

Another FAS spokeswoman said later Wednesday that Google will have eight days to comply with the watchdog's original demands after the court has fully issued its ruling. "Otherwise they may get another fine," she said, without specifying an amount.

[\[Ars Technica\] As promised, Aetna is pulling out of Obamacare after DOJ blocked its merger](#)

Beth Mole

17 August 2016

<http://arstechnica.com/science/2016/08/aetna-isnt-being-honest-about-why-its-pulling-out-of-obamacare/>

Aetna announced Monday that due to grave financial losses, it will dramatically slash its participation in public insurance marketplaces set up by the Affordable Care Act. In 2017, Aetna will only offer insurance policies in 242 counties scattered across four states—that's a nearly 70-percent decrease from its 2016 offerings in 778 counties across 15 states.

The deep cuts have largely been seen as a blow to the sustainability of the healthcare law, which has seen other big insurers also pull out, namely UnitedHealth group and Humana. But the explanation that Aetna was forced to scale back due to heavy profit cuts doesn't square with previous statements by the company.

In April, Mark Bertolini, the chairman and chief executive of Aetna, told investors that the insurance giant anticipated losses and could weather them, even calling participation in the marketplaces during the rocky first years "a good investment." And in [a July 5 letter](#) (PDF) to the Department of Justice, obtained by the Huffington Post by a Freedom of Information Act request, Bertolini explicitly threatened that Aetna would back out of the marketplace if the department tried to block its planned \$37 billion merger with Humana.

"Specifically, if the DOJ sues to enjoin the transaction, we will immediately take action to reduce our 2017 exchange footprint [I]nstead of expanding to 20 states next year, we would reduce our presence to no more than 10 states..." Bertolini wrote.

Sixteen days after the letter was penned, the DOJ moved to block the merger. In announcing the department's decision to file suit, Attorney General Loretta Lynch said it "would leave much of the multitrillion health insurance industry in the hands of just three mammoth companies, restricting competition in key markets."

In interviews this week, Bertolini has [brushed off the tie](#) between marketplace participation and the merger deal, reiterating that the cuts were all based on finances. “As a strong supporter of public exchanges as a means to meet the needs of the uninsured, we regret having to make this decision,” [Bertolini told *The New York Times*](#). He noted that the company faced “a second-quarter pretax loss of \$200 million and total pretax losses of more than \$430 million since January 2014 in our individual products.”

But Obama allies [weren't buying the explanation](#). In a [Facebook post](#), Senator Elizabeth Warren (D-Mass.), noted that Aetna has the right to fight the DOJ on the merger. But, she said, “the health of the American people should not be used as bargaining chips to force the government to bend to one giant company’s will.”

Broadband

[Watchdog] [Clinton pushing broadband growth as big part of \\$275 billion infrastructure plan](#)

Johnny Kampis

17 August 2016

<http://watchdog.org/273592/clinton-broadband-plan/>

Hillary Clinton pledges a broadband connection in every house by 2020 if she is elected president in November.

This 21st century version of [the 1928 pledge](#) by the Republican Party of “a chicken in every pot and a car in every garage” if Herbert Hoover was elected may be about as realistic — we know how the 1930s turned out for America, after all — and it would certainly be expensive.

IT COSTS WHAT? Hillary Clinton has made 100 percent broadband availability a big part of her infrastructure improvement platform.

Recent reports by the Federal Communications Commission show that nearly 40 percent of rural residents around the country lack broadband access. And that’s assuming the standards don’t keep increasing in the next four years as technology evolves — the FCC boosted the standard definition of broadband by a factor of 2.5 just last year, from a download speed of 10 megabits per second to 25 mbps.

[In discussing her infrastructure plan on her campaign website](#), Clinton touts the importance of broadband.

“Clinton believes that high-speed Internet access is not a luxury; it is a necessity for equal opportunity and social mobility in a 21st century economy,” the website says.

How’s she going to pay for it all? Your tax dollars will be a big part of it, of course.

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Clinton has pledged further spending of tax money on programs such as the Connect America Fund, Rural Utilities Service and Broadband Technology Opportunities Program. She said she’d push federal

agencies to consider providers of fiber-optic cable, fixed wireless and satellite technologies as potential recipients of the money.

Earlier this year, the Federal Communications Commission announced the expansion of its Lifeline program. The budget will increase to \$2.25 billion annually, and those low-income customers who qualify will get subsidies to pay for high-speed home internet or data plans for their cell phones.

Clinton has also talked of establishing a \$25 billion infrastructure bank, from which communities could draw to not only repair roads and bridges, but also string fiber-optic cable or other methods of building broadband networks.

The bank would be operated by “an independent, government-owned infrastructure bank with a bipartisan board of highly qualified directors authorized to make critical investments in building 21st century infrastructure,” her website touts.

The \$25 billion bank would be part of \$275 billion in additional federal infrastructure spending over the next five years under her plan.

Clinton said she’d work to encourage more people to connect to high-speed internet, as well.

“Clinton will also build upon the Obama Administration’s efforts to increase not just broadband access but also broadband adoption, both by fostering greater competition in local broadband markets to bring down prices and by investing in low-income communities and in digital literacy programs,” the website says.

Government officials have pushed broadband as a utility on par with the expansion of electricity in the early 20th century. Tom Struble, policy counsel for TechFreedom, notes that with the different methods of offering high-speed internet, that’s the wrong model.

“You can provide home broadband by transmitting signals along a wire or cable physically hooked up to the end-user’s home, or by transmitting signals over the air from a wireless base station (which typically has a wireline connection) to an antenna atop the end-user’s home,” he wrote to Watchdog.org in an email. “The underlying service characteristics may differ slightly (in terms of available bandwidth, latency, etc.), but the user experience may be essentially unchanged, or only slightly worse off, while making the deployment much more economical, as the cost of laying or upgrading wireline connections over the last mile consumes a disproportionate amount of [capital expenditure.]”

SKORUP: More focus should be placed on wireless internet as people choose smartphones as their preferred access point.

Brent Skorup, who studies broadband issues for the Mercatus Center in Fairfax, Virginia, told Watchdog the goal of 100 percent broadband usage is unrealistic because some people — largely skewing older — have no interest in internet access.

“It’s been 100 years and there’s still not 100 percent penetration of the phone market,” he noted.

Providing high-speed internet to 100 percent of people who want it is another matter. With improving technology, particularly in wireless broadband, that could be feasible. Skorup notes that about 10 percent of households have neither a home phone nor a wired internet connection, choosing to use smartphones for both voice and internet.

“I think you’ll see that continue,” he said.

Skorup said Clinton’s plan of offering stimulus-type funding for municipal broadband projects would be a mistake, noting the \$111 million Chattanooga got for its internet network that has yet to pan out.

“You don’t see the economic development that’s promised with these,” he said.

He said if tax funds are used to boost broadband adoption, it’s better to offer people vouchers through programs like Lifeline rather than give funds to certain providers, which can allow politics to distort the market.

“You let consumers optimize according to their own wants,” Skorup said.

[Washington Times] [Rescuing broadband from government interference](http://www.washingtontimes.com/news/2016/aug/17/rescuing-broadband-from-government-interference/)

Seth Cooper

17 August 2016

<http://www.washingtontimes.com/news/2016/aug/17/rescuing-broadband-from-government-interference/>

Since late 2014, the [Federal Communications Commission’s \(FCC\)](#) quest for power to shape the Internet’s future has gone into overdrive. Government interventionism puts at risk the entrepreneurial environment in which the commercial Internet emerged and on which it still depends. Fortunately, a decision by a federal appeals court halted one of the [FCC’s](#) most audacious overreaches to date.

Promoting local government ownership of broadband Internet networks has become one of the bureaucracy’s aims under [FCC](#) Chairman Tom Wheeler. But about 20 states limit their local governments’ ability to become broadband businesses. The [FCC](#) made its first move to sweep away such laws in March 2015. The agency issued an order to preempt North Carolina’s and Tennessee’s restrictions on their local governments’ ownership of broadband Internet networks. Although the [FCC](#) is a so-called “independent agency,” President Obama endorsed its efforts.

There are strong reasons why many states consider it a bad idea for local governments to go into the broadband business. Government shouldn’t compete against the market providers they also regulate. Conflicts of interest posed by local governments’ dual role creates risk of favoritism over private market providers in granting permits and licenses. The threat of unfair treatment chills investment by private market providers.

Local governments also lack capacity to successfully operate risky broadband ventures. Their broadband networks have a record of financial failures. In many cases, local taxpayers have been left on the hook for multimillion-dollar bailouts of local government broadband flops. Local governments’ budgets have also been severely constrained by those failures.

By its preemption order, the [FCC](#) would have effectively given local government-owned networks in Tennessee and North Carolina a right to operate outside their own boundaries. Those local governments would have enjoyed discretionary power never bestowed by the states that created them. It’s Constitutional Law 101 that local governments are political subdivisions of their states. And states have

nearly unfettered discretion in defining the purposes and boundaries of their subdivisions. But the [FCC's](#) preemption order would have turned both state-local government accountability inside out.

Thankfully, on Aug. 10, the U.S. Court of Appeals for the 6th Circuit reversed the [FCC's](#) preemption order. The court ruled that Congress never provided a clear statement of authority for the [FCC](#) to preempt state laws concerning their local governments' ownership of broadband networks. It rejected the [FCC's](#) claim that general statutory language about promoting competition and removing infrastructure barriers showed any intent by Congress to mangle states' internal governance. In other words, the court found nothing in the federal Telecommunications Act to authorize the [FCC's](#) bold attempt to reassign state governmental decision-making.

The 6th Circuit's decision faithfully followed U.S. Supreme Court precedent. When a federal agency interposes itself between a state and its political subdivisions, the Supreme Court requires a clear statement of Congress' intent to authorize such preemption. As the 6th Circuit recognized, the clear statement rule is grounded in "fundamental constitutional policy" respecting state sovereignty.

Importantly, reversal of the [FCC's](#) preemption order halted future agency adventurism. Had its order had been upheld in court, the [FCC](#) would certainly have preempted the remaining dozen-and-a-half state laws restricting local government ownership of broadband networks. Also, a court ruling upholding the [FCC's](#) anti-federalism foray would have supplied a disturbing precedent for other overreaching federal agencies to exploit.

The 6th Circuit's decision is a welcome rebuke of one of the boldest overextensions of authority in the [FCC's](#) history. The appeals court's reversal of the [FCC](#) offers hope that the agency's other endeavors to increase government's control over the digital future will eventually be held accountable to the rule of law.

ECPA

[Center for Democracy and Technology] Cross-Border Law Enforcement Demands: Analysis of the US Department of Justice's Proposed Bill

17 August 2016

<https://cdt.org/insight/cross-border-law-enforcement-demands-analysis-of-the-us-department-of-justices-proposed-bill-2/>

On July 15, the U.S. Department of Justice proposed legislation that would permit foreign governments hand-picked by DOJ to conduct wiretapping in the U.S. for the first time, and to do so without a court order based on probable cause of crime. Billed as legislation that would fix the current Mutual Legal Assistance Treaty (MLAT) process for cross-border disclosure of stored communications content, the legislation goes significantly beyond MLATs to authorize real-time surveillance, as well. If enacted in its current form, the legislation would herald a worldwide diminution of communications privacy rights as strong U.S. protections of probable cause and a judicial warrant or court order for disclosure of communications content are effectively swapped out for less privacy protective laws of countries with which the DOJ strikes a deal. The legislation would implement a bi-lateral agreement the DOJ has already negotiated with the United Kingdom, the current text of which has not been publicly released.

Bilateral cross-border law enforcement demands (C-BLED) agreements such as those contemplated in the legislation the DOJ has proposed could be part of the solution if limited to stored content and metadata, and if based on strong human rights standards. However, legislation to clear the way for such agreements must be preceded by enactment of Electronic Communications Privacy Act (ECPA) reform legislation such as the Email Privacy Act (H.R. 699 in the 114th Congress) and must also close a gap in current U.S. law that permits U.S. providers to voluntarily disclose their users' traffic data to foreign governments.

Encryption

[ABC News] UN Experts: Extremists Foiling Governments With Encryption

Edith Lederer

17 August 2016

<http://abcnews.go.com/US/wireStory/experts-extremists-foiling-governments-encryption-41469887>

Increasing numbers of foreign fighters for the Islamic State group and al-Qaida are returning home, potentially to carry out attacks, and are using the "dark web" or encrypted messaging that the most sophisticated intelligence agencies can't penetrate, U.N. experts said in a report circulated Wednesday.

The experts monitoring sanctions against the extremist groups said governments highlighted the challenge to [national security](#) from the communication methods being used by these "foreign terrorist fighters" and people being radicalized at home who need to be monitored and investigated.

They said the rise in the use of the "dark web" — a collection of thousands of websites which use tools to maintain anonymity — and especially encrypted messaging "has closed off the ability of even the most sophisticated agencies to penetrate huge quantities of messages."

The result, the experts said, is that governments are "potentially losing much of their previous technological advantage over terror groups."

Recruiters for the Islamic State group, once they engage potential fighters, also swiftly move them to "closed forums" and guide them toward encrypted messaging systems, the experts said.

The expert panel's report to the [Security Council](#) said the threat from al-Qaida, the Islamic State, and their associates "is serious and diversifying," despite military setbacks for Islamic State fighters in Iraq, Syria Afghanistan and Libya.

The Islamic State "demonstrated its ability to conduct complex, multi-stage attacks outside the conflict zone" while at the same time the role of its affiliates in the wider region was elevated, the panel said.

The near-simultaneous attacks conducted by Islamic State operatives in Paris in November 2015 and Brussels in March generated an overwhelming flow of information to command centers which governments described as a deliberate tactic by the extremist group "to make it more difficult to mount coordinated and targeted responses to the most dangerous continuing threats," the experts said.

Al-Qaida and its affiliates also maintained their position in various regions "and also demonstrated an ability to successfully plan and execute significant attacks," the panel said.

The experts said governments estimate that the Islamic State has up to 30,000 fighters in Syria and Iraq.

Significant numbers of IS fighters have been killed as a result of military attacks and the rate of fighters leaving the extremist group has increased, but the panel said governments report that this trend is partially offset by the continued flow of new fighters into Syria and Iraq and by forced recruitment among tribes and the use of [child soldiers](#) since 2014.

The panel said the Islamic State group's financial situation has deteriorated since last July, with oil production declining by between 30 and 50 percent as a result of air strike targeting oil infrastructure.

"Consequently oil revenue has fallen by tens of millions of dollars per month," it said.

The group's financial woes have also led to salary cuts for fighters, the panel said, but the Islamic State continues to earn significant revenue from taxation and extortion, the panel said.

According to governments, IS may earn as much as \$30 million a month from these methods which include business taxes, fees for electricity and water, rent for seized real estate and customs duties and passage fees.

In a sign of desperation, the panel said that in February IS started to tax the most impoverished civilians in areas under its control who had previously been exempt.

Cybersecurity

[The Hill] DOE picks 12 projects for cybersecurity funds

Joe Uchill

17 August 2016

<http://thehill.com/policy/cybersecurity/291690-doe-picks-12-projects-for-cybersecurity-funds>

The Department of Energy is awaiting congressional approval to fund \$34 million in cybersecurity grants to 12 projects as part of its Cybersecurity of Energy Delivery Systems (CEDS) program.

"The twelve projects will enhance the reliability and resilience of the nation's energy critical infrastructure through innovative, scalable, and cost-effective research, development and demonstration of cybersecurity solutions," wrote the DOE in a fact sheet accompanying the announcement of projects it intends on funding.

The 12 projects fit into five different initiatives, including detecting adversaries, integrating alternative energy sources into the national grid, reducing the opportunities for attacks, shoring up supply chains and a fifth catch-all category.

The DOE's chosen projects include two going to academic institutions: an automated attack surface reducing system from Iowa State and an threat detection system from Texas A&M. ABB Inc. and Schweitzer Engineering Laboratories were the only groups to be nominated for more than one project. Each had two.

On the DOE website, the agency explains the need for the program. "Energy delivery systems are the backbone of the energy sector — a network of processes that produce, transfer, and distribute energy

and the interconnected electronic and communication devices that monitor and control those processes," it says.

[WSJ] We asked experts to compare Trump's and Clinton's cybersecurity policies. Here's what they said.

Andrea Peterson

17 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/17/we-asked-experts-to-compare-trump-and-clintons-cyber-security-policies-heres-what-they-said/>

Cybersecurity is now a top national security problem — some officials even call it a bigger threat than terrorism. But both major presidential candidates have hit hurdles on the campaign trail that raised questions about how they would try to keep U.S. computers safe if elected.

Just last month, Democratic nominee Hillary Clinton escaped criminal prosecution for using a private email server for work as secretary of state — but got a tongue-lashing from the director of the FBI for being "extremely careless" by using it. Then emails from the Democratic National Committee were released by WikiLeaks, exposing politically embarrassing information.

As that scandal unfolded, GOP candidate Donald Trump seemed to [urge Russian government hackers](#) to hack Clinton. Although he played down his comments as sarcastic, the idea of a presidential candidate inviting a foreign power to hack a U.S. citizen raised flags for some. Trump's remarks also put a microscope on his [apparently cozy relationship](#) with Russian President Vladimir Putin — whose government many say was behind the Democratic National Committee hack.

How seriously should voters take those high-tech hiccups? And what will a Clinton or Trump victory mean for the United States' ability to fend off the rising tide of digital attacks?

To answer those questions, The Washington Post reached out to cybersecurity policy experts, including academics, think-tankers and officials from previous Republican and Democratic administrations and asked them evaluate both candidates' cybersecurity policy strategies and whether they were more concerned about Clinton's private email server or Trump's hacking comments.

Here's what they said:

Gen. Michael Hayden

Former CIA and NSA director who worked in high-level posts during the Bill Clinton, George W. Bush, and Obama administrations. Now a principal at the Chertoff Group.

Hayden said he found Clinton's "email faux pas" and Trump's comments about Russian hackers "equally off-putting." However, he hadn't seen enough from either campaign to evaluate their overall cybersecurity strategies.

One area he wanted to hear more about was how the candidates would act on the encryption debate if elected. During the debate between Apple and the FBI over the [San Bernardino, Calif., phone, Clinton largely sidestepped](#) the issue while Trump called for a boycott of Apple.

"For the record, I shade toward Apple because I believe the private sector will be the main effort when it comes to cyberdefense," Hayden said. "The Trump answer was vintage ... bold, clear and wrong," he said.

Stewart Baker

Former NSA general council and Department of Homeland Security assistant secretary for policy during the George W. Bush administration. Currently a partner at law firm Steptoe & Johnson.

"Hillary Clinton's use of a home-brew email server with laughably bad security was appalling and irresponsible," Baker said. "It looks as though she was more afraid of Republicans and prosecutors than of Russian and Chinese intelligence agencies."

He thought Trump was joking when he made the Russian hacker comment, "but it was a joke with a sharp point for Clinton because in fact the Russians probably had better access to those emails than the FBI; after all, Clinton's lawyers had aggressively wiped the servers by the time the FBI got there." The claim that he was asking Russia to commit cyberespionage "is a symptom of the press's Trump Derangement Syndrome," he said.

Baker said the candidate's positions on cybersecurity mirror over campaign strategies: "Clinton's position is cautious, incremental, sober and boring: a cybersecurity third term for President Obama. She is proposing nothing that President Obama hasn't already proposed," he said. Trump's position, on the other hand is "impressionistic and focused on American decline," according to Baker. "He doesn't like our current posture and might do something dramatic to change it. Whether he will, and what that might be, who knows?"

On encryption, the two parties' official stances are "indistinguishable," he said — with both party platforms calling for a "balanced" solution. However, "Trump's actual unfiltered statements are quite different from the massaged language of the GOP platform; on the whole he is more friendly to government and law and order and crime victims than to West Coast billionaires," Baker said.

Susan Landau

Former senior staff privacy adviser at Google and current professor at Worcester Polytechnic Institute.

Landau declined to weigh in on whether she was more concerned about Clinton's use of a private email server or Trump's Russian hackers comment. But she had plenty of thoughts about how to evaluate what we know about the candidates' cybersecurity strategies.

"There are three different aspects to consider: the two candidates' views on cybersecurity initiatives, the party platforms and the issue of cryptography policy," she said. "Cyber is a hard problem," involving economic, technical and policy issues, she said, and "on this count, Clinton certainly has the advantage: she understands complex negotiations with many moving parts."

But Trump's response to David Sanger in a [New York Times interview](#) earlier this year — in which he claimed that the United States was way behind on cybersecurity — seemed to show Trump was unaware of things like the Stuxnet attack, a cyberattack on Iranian nuclear facilities thought to be the work of the United States and Israel, she said.

Neither candidate has laid out too much of a cybersecurity plan so far, she said, nor did party platforms weigh in on the encryption debate. But Trump's response to the Apple-FBI legal battle — calling for a boycott of Apple — wasn't a good sign, according to Landau. "By providing a more secure system for online access, Apple's secured phone is an excellent step in the right direction for cybersecurity, something that candidate Trump does not seem to grasp," she said.

"I would say that the Clinton/Democratic proposals are a B/B-plus at present, while the Trump/Republican direction is a D/D-minus at best," Landau concluded.

Peter Swire

Former chief counselor for privacy in Office of Management and Budget during the Bill Clinton administration. Now a law professor at Georgia Tech.

Swire's response focused more on Trump's comments than Clinton's email server situation. "Urging a Russian attack is directly contrary to his party's platform, which says 'an attack will not be tolerated,'" he said.

Although neither Trump nor Clinton are tech experts themselves, Clinton helped greatly expand the State Department's cybersecurity portfolio when she was secretary of state "and that continues today," he said.

"There is no magical solution for cybersecurity, no matter who is president," Swire added. "Instead, it takes funding, persistence and building a large team that can defend against a world full of threats. Based on the conventions if nothing else, Clinton builds and leads that sort of team far more than Trump."

Paul Rosenzweig

DHS assistant secretary for policy during the George W. Bush administration. Current Principal at Red Branch Consulting.

"Secretary Clinton is really offering us more of the same — it's the Obama policy continued forward and improved," Rosenzweig said. "I would say that I would not expect Secretary Clinton to have any grand new initiatives, although circumstances might drive something new. To some degree that's a little disappointing because I think we've reached a bit of a stasis point: We're playing a lot of defense and we don't have too much offensive strategy," he continued.

But when it comes to Trump, Rosenzweig said he has "no real idea what he would do."

When it came to the Clinton email scandal vs. Trump's Russian hacker comments, he seemed more focused on the comments. "[Trump] says we have to get more aggressive, but then he perhaps jokingly invites information operations against his own country. I don't know what to make of it," Rosenzweig said. "I suspect his policy would come with a blind spot to Russian adventurism that would be disadvantageous to American interests," he added.

"My hope would be that [cybersecurity] would be one of the areas where [Trump] wouldn't be paying too much attention" and instead bring in experts to guide policy, he said. "That would probably be more of the same as well, although there might be some evolution because he'd be willing to let people break more china — the dishes, not actual China," Rosenzweig said.

But Rosenzweig also said there wasn't a lot to go on to judge Trump's strategy. "There's no information out there or theory that underlies his foreign policy. If I had a sense of what he was doing in the physical world, I could probably extrapolate to the digital world, but there's really nothing there," he said.

Sanchez said both Clinton's email server situation and Trump's Russian hacker comments were "pretty bad, but probably somewhat overblown."

"Even on the charitable premise that Trump was attempting to make a joke, it's obviously irresponsible for a major party presidential candidate to signal winking approval of foreign cyberattacks on the opposing party, because even the act of joking about it suggests you're not terribly serious about imposing costs on Russia if it continues its current conduct," he said.

On Clinton's email, Sanchez was more concerned about transparency than national security implications. "I don't think anyone buys the idea that she set up a private server for 'convenience' rather than to retain control over correspondence legally subject to Freedom of Information requests," he said.

When it comes to overall cybersecurity strategy, Sanchez says it's hard to judge Trump "because he doesn't appear to have one, unless welcoming Russian hacks counts." Clinton, on the other hand, has made it "fairly clear that her approach to cyber would represent a continuation of the Obama administration's Cybersecurity National Action Plan, with a focus on information sharing with the private sector and an integrated approach across federal networks under the stewardship of a federal chief information security officer," he said.

"As far as a comparison of the two goes, I suppose 'having a plan' beats 'not having one,'" Sanchez concluded.

NSA Hack

[Washington Post] [NSA hacking tools were leaked online. Here's what you need to know.](#)

Andrea Peterson 17 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/17/nsa-hacking-tools-were-leaked-online-heres-what-you-need-to-know/>

A cache of powerful hacking tools used by the National Security Agency have [leaked online](#) in what could be the biggest blow to the agency since 2013, when Edward Snowden came forward with documents that exposed the scope of its surveillance capabilities.

The leak raises new questions about how the NSA uses its offensive hacking ability and whether its approach ultimately leaves everyday users, not just the agency's targets, at risk.

Here's what you need to know about the leak:

What happened?

Over the weekend, a group calling itself the Shadow Brokers posted online what it claims is a trove of malware used by the Equation Group — a code name for hackers that cybersecurity researchers have linked to the NSA.

The 300-some megabytes of information appear to date to 2013 and is allegedly just a free taste of a larger trove that the Shadow Brokers will release once a digital "auction" for the information is held. The group is asking for 1 million bitcoins — or about a half-billion dollars — before they will let it all loose. However, many experts are skeptical of the auction.

"It's designed to distract. It's total nonsense," Nicholas Weaver, a computer security researcher at the University of California at Berkeley, [told The Washington Post's Ellen Nakashima](#).

Weaver said bitcoin "is so traceable that a Doctor Evil scheme of laundering \$1 million, let alone \$500 million, is frankly lunacy."

What do these tools actually do?

The files contain what appears to be part of a sophisticated cyber arsenal. Among the digital weapons are "exploits" — hard-to-develop tools used for penetrating and taking over firewalls made by companies, such as Cisco and Fortinet, that are commonly used to protect computer networks.

There are also "implant" tools that can help hackers do things like siphon out or modify information on a system once they've broken in.

Several of the tools relied on previously unknown — or "zero-day" — bugs in software that appear to remain vulnerable now.

How sure are we that these tools actually belonged to the NSA?

They seem pretty legit. Although the NSA is staying mum, former NSA hackers [told The Post](#) that they appeared legitimate — as have other outside experts. Some file names from the cache also match up with programs or tools previously referenced in Snowden's revelations.

"Faking this information would be monumentally difficult, there is just such a sheer volume of meaningful stuff," Weaver [told The Post](#).

But it's not clear that the NSA at large was hacked. Instead, an NSA operator may have mistakenly uploaded a full tool set to a proxy server that the agency used to carry out infiltrations, experts [told The Post](#).

So who are these Shadow Brokers?

The group's name appears to be a reference to a character in [the "Mass Effect" video games](#) who sells off information to the highest bidder.

But many, including Weaver and Snowden, say Russia is behind the leak. While there's no hard evidence connecting Russia to the data as of now, on Twitter, Snowden argued that Russia may have released the cache to wave the U.S. government away from officially blaming hacks against the Democratic National Committee and other political organizations on the country.

Putting the tools out there "is likely a warning that someone can prove U.S. responsibility for any attacks that originated from" the server that hosted them, [he said](#). That could have major diplomatic fallout if, for instance, the tools were linked to spying on U.S. allies, Snowden argued.

WikiLeaks also [tweeted](#) that it had a full copy of the NSA tools cache that it would soon put up online, which may bolster the Russia theory. WikiLeaks posted Democratic National Committee files online last month, which many suspect came from [Russian cyberattacks](#) on the party organization.

Are the tools still out there online? What does this mean for my security?

Yes. The Shadow Brokers put the files online in a few different ways, including using a peer-to-peer file sharing method called bittorrent — which makes it very hard, if not impossible, to delete them from the Web.

That's bad news for user security: For one, these tools are now available to criminal hackers.

But secondly, the leak raises questions about how the government handles zero-day vulnerabilities. There's an official process called an equities review that the government uses to weigh when it will tell software makers about security problems it discovers in their products.

But the exact process is murky — and critics of the NSA have long suspected that the agency hoards undisclosed vulnerabilities to use in its information-gathering efforts. The reliance on zero-day bugs that remain unpatched today by the leaked tools suggest that the agency sat on problems for years.

When those problems go unfixed, it leaves everyday people vulnerable because other hackers might find and exploit the same issues. This new leak seems to prove that other people can find the same vulnerabilities as the NSA — and in some cases, even gain access to the same tools the agency uses to exploit them.

[\[Wired\] The Shadow Brokers Mess Is What Happens When the NSA Hoards Zero-Days](#)

Andy Greenberg

17 August 2016

<https://www.wired.com/2016/08/shadow-brokers-mess-happens-nsa-hoards-zero-days/>

WHEN THE NSA discovers a new method of hacking into a piece of software or hardware, it faces a dilemma. Report the security flaw it exploits to the product's manufacturer so it gets fixed, or keep that vulnerability secret—what's known in the security industry as a “zero day”—and use it to hack its targets, gathering valuable intelligence. Now a case of data apparently stolen from an NSA hacking team seems to show the risks that result when the agency chooses offense over defense: Its secret hacking tools can fall into unknown hands.

On Wednesday, networking equipment firms Cisco and Fortinet warned customers about vulnerabilities revealed in data [posted to the web days earlier by an anonymous group calling itself Shadow Brokers](#). The group claimed it obtained the data by hacking of an elite espionage team known as Equation Group and linked to the NSA. Shadow Brokers described its haul as a cache of encrypted “cyberweapons” that it would auction to the highest bidder. The data dump also contained an unencrypted sample with 300 megabytes of information including hacking software—known as “exploits”—designed to target networking appliances from Cisco, Fortinet, Juniper and TopSec.¹

Based on Fortinet and Cisco's urgent warnings in response to the exploits' leak, it appears that some of those exploits had in fact been secret zero-day flaws. That raises the likelihood that the data was in fact stolen from NSA hackers—a view [increasingly held by security experts analyzing the data](#).

More broadly, it also raises new questions about the NSA practice of keeping zero days secret rather than reporting them to affected companies. “There’s always that delicate balance: how do they accomplish their mission, hack their adversaries, and still protect the rest of us?” asks Jeremiah Grossman, a prolific web security researcher and chief of security strategy at the firm SentinelOne. “The longer you haven’t reported it, the higher the likelihood it will eventually leak.”

Though the stolen cache of data contained dozens of exploits, many matching previously known NSA hacking techniques [referred to in documents leaked by Edward Snowden](#), Cisco has only [warned customers about two of them](#), and issued a patch for the more serious of the two that would allow attackers in some circumstances to take control of its network security appliances. Fortinet [warned customers](#) that another of those leaked exploits affected versions of its security equipment sold before 2012, and recommended they update their software.

A Cisco spokesperson confirmed that the NSA hadn’t previously reported the vulnerability the company is now patching. Given that the data stolen by Shadow Brokers appears to be three years old, that could mean the NSA may have used the hacking technique in secret for years—and possibly allowed it to fall into the hands of its adversaries for just as long.

Grossman argues that demonstrates the need for a more public debate over when the NSA should hoard zero days and when it should disclose them to vendors in order to improve the overall security of the internet. “I think they should be encouraged to have zero days at their disposal to accomplish their mission,” says Grossman. “But they should have a well-defined time after which they need to release them so we can properly defend ourselves.”

NSA Director Michael Rogers said in late 2014 that the NSA reports the majority of the vulnerabilities it finds. “By orders of magnitude, the greatest numbers of vulnerabilities we find, we share,” he told an audience at Stanford University. Not long after, National Security Council cybersecurity coordinator and Obama adviser Michael Daniel [told WIRED](#) that “there’s often this image that the government has spent a lot of time and effort to discover vulnerabilities that we’ve stockpiled in huge numbers....The reality is just not nearly as stark or as interesting.”

But the Shadow Brokers’ leak appears to be evidence of just that sort of zero-day stockpile, albeit of an unknown size. And the fact that it may have been compromised for years adds more fuel to criticism of the NSA. As Berkeley security researcher Nicholas Weaver wrote on Twitter, “If the NSA discovered [this] breach in 2013 and never told Cisco/Fortinet, this is VERY BAD. If they didn’t know, this is VERY BAD.” ACLU lead technologist Chris Soghoian went so far as to suggest the incident will lead to a congressional investigation:

The Electronic Frontier Foundation’s Andrew Crocker, who has [investigated the federal government’s policies about its collection and use of zero days](#), was wary of commenting before more facts about the source and nature of the Shadow Brokers breach could be confirmed. But he reiterated that “there needs to be a public conversation about whether to retain or disclose vulnerabilities.”

For Cisco, the incident may represent an unpleasant flashback to 2014, when [Edward Snowden's leaks revealed that the NSA was intercepting shipments of its equipment to install spyware](#). Then-CEO John Chambers wrote a letter to Obama at the time, arguing that the NSA's practices had compromised his business. "We simply cannot operate this way," Chambers wrote. "We need standards of conduct...to ensure that appropriate safeguards exist that serve national security objectives, while at the same time meet the needs of global commerce."

The Obama administration, for its part, [told the New York Times in 2014](#) that it ordered the NSA to disclose the security flaws it discovers in computer systems in most cases, but to hold those flaws in secret when they can be used to serve "a clear national security or law enforcement need." And Dave Aitel, a former NSA analyst who now runs the security firm ImmunitySec, contends that the sort of exploits exposed in the Shadow Brokers breach do hold exactly that sort of national security value. "Remote access on Cisco [equipment] sounds like it has national-security-level value to me," says Aitel, who has [posited in a blog post](#) that the data was in fact stolen from the NSA and that the Shadow Brokers group was likely Russian. "We don't know what valuable intelligence was gathered through the use of this technology, but you can be assured it was worth spending the time to create it. When you have 300 megabytes of code that's this carefully crafted, you didn't do that for fun."

Aitel argues that as controversial as it may be, the NSA needs exactly these sorts of secret network exploitation capabilities to do its job. "Imagine if you didn't have any Cisco exploits," he says. "You'd be unable to report on terrorist movements, on Russian and Chinese movements....This is the necessary bread and butter of getting intelligence work done in this day and age. We need to get used to it."

[\[WSJ\] Security Experts Say NSA-Linked Hacking Effort Was Itself Compromised](#)

Robert Mcmillan

17 August 2016

<http://www.wsj.com/articles/security-experts-say-nsa-linked-hacking-effort-was-itself-compromised-1471458035?mod=LS1>

Evidence is mounting that a mysterious hacking group claiming to have stolen data from a spying operation linked to the National Security Agency is telling the truth.

Security vendor Kaspersky Labs ZAO, which first identified the NSA-linked operation last year, said files released in the latest hack use an unusual mathematical approach it had seen in that operation's code. Kaspersky dubbed the operation the Equation Group, and said it appeared to be supporting U.S. interests in cyberspace.

The new files were released last weekend by a hacking group calling itself the Shadow Brokers, which [claims to have a bigger cache of files it is offering to sell](#). They appear to be attack code that targets security software on routers that direct computer traffic around the internet.

"This code similarity makes us believe with a high degree of confidence that the tools from the Shadow Brokers leak are related to the malware from the Equation Group," Kaspersky said in a [blog post](#).

Two former NSA employees said the code published by the Shadow Brokers looked authentic.

Security analysts, meanwhile, said several attacks that appear in the files can in fact alter how internet routers handle certain traffic.

None of the code appears to be of the high-value type that could command the millions of dollars that the Shadow Brokers are seeking, said Pedram Amini, chief technology officer of computer-security firm InQuest LLC. He estimated the most significant attacks, targeting products built by [Cisco Systems](#) Inc., would fetch “tens of thousands of dollars” in the attack-code market.

On Wednesday, Cisco confirmed that the Shadow Broker code took advantage of a bug in its software that wasn’t publicly known, along with a second bug that it had patched in 2011. [Fortinet](#) Inc., another router maker identified in the attack code, confirmed that the Shadow Broker code could be used to attack versions of its products that were built in 2012 and earlier.

A third router maker, [Juniper Networks](#) Inc. didn’t reply to requests for comment.

The developments add to a murky and sometimes bewildering affair. The previously unknown Shadow Brokers released an encrypted version of files that it said contain hacking tools, pledging to disclose the password that would unlock them for free to the world if they raised 1 million bitcoins, or close to \$600 million, in an online auction.

Nicholas Weaver, a researcher with the International Computer Science Institute who also has examined the files, said they appear to be legitimate NSA attack code that was copied in mid-2013. Some of the files dated months after former NSA contractor [Edward Snowden](#) disclosed classified data that he had removed from the NSA.

“Right now, I’d imagine that the folks at NSA are having rather unpleasant conversations about what the other encrypted file might contain,” [Mr. Weaver wrote](#) in a blog post on Tuesday.

Mr. Weaver doesn’t know who is behind the attacks. Like other U.S. security experts, he said he believes that entities related to the Russian government are likely suspects, amid allegations that Russian hackers had compromised servers belonging to the Democratic National Committee and other organizations.

Susan Hennessey, a Brookings Institution fellow and former lawyer for the NSA, said a nation-state might be involved in the Shadow Brokers breach and might be signaling the U.S. to be careful about accusing foreign countries of cyberattacks. “It also has the significance of potentially warning the United States that attribution is also available against them,” she said.

Kaspersky, which didn’t explicitly link the Equation Group to the NSA, declined to comment beyond its blog post. The NSA didn’t respond to requests for comment on the hacking group’s claims, nor did the Shadow Brokers respond to messages.

The Kaspersky analysis sheds some light on the situation, but leaves many unanswered questions, including the identity of the Shadow Brokers and what information the group actually has.

Former NSA employees interviewed by The Wall Street Journal said it is extremely unlikely the attackers were able to access the full catalog of NSA attack code. Some experts, including Mr. Snowden, have said the Shadow Brokers may have accessed a “staging server” that was used for a time by the Equation Group and wasn’t properly scrubbed of information.

“NSA malware staging servers getting hacked by a rival is not new,” Mr. Snowden said via Twitter on Tuesday. “A rival publicly demonstrating they have done so is.”

Spectrum

[Multichannel News] Spectrum Auction Bids Reach \$9.7B After Round Three

John Eggerton 17 August 2016

<http://www.multichannel.com/news/distribution/spectrum-auction-bids-reach-97b-after-round-three/407106>

With round three under its belt, the forward portion of the FCC's spectrum incentive auction has now generated \$9,700,723,000 in bids.

Actually, net of discounts and bidding credits to eligible entities including minority and women-owned businesses, the figure is \$9,210,000,000.

The FCC will need at least \$88,379,558,704 to cover the cost of (1) paying broadcasters for their 126 MHz worth of spectrum; (2) paying them to move off that spectrum; and (3) paying for the auction itself. The bidding also has to meet certain price benchmarks in the top 40 PEAs if the FCC is to close the auction.

The round three total is up about \$660 million **over round two**, when \$9,038,042,000 was bid (net \$8,570,000) for the formerly broadcast spectrum, offered in 416 partial economic areas, or PEAs.

It is a marathon, not a sprint, and the auction is expected to take up to several months before the FCC knows whether it can cover that figure or will have to lower its spectrum sights to 114 MHz and resume the reverse portion of the auction. The FCC designed the auction for multiple spectrum clearing targets if the first is not met.

Currently the FCC is conducting two rounds per day of two hours apiece, 10-12 a.m. and 2-4 p.m., but that number could be increased and the length shortened as the auction progresses as a way to speed the bidding process.

5G

[PCWorld] AT&T wants big mobile players to form a 5G dream team

Stephen Lawson 17 August 2016

<http://www.pcworld.com/article/3109055/att-wants-big-mobile-players-to-form-a-5g-dream-team.html>

There are many possible ways to build what 5G is supposed to deliver, but only one standard. To avoid putting money and effort into technologies that don't make the cut, the big mobile players want to get others on their side.

AT&T is hoping to collaborate with a set of carriers and equipment vendors that's so broad and powerful it might be unstoppable. On Wednesday, the company said it's having preliminary discussions with an A-list lineup of players to align their efforts on defining the future standard.

The names include Ericsson, Nokia, Huawei Technologies, Qualcomm Technologies, Intel, Samsung, and LG. AT&T also wants to pull in some big carriers, including China Mobile, Deutsche Telekom, KDDI, NTT DoCoMo, Telstra, and Vodafone. One name notably missing from the list on AT&T's press release was archrival Verizon, which itself is running trials of potential 5G technologies.

The 3GPP industry group will define the 5G standard, which is expected to go into commercial use in 2020 but would have to be locked down a bit earlier to make that target. AT&T and other carriers, along with equipment makers, have already started trials of technologies they want to see in the standard.

"Interim and fragmented pre-standard specifications can distract from the ultimate goal," Tom Keathley, AT&T's senior vice president for wireless network architecture and design, said in a press release. "Linking trials to the standards process is the fastest path to large-scale global 5G deployment."

Among other things, 5G is expected to help millions of IoT devices reach the cloud, give consumers gigabit speeds on their smartphones, and let moving vehicles communicate with almost no delays. But all those features probably won't arrive at the same time in 2020. Analysts expect carriers to roll out 5G strategically where it's needed, relying on LTE to make most ordinary connections for a long time.

Early alignment of big mobile operators in the U.S., Japan, and Korea should help speed up the development of 5G, said independent mobile industry analyst Chetan Sharma. Carriers' first focus seems to be fixed wireless access, an alternative to fiber for home broadband. Over time, the operators are likely to use 5G where they see the potential to bring in more money per gigabyte of data delivered, he said.

[PC Magazine] [Intel Plans 5G Trials in 2018, Commercial Deployment in 2020](#)

Tom Brant 17 August 2016

<http://www.pcmag.com/news/347093/intel-plans-5g-trials-in-2018-commercial-deployment-in-2020>

Intel is staking much of its immediate future on 5G wireless technologies and the Internet of Things (IoT). At the Intel Developer Forum in San Francisco this week, it showed off its latest efforts, including a new compute module called Joule that Intel customers will put to work inspecting aircraft, monitoring pedestrians, and more.

Unlike 4G LTE's massive speed gains over 3G, 5G is a catch-all moniker for a number of different technologies, many of which will be more intelligent, but not necessarily faster than its predecessor. 5G is widely seen as critical to IoT, but Intel has been relatively slow to the 5G game: several of its competitors in the mobile processor market, including Qualcomm, have been [conducting field trials](#) with wireless carriers for months.

But Intel has repeatedly said it is committed to 5G and IoT, in no small part because its most valuable customers are demanding that commitment. It will begin 5G trials in 2018, and plans commercial deployment by 2020. Although Joule is a current-generation product and thus doesn't have 5G capabilities, it offers a hint of what an IoT future will bring, once the wireless specifications catch up.

Joule is tiny, about the size of two quarters placed side by side. There's impressive power in that small package, though: a 64-bit, 1.5GHz quad-core Atom processor, 3GB of RAM, and 8GB eMMC memory. Joule also has Bluetooth 4.1 and an 802.11ac Wi-Fi radio with MIMO, though it's lacking cellular connectivity.

Those specs, in addition to integration with Intel's RealSense camera, make it and similar devices attractive for industrial applications. Without getting into specifics, General Electric CEO Jeffrey Immelt joined his Intel counterpart Brian Krzanich on stage at IDF to explain that Intel's IoT devices will "drive productivity" for GE's engineers in connected factories.

But other developers—Intel said there were nearly 6,000 of them in attendance at IDF this year, a new record—offered more concrete examples. Firefighters' health will be monitored remotely as they battle backdrafts. Aircraft inspectors will wear connected VR glasses to help them diagnose problems without consulting paper manuals. Food truck companies could plan where they go based on which food is popular in a given neighborhood. There's even [Grush](#), a Bluetooth-enabled, motion-sensing toothbrush that will go on sale this year, using interactive mobile games to guide kids' brushing and lets parents track the results.

"The shift to 5G will be as profound as the shift from analog to digital," said Murthy Renduchintala, Intel's IoT president. His comments echoed those made earlier this year by his colleague, Aicha Evans, who heads up the company's mobile chip division. "5G is not just a faster connection," she [said](#) during a media briefing in February. "It's going to require us to take into consideration spectrum availability. We waste a lot of our resources today. In some cases, we don't need the speed."

Indeed, Intel expects that the billions of IoT devices that will pop up by early next decade will demand bandwidth unfathomable by today's standards. By 2020, each person will generate 1.5GB of Web traffic per day, Krzanich said, while a typical self-driving car will generate 4TB per day. Intel engineering fellow Ken Stewart estimated that a typical connected city of the future will just under 10,000 IoT devices per square mile.

All that traffic, if not managed properly, could cause major bottlenecks, some of which could endanger safety, at least as far as self-driving cars and firefighting are concerned. They won't all be Intel devices, of course. But if Intel delivers on the promises it has made to developers at IDF, they can count its corner of the IoT market being both fast and smart, even if Intel delivers them years after some of its competitors.

Zero-Rating

[\[The Hill\] Wireless trade group defends free data plans](#)

David McCabe

17 August 2016

<http://thehill.com/policy/technology/291775-wireless-trade-group-defends-free-data-offerings>

A major wireless trade group is mounting a defense of “zero-rating,” the practice of giving free mobile data to consumers who use certain services or applications.

The group, CTIA, on Wednesday unveiled [a new study](#) they funded that argues regulators would be wrong to limit those offerings.

“Proposals to ban or severely restrict the use of data caps or free data plans would essentially amount to the imposition of a form of price regulation on a well-functioning competitively vibrant industry, and would do more harm than good,” wrote Northwestern University Professor William P. Rogerson, who served as the Federal Communications Commission’s top economist in the late 1990s.

The programs in question allow wireless customers to access certain content — a streaming video or an advertisement, for example — without it counting against their monthly allotment of data. Critics of the programs say they violate net neutrality, or the principle that all content on the web should be treated in the same way.

Despite the criticism, the programs have expanded. T-Mobile offers free data to customers using certain music and video streaming services, and other carriers have tested “sponsored data” programs.

Rogerson argues in his paper that such programs improve access for customers and allow providers to use the mobile network more efficiently. He also says that the competition in the mobile broadband market renders net neutrality concerns partly moot.

CTIA seized on the study on Wednesday to make its case against regulatory intervention.

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“Let’s be clear: if regulators listen to those urging a ban of free data services, the government would be engaging in rate regulation, a point Rogerson makes plain,” [wrote Kevin Ryan](#), a senior adviser at the trade group. “Policymakers should allow free data services to continue to flourish.”

Last year, the FCC sent letters to several providers asking them about their zero-rating practices. It remains to be seen whether the FCC will act on what it’s learned from the probe.

“We’re not going to rush it,” said FCC Chairman Tom Wheeler this month, “but we are going to have a thoughtful inquiry and that we will be bringing forth the kinds of things that we have discovered in that process when we have completed that thoughtful inquiry.”

Privacy

[Ars Technica] [Internet tracking software maker to face wiretapping trial, court rules](#)

David Kravets

17 August 2016

<http://arstechnica.com/tech-policy/2016/08/internet-tracking-software-maker-to-face-wiretapping-trial-court-rules/>

A US federal appeals court says the maker of an online spying tool can be sued on accusations of wiretapping. The federal lawsuit was brought by a man whose e-mail and instant messages to a woman were captured by the husband of the woman. That husband used that data as a "battering ram" as part of his 2010 divorce proceedings.

It's the second time in a week that a federal court has ruled in a wiretapping case—in favor of a person whose online communications were intercepted without consent. The other ruling was against Google. A judge ruled that a person not using Gmail who sent e-mail to another person using Gmail had not consented to Gmail's automatic scanning of the e-mail for marketing purposes. Hence, Google [could be sued](#) (PDF) for alleged wiretapping violations.

For the moment, the two outcomes are a major victory for privacy. But the reasoning in the lawsuit against the makers of the [WebWatcher](#) spy program could have ramifications far beyond the privacy context—and it places liability on the producers of spyware tools.

In the case decided Tuesday, the 6th US Circuit Court of Appeals [ruled](#) (PDF) that Awareness Technologies, which markets WebWatcher, must face a wiretapping lawsuit from a man named Javier Luis because the data its software intercepts is stored on its servers.

"We conclude that Luis has indeed alleged enough facts to reasonably infer that Awareness intercepted his communications," Judge Ronald Gilman, of the three-judge appeals court, wrote for the 2-1 majority.

In dissent, Judge Alice Batchelder wrote that the technology company was not the one "intentionally doing the intercepting."

She said the case is a "novel theory of liability" which "does not appear even to have been tried, much less to have been successful, in any previous case."

Indeed, the appellate panel's decision reverses a 2014 lower court ruling in favor of Awareness Technologies. A trial judge ruled that Awareness was not responsible because any spying was done by the company's customers.

[\[The Hill\] Legislators privacy fight coincides with FCC complaint](#)

Ali Breland 17 August 2016

<http://thehill.com/policy/technology/291778-legislators-privacy-fight-coincides-with-fcc-complaint>

A [complaint against](#) the Baltimore Police Department filed by civil liberties groups could become part of a battle in Congress over privacy protections.

Several groups jointly [filed](#) the complaint to the Federal Communications Commission (FCC) over concerns that Baltimore police are using cellphone jamming technology, known as stingrays, that can collect location data from people's devices. The Center for Media Justice, Color Of Change and New America's Open Technology Institute allege that this is in violation of the Communications Act.

The fallout from the battle between these civil liberties groups and Baltimore police could fan the flames of a fight over privacy legislation that's already been happening in Congress, [reports Morning Consult](#).

Lawmakers such as Rep. Zoe Lofgren (D-Calif.) and Sen. [Ron Wyden](#) (D-Ore.) are pushing for policies that would require law enforcement officials to procure warrants before geo-tracking individuals with such technologies as stingray phone trackers or information from telecommunications companies.

“I’m going to continue to push my GPS Act, which would protect Americans’ liberty and end uncertainty for law enforcement,” Wyden told Morning Consult in reference to [S.237](#), a bill he sponsored along with Sens. [Dick Durbin](#) (D-Ill.) and [Mark Kirk](#) (R-Ill.).

Lofgren is sponsoring legislation in the House that would require police to have a warrant before obtaining geolocation data on cellphone users from telecommunications companies.

Though the complaint was filed to the FCC, the issue will ultimately have to be adjudicated through legislation.

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An FCC official told [Morning Consult](#) in a statement that agency doesn’t determine who gets to use the devices in question, but simply whether the devices meet their requirements for controlling radio interference. The FCC is still investigating the complaint, but a past [notice](#) would suggest that law enforcement doesn’t meet such requirements.

“We must closely evaluate any issue that has the potential to undermine the trust between the Baltimore City Police Department and the communities it serves,” Rep. Elijah Cummings, whose district extends into much of Baltimore, said in an emailed statement to Morning Consult.

“Right now, building that trust must be our top priority as we work toward successful police reform in Baltimore.”

Business/Market

[\[WSJ\] Legal Fight Escalates Over Tech Startup’s Financials](#)

Rolfe Winkler 18 August 2016

<http://www.wsj.com/articles/legal-fight-escalates-over-tech-startups-financials-1471512602>

A legal battle is escalating between software startup Domo Inc. and one of its former managers who is fighting the company for financial information.

Jay Biederman sued Domo in Delaware on Monday, three months after The Wall Street Journal chronicled his attempts to [obtain the startup’s financial statements](#) so he can estimate how much his shares in the company are worth.

The lawsuit follows two legal actions that Utah-based Domo filed against Mr. Biederman in June, the week after the Journal story ran: a complaint alleging defamation and breach of contract, and a demand for arbitration. The defamation complaint points to allegedly “disparaging posts about Domo” that Mr. Biederman put on his [Facebook](#) page before the Journal story ran. Domo, which was valued by investors at \$2 billion in March, claims in its complaint that the posts have harmed its business.

The dispute illustrates the challenges for small shareholders to gauge the health of private tech startups, which keep their financials concealed for competitive reasons. Many tech workers receive stock awards when they join fast-growing startups, and later question their shares' worth.

Mr. Biederman is invoking [section 220 of Delaware's corporate law](#), which can compel locally incorporated companies such as Domo to open up their books to shareholders.

Mr. Biederman's lawsuit says that after he asserted his rights under section 220, Domo "sought to muzzle" him by filing the litigation in Utah. Domo is based in Utah, but incorporated in Delaware.

A Domo spokeswoman says the company had asked Mr. Biederman to sign a nondisclosure agreement before providing financial records, but that he refused to do so. She said Domo won't comment further on pending litigation.

It is customary for private companies to ask shareholders to sign a nondisclosure agreement when they seek financial information.

Mr. Biederman's suit says Domo's lawyer sought to include "onerous provisions" in the confidentiality agreement that would deprive him of his stockholder rights. The Domo spokeswoman didn't comment on those provisions.

Robert Rice, a lawyer with Ray Quinney & Nebeker who is defending Mr. Biederman in Utah, said, "Mr. Biederman is doing everything humanly possible he can do to defend himself against Domo's claims."

The episode dates back to 2011 when Mr. Biederman was hired by Josh James, a friend from high school and Domo's founder and chief executive. Mr. Biederman alleges that Mr. James promised him a specific ownership percentage in the company, but after receiving his shares, the company declined to tell him what percentage the shares represented.

Mr. Biederman holds 64,166 Domo shares that would be worth \$540,919 at the \$8.43-per-share price where Domo sold stock to investors last year. But some mutual-fund investors have since marked down their Domo shares, according to The Wall Street Journal's [Startup Stock Tracker](#). [Morgan Stanley](#) said Domo shares were worth \$5.04 a share as of May.

In January 2015, according to the complaint, Mr. Biederman requested financial information to determine the value of his shares. His suit filed Monday states he was fired a few days later.

He again requested Domo's financials in January 2016. A Domo executive told him that shareholders aren't entitled to financial information since the company is privately held, according to an email attached as an exhibit to Mr. Biederman's suit.

Under Delaware corporate law, shareholders may receive their [company's financial data](#) whether the company is private or public, as long as they state a proper reason. Delaware lawyers say "valuing shares" is considered a valid reason.

The Journal reported on Mr. Biederman's efforts in late May. A week later, Domo filed a complaint in Utah state court alleging "defamation" and that Mr. Biederman violated his separation agreement with the company, according to a copy of the complaint reviewed by the Journal. Separately, Domo filed an arbitration demand seeking \$300,000 in damages.

Domo's Utah complaint points to articles Mr. Biederman posted on Facebook before the Journal's story. In one post, Mr. Biederman linked to an article titled, "Time for adult supervision at Domo?" Domo claimed the article "discourages customers" from using Domo's services and that Mr. Biederman's posts have had a "chilling effect" on its relationship with customers, employees and investors. The complaint also claims Mr. Biederman contributed to news articles that have disparaged the company, but doesn't cite stories that quote him and it didn't cite the Journal's article.

[Reuters] [As technology shifts more layoffs loom at tech companies](http://www.reuters.com/article/us-tech-layoffs-idUSKCN10T02R)

Malathi Nayak and Deborah Todd

17 August 2016

<http://www.reuters.com/article/us-tech-layoffs-idUSKCN10T02R>

Cisco Systems Inc's announcement on Wednesday that it plans to lay off 5,500 employees is unlikely to be the last round of Silicon Valley pink slips as hardware companies struggle to keep up with rapid technology shifts, analysts and recruiters said.

Companies that traditionally have made most of their money selling computers, chips, servers, routers and other equipment are especially vulnerable, analysts say, as mobile applications and cloud computing become increasingly important.

The Cisco layoffs come in the wake of Intel's announcement in April that it was laying off 12,000 workers. Dell Inc said in January it had shed 10,000 jobs and is expected to make further cuts after it closes a \$67 billion deal to acquire data storage company EMC Corp.

So far this year, technology companies in the United States have shed about 63,000 jobs, according to outplacement consultancy Challenger, Gray & Christmas, Inc.

"The hi-tech industry is going through a serious deconstruction," said Trip Chowdhry, an analyst at Global Equities Research. "There is more pain to come."

Chowdhry said he expects job cuts to rise drastically as more companies subscribe to "super cloud" services from the likes of Amazon.com Inc and Microsoft Corp. These services manage hardware, software, networks and databases and eliminate the need for workers to manage various technology layers, Chowdhry said.

In January, Chowdhry estimated that layoffs in the tech industry would hit 330,000 this year. On Wednesday, he said he had raised his estimate to 370,000. Some other analysts said that forecast was too bleak.

IBM Corp, Hewlett Packard Enterprise Co, Oracle Corp and Dell Inc could be the next to shed workers, analysts said.

Hewlett Packard Enterprise, Dell and Oracle declined comment and IBM could not be immediately reached for comment.

'TREMORS OF CHANGE'

"Tech incumbents are all bracing for the tremors of change. said Glenn O'Donnell, an analyst at Forrester Research. "We fully expect a lot of collateral damage as this plays out - not just with Cisco."

Cisco and other old-guard technology companies have been pursuing a challenging shift to software-oriented services. Margins in software services are higher than hardware because they bring recurring revenue and there are "fewer people involved on the cost side," said Roger Kay, an analyst at Endpoint Technologies Associates.

That could mean more job cuts. Silicon Valley job recruiters offered mixed views about the fate of hardware engineers laid off at Cisco and other tech firms.

"Nobody wants to be laid off but if job elimination is going to happen, 2016 is not a bad time for it to happen," said John Reed, Senior Executive Director of the tech recruitment firm Robert Half Technologies.

Still, recruiters said, hardware engineers may need to be flexible and willing to retrain if they want to find work.

"Nobody wants hardware designers and engineers," said Andy Price of executive search firm SPMB. "There was a moment in time when devices were hot and (action-camera maker) GoPro made everyone excited about devices, but a lot of those types of companies died on the vine."

Currently, he said, "hardware engineers are probably the least attractive skill set imaginable in the Valley."

(Reporting by Malathi Nayak in New York and Deborah Todd in San Francisco; Editing by Eric Effron and Bernard Orr)

[\[The Hill\] Cisco to lay off thousands of workers](#)

Ali Breland 17 August 2016

<http://thehill.com/policy/technology/291733-cisco-to-lay-off-thousands-of-workers>

Each giant Cisco is laying off some 10,000 employees, the latest in a series of major staff cuts over the last several years.

The company is implementing a plan to cut costs by 15 percent, TechCrunch [reports](#), and is planning to lay off 10,000 workers. Trade publication [CRN](#) puts the layoff figure at closer 14,000. Cisco currently employs roughly 73,000 people, according to data compiled by Bloomberg.

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The networking company has previously used the end of the fiscal year in the late summer to announce layoffs. Cisco laid off significant portions of its workforce in late July or August of 2011, 2013 and 2014.

The layoffs come amid solid stock performance, with Cisco shares hitting a three-month high of \$31.23 prior to the news of downsizing. The company also has more than \$63 billion in cash, which it has been using to [make acquisitions](#), has no significant debt in relation to its total assets and appears to not be having any large financial problems.

CRN reports that the layoffs are likely due to Cisco's pivoted focus to software and cloud-based computing, which requires fewer employees. Many of Cisco's recent acquisitions are in these areas.

[\[WSJ\] Cisco Plans to Cut 5,500 Workers](#)

Don Clark

17 August 2016

<http://www.wsj.com/articles/cisco-announces-plans-to-cut-5-500-workers-1471465487?mod=LS1>

[Cisco Systems](#) Inc. said it would shed 5,500 employees—7% of its workforce—in the networking company's latest reaction to a shift in its core market from hardware to software.

The planned reduction renews a pattern of midsummer moves to reduce costs and make room to hire employees with new talents.

Cisco's announcement along with its fourth-fiscal quarter earnings marks the most dramatic response yet to market changes by Chief Executive Chuck Robbins, who a year ago assumed the position held for two decades by [John Chambers](#), who remains chairman.

The company said it expects to reinvest all of its cost savings from the job cuts into what it called "key priority areas." The layoffs will begin in the current quarter. Cisco also said in a regulatory filing that it expects to rack up pretax charges of up to \$700 million for severance and termination benefits.

Cisco, based in San Jose, Calif., has long supplied a dominant share of the routing and switching equipment used to funnel data over the internet and between computers in data centers. Though the company has diversified its business significantly, those two hardware classes remain its largest sources of revenue and have been slowing lately.

On Wednesday, Cisco said fourth-quarter switching revenue rose 2%, while revenue in its routing business fell 6%. In May, the company had said third-quarter switching revenue fell 3% and routing revenue fell 5%.

Over all, Cisco said its fiscal fourth-quarter profit rose 21% despite a 1.6% decrease in revenue. Shares of the company fell 0.9% to \$30.45 in after-hours trading.

One major headwind has been slowing hardware spending by communications carriers, which have been struggling to hold down costs while handling steadily increasing data traffic. In many cases, they are adopting a combination of networking software and less-expensive boxes running standard [Intel](#) Corp. microprocessor chips instead of special-purpose hardware that is Cisco's specialty.

One poster child for the trend is [AT&T](#) Inc., which has said software-based approaches can allow the carrier to deploy services and respond to market changes faster than using standard hardware. John Donovan, its chief strategy officer and group president, appeared on stage in San Francisco Wednesday with Diane Bryant, an Intel executive vice president, to discuss plans to broaden the companies' technical collaboration.

The software-based approach in the future "won't be an afterthought," Mr. Donovan said. "It will be the fabric."

Cisco has acknowledged the trend and now allows customers to more easily program its hardware, an approach the company said has taken hold. But that software only works on Cisco equipment; many

backers of what the industry calls software-defined networking favor programs that can work on equipment from multiple vendors.

The company has also been working on more offerings delivered as services, including forms of conferencing and collaboration.

Analysts note that hardware companies that make such changes can ultimately become more profitable and develop recurring sources of revenue. But turmoil tends to result in the short term, as equipment sales slow and companies require different talents from employees.

“It is a tectonic shift for a company of that type,” said Glenn O’Donnell, an analyst at Forrester Research. “But it’s also necessary.”

Cisco has frequently used the start of new fiscal years in August to announce job reductions. In August 2014, for example, Mr. Chambers announced plans to shed about 6,000 employees, or 8% of its workforce at the time. The prior year, the cuts totaled 4,000 jobs, or 5% of its workforce.

Cisco reported fourth-quarter net income of \$2.81 billion, or 56 cents a share, compared with profit in the year-earlier period of \$2.32 billion, or 45 cents per share. Revenue fell to \$12.64 billion from \$12.84 billion.

The company also said first-quarter revenue would land between a decline of 1% to an increase of 1%, and it predicted adjusted earnings per share of 58 cents to 60 cents. Analysts are calling for revenue to fall 2% and adjusted earnings of 60 cents.

[Washington Post] AT&T’s new data plans trade one overage penalty for another

Brian Fung 17 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/17/att-is-doing-away-with-override-fees-in-these-new-data-plans/>

One of the nation's biggest wireless carriers is rolling out a series of new data plans that change what's been a key part of the company's business for years.

Starting Sunday, AT&T will begin offering what it calls the Mobile Share Advantage plan, which eliminates the pricey fees that consumers currently face if they go over their monthly data allotment. Instead of a financial penalty, customers who blow past their data caps under the new plans will be subject to much slower download speeds — 128 Kbps, or a fraction of what users have grown accustomed to in an era of ultrafast data.

It's an approach that's been taken previously by the likes of T-Mobile, and could help ease the anxiety many people feel about using too much data. In addition, AT&T said Wednesday that it will be changing what it charges for data. It's adding more options for people who use a moderate amount of data, adding price points for buckets of 3 GB, 6 GB and 10 GB. Compare that to today, where midrange consumers can choose only among 2 GB, 5 GB and 15 GB plans.

But the added choice comes with a tradeoff: With some of the new data buckets, you'll be paying more compared to AT&T's current options. For example, whereas \$30 will get you 2 GB of data today, it'll only

buy you 1 GB under Mobile Share Advantage. AT&T is clearly trying to push people to buy bigger data plans, where the cost-per-gigabyte comes down the higher you go. Check out the new price structure in the screenshot to the right.

[\[WSJ\] AT&T Raises Prices for Low-Data Users, Lowers Rates for High-Data Plans](#)

Drew Fitzgerald

17 August 2016

http://www.wsj.com/articles/at-t-raises-prices-for-low-data-users-lowers-rates-for-high-data-plans-1471458464?mod=WSJ_TechWSJD_NeedToKnow

[AT&T](#) Inc. on Wednesday introduced a new slate of wireless plans that raised prices for its most frugal customers, while lowering costs for its biggest data users.

The company's new mobile share advantage plan also will eliminate overage fees, opting instead to slow wireless speeds for customers who have topped their monthly data allowances. That move follows the model used by discounters [T-Mobile US](#) Inc. and [Sprint](#) Corp., which have dropped overage charges. [Verizon Communications](#) Inc. charges its subscribers [a fee to avoid such charges](#).

"The carriers have all conceded that overage charges probably aren't the answer," said Craig Moffett, senior analyst at research firm MoffettNathanson. "Overage charges trigger calls into customer service, more unhappy customers and ultimately more churn."

AT&T's price change, its first since last year, follows a similar step by rival Verizon Communications Inc. which raised prices in July for each of its plans while also increasing the data allowances. And it comes amid signs that the aggressive discounting the nation's biggest carriers have been using in recent years is slowing down.

Under the changes, AT&T's lowest-tier data plans now will cost \$10 more a month but offer more data. For instance, its cheapest plan will cost customers \$30 a month with one gigabyte of data, compared with \$20 a month for 300 megabytes of data previously.

That contrasts with its bigger data plans for which prices have come down substantially. A 30-gigabyte plan now costs \$135 a month, down from \$225. And its new plan prices are now more comparable to Verizon's revised rates.

AT&T also lowered some activation fees by charging most subscribers \$20 a month for having a smartphone connected to the system.

AT&T spokeswoman Emily Edmonds said customers of AT&T's most popular 15-gigabyte plan now will pay less. Customers also can keep their old plans if they wish. The new rates will be available on Aug. 21. Its new pricing is now more comparable with Verizon's revised rates.

Some U.S. wireless companies have [hinted at possible price increases](#) after years of rate cuts that have eaten into profits. But the expected release later this year of a new iPhone model from [Apple](#) Inc. could complicate that effort if wireless companies feel the need to offer deeper promotions to get customers to upgrade their handsets.

[NY Times] Pinterest Follows Rivals Into Selling Video Ads

Sapna Mahweshwari

17 August 2016

<http://www.nytimes.com/2016/08/18/business/media/pinterest-follows-rivals-into-selling-video-ads.html?ref=technology&r=0>

Pinterest is finally taking the plunge that many other tech companies already have: It has started selling video advertising.

Video ads from brands like Kate Spade and bareMinerals will start appearing in the virtual scrapbook-like Pinterest feed on Wednesday and into the coming weeks, and Pinterest is hopeful that ads from other brands will soon follow.

The new ads will show up in a silent, GIF-like format within Pinterest's feed, and will play with sound once clicked. Users will be able to click images, or pins, of featured products next to the videos. That could, for instance, bring them to a brand's website or allow them to buy the product without leaving Pinterest.

The move puts the social-bookmarking site in competition with the likes of Facebook, Twitter and Snapchat, as well as large digital publishers, which are all vying for the increasingly large amounts of marketers' digital ad dollars.

Over the last two years, Facebook and Twitter have been [vocal](#) about their investments in video advertising technology, a space where Google's YouTube has long been dominant. Video ads often command a premium over other forms of online advertising, and also give social networks a chance to capture money from marketing budgets once earmarked for television.

Pinterest allows people to save links to images and videos, known as pins, to aesthetically pleasing virtual bulletin boards, and to follow the boards created by others. It has become a popular destination for consumers looking to [buy goods](#), particularly in areas like home improvement and cooking, and for the brands looking to reach them. Pinterest says 75 percent of the content people consume on its site comes from businesses.

Pinterest, which says it has more than [100 million visitors a month](#), has largely been absent from conversations about videos, even as such content has boomed in popularity on its site. The company said it had seen a 60 percent increase in the number of videos saved by users in the last year.

Last year, Etsy was the website with the greatest number of links from Pinterest's Save button. Now, it is YouTube.

"Candidly, the company just in general has underinvested until now in video as a platform," Jon Kaplan, the head of global sales at Pinterest, said in an interview. "We wanted to make sure it was customized and specific to the way people use our platform. What you're going to see going forward is a very big investment in video."

Pinterest will most likely benefit from some brands that are turning away from TV, he said.

BareMinerals, a makeup brand, will promote a new foundation on Pinterest with a video tutorial. Because the product is geared toward millennials, the brand decided to spend less on TV for the campaign, said Rebecca Boston, global director of social marketing for bareMinerals.

“Talking to advertisers, there’s an insatiable demand for video inventory,” Mr. Kaplan of Pinterest said. “The viewership of TV is something that’s of concern to them. That viewership is going down, ratings are going down, and they need to find places to accomplish their business objectives where people are spending their actual time.”

Ms. Boston added: “While it does have TV, we are investing more of a percentage of our marketing budget in digital and mobile because that’s where the millennial is spending her time. She’s not watching as much TV as she used to.”

[\[WSJ\] India’s Ola Lays Off Workers Amid Growing Competition From Uber](#)

Newley Purnell 17 August 2016

http://www.wsj.com/articles/indias-ola-lays-off-workers-amid-growing-competition-from-uber-1471464955?mod=WSJ_TechWSJD_moreTopStories

NEW DELHI—ANI Technologies Pvt.’s ride-hailing service Ola is laying off hundreds of workers at a fellow Indian operator it bought last year, a sign of possible consolidation amid increased competition in the country from Uber Technologies Inc.

Bangalore-based Ola last year acquired Serendipity Infolab Pvt.’s TaxiForSure for \$200 million in cash and stock, saying the two companies would continue to operate separately. Ola said at the time that it would retain TaxiForSure’s 1,700 employees.

Ola, which was valued at \$5 billion in a fundraising round last year and operates in 102 Indian cities, said in a statement Wednesday that it had brought TaxiForSure’s drivers and customers into its fold and used its offerings to launch Ola’s low-cost automobile service.

It didn’t disclose the number of TaxiForSure staff being laid off as a result of the move. A person familiar with the matter put the number at “about 300.”

The move comes as Uber now focuses on hiring more engineers in India and enhancing its mapping capabilities as it steps up efforts in the world’s second-most-populous country.

Earlier this month, Uber said it was giving up its expensive battle for China, swapping its operations there for a minority stake in the country’s homegrown champion, Didi Chuxing Technology Co.

Uber, valued at about \$68 billion, operates in 27 Indian cities, providing various motorbike and private car services.

India represents a huge growth opportunity for technology startups since many of the country’s 1.3 billion people are now getting online for the first time.

[\[Washington Post\] Why is the iPad Pro a ‘computer’? Because Apple’s courting the business market.](#)

Haley Tsukayama 17 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/17/why-is-the-ipad-pro-a-computer-because-apples-courting-the-business-market/>

Apple, it seems, would like to see more tablets in briefcases next year. A new report from [MacRumors](#) cites noted Apple analyst Ming Chi-Kuo, who says there will be three new iPad models in 2017 — including a brand-new iPad Pro.

The iPad Pro is an interesting device, introduced last year as something more than a tablet, though a bit less than a laptop. What do you call such a thing? Apple's currently making the case that the iPad Pro, which supports a keyboard and a stylus, is a "computer."

There's a good reason to sell the iPad Pro as a "computer" rather than a tablet. Tablets aren't selling nearly as well as they used to be. And while computers are also in a sales slump, there is growth in the ["detachables" category](#) — devices that blend the tablet and the traditional laptop and have, well, a detachable keyboard. Casting the iPad Pro this way is important to Apple to catch the eye of businesses and business people, who may want something light but still functional for work.

It is a bit of a departure from Apple's past. Steve Jobs, Apple's co-founder, famously disliked courting businesses. Per [ZDNet](#), in 2010, Jobs told then-Wall Street Journal writers Walt Mossberg and Kara Swisher:

"What I love about the consumer market, that I always hated about the enterprise market, is that we come up with a product, we try to tell everybody about it, and every person votes for themselves. They go 'yes' or 'no,' and if enough of them say 'yes,' we get to come to work tomorrow. That's how it works. It's really simple. With the enterprise market, it's not so simple. The people that use the products don't decide for themselves, and the people that make those decisions sometimes are confused."

Given that Jobs created Apple to make personal computers — a [counter](#) to the computing grip IBM and Microsoft had on offices — his disdain for the sector makes sense.

But the business market has changed in ways that blunt Jobs's old criticisms. He didn't like that enterprise devices weren't personal; that's no longer the case in a BYOD world. Even when there's a set list of devices approved by a workplace, it almost always includes an iPhone, an iPad or at least some iOS-friendly apps.

And businesses are a great market for the tablet and the "post-PC" vision that Jobs envisioned with the introduction of the iPad. With a [more mobile workforce](#), the iPad and the iPad Pro — along with the Microsoft Surface Pro 4 and other 2-in-1 devices — make a lot of sense for moving from hotel room to living room to board room.

It must also be said that the enterprise market isn't the only that's changed since Jobs vocally dismissed the sector. Apple has, too.

Chief executive Tim Cook has made enterprise a key focus for Apple. And while some consumer enthusiasm for Apple's products has ebbed — Target reported its [Apple sales were down 20 percent](#) across the board this quarter — businesses are still buying enough to make Apple's enterprise play a \$25 billion business.

In his [recent interview with The Washington Post's Jena McGregor](#), Cook specifically highlighted Apple's enterprise market saying:

We're collaborating much better with key partners because it's important, if you're making a decision to use our products or anybody's products in the enterprise, that they work well together. And so we're working with Cisco because they're incredible with the network infrastructure. We're working with IBM, who's written a number of apps. We're working with SAP because they own the back of the house, in terms of the processing. They own three-quarters of the world's transactions, in terms of it running on their products.

This is an area, of course, that could fire up old rivalries — in fact, Microsoft has already released a commercial calling Apple's "computer" claim into question and comparing the iPad Pro unfavorably to its own Surface Pro 4.

The commercial raises some good points. The iPad Pro is still functionally a mobile device and lacks features such as multiple ports that traditional "computers" (and, of course the Surface Pro 4) do have.

Then again, Apple has a line of laptops that only have one port, so there's really no hard and fast definition of "computer"— and Apple's clearly working hard to stretch the definition enough to fit the iPad Pro under the umbrella.

[\[WSJ\] Broadcom Nearing Deal to Settle Lawsuit Over 2014 PLX Technology Takeover](#)

Liz Hoffman

17 August 2016

http://www.wsj.com/articles/broadcom-nearing-deal-to-settle-lawsuit-over-2014-plx-technology-takeover-1471459279?mod=WSJ_TechWSJD_moreTopStories

[Broadcom](#) Ltd. is nearing a deal to settle a shareholder lawsuit accusing it of underpaying in a 2014 takeover of PLX Technology Inc., according to people familiar with the matter, a case that also leveled allegations of conflicts of interest at PLX's bankers.

Avago Technologies Ltd., a predecessor of Broadcom, [bought PLX for about \\$300 million](#). Some shareholders sued, alleging the price was too low and the process was tainted, which are typical allegations in the wake of a buyout.

The investors also accused [Deutsche Bank](#) AG, which advised PLX, of brokering a lowball sale to curry favor with Avago, a longtime client of the bank and a voracious acquirer. Avago had paid Deutsche about \$56 million in fees over the previous few years, more than 10 times what the bank made advising PLX on the sale, according to a court filing.

Under the agreement, which hasn't yet been completed and could change or fall apart, Broadcom would pay \$14 million to former PLX investors, the people said.

Some of that is attributable to claims against Deutsche Bank, the people said, though Broadcom would pay some of that on Deutsche Bank's behalf under terms of the bank's engagement letter. Deutsche Bank received a \$4.3 million fee on the deal.

Neither PLX's directors nor Deutsche Bank are expected to admit wrongdoing, people familiar with the matter said. A spokeswoman for the bank declined to comment.

A spokesman for Broadcom declined to comment. Avago earlier this year [acquired Broadcom](#), the California-based microchip giant, and took its name.

Not resolved by the settlement are some claims against an activist investor who sat on PLX's board and pushed for the deal, the people said. The investor, Eric Singer, and his former fund, Potomac Capital Partners, have denied wrongdoing. Mr. Singer declined to comment through his attorney.

A crop of lawsuits over the past two years have accused bankers of giving conflicted advice or making errors that shortchanged investors. Some have settled for millions of dollars, including cases involving [Credit Suisse Group](#)AG and [Goldman Sachs Group](#) Inc.

The specter of lawsuits has influenced the metabolism of deal making, as lawyers play defense and bankers grapple with potential conflicts or the appearance of them.

The trend appears to have waned, part of an overall slowdown in merger-related lawsuits brought by investors, but a handful of earlier-filed cases are working their way through the courts. The PLX lawsuit was brought in July 2014 and had been headed toward a trial.

The plaintiffs accused Deutsche Bank of rigging the sales process in favor of Avago, a longtime client. Specifically, the plaintiffs said Deutsche Bank had reduced its financial projections for PLX to make Avago's \$6.50-a-share offer appear more fair.

In addition to receiving fees from Avago over the three years before the PLX deal, Deutsche Bank was a lender to Avago, and at the time of the negotiations, was advising Avago on its purchase of another chip maker, LSI Corp., an assignment for which it was ultimately paid \$30 million.

Deutsche Bank denied the allegations, though its case wasn't helped by an internal email that surfaced during litigation in which a senior banker said the sale of PLX, its client, had demonstrated the bank's "continued strong relationship with Avago."

The allegations mirror those settled in June by [Bank of America](#) Corp., whose Merrill Lynch unit agreed to pay \$28 million to settle a lawsuit over the sale of Websense. The plaintiffs alleged a conflict in the bank's simultaneous roles advising Websense and working for its buyer, private-equity firm Vista Equity Partners, on several other, potentially more lucrative assignments.

The thinking behind these cases is that bankers won't work as hard for a client that is selling itself if they are trying to win business from the buyer in the future.

Few such lawsuits have gone to trial, and most deal makers say it is unlikely that a bank would tank an assignment. Bankers are typically paid a percentage of the sales price, and securing a lofty valuation can help in marketing a bank's services to other clients.

Student Data

[\[Patch\] Fulton Schools Recognized For Protecting Student Privacy](#)

Kristal Dixon

17 August 2016

<http://patch.com/georgia/johnscreek/fulton-schools-recognized-protecting-student-privacy>

JOHNS CREEK, GA -- On Tuesday, the Fulton County School System received a new designation that recognizes its leadership in student privacy protection and data security.

Awarded by CoSN (the Consortium for School Networking), the Trusted Learning Environment Seal identifies school systems that demonstrate a commitment to ensuring the privacy and security of student data.

Only seven school systems nationwide received the TLE Seal during its inaugural year.

"Fulton County Schools is pleased to be named among the nation's top leaders in this important area," said Serena Sacks, the school system's chief information officer. "Our parents entrust their children's information to us daily, and we take our charge seriously to be responsible stewards of that data."

TLE Seal-designated districts were selected based on their effective practices for managing student privacy and data security, such as:

- Leadership, including managing and collaborating with stakeholders regarding the use and governance of student data to inform instruction.
- Business, including establishing acquisition vetting processes and contracts that, at minimum, address applicable compliance with laws while supporting innovation.
- Data Security, including performing regular audits of data privacy and security practices and publicly detailing these measures.
- Professional Development, including requiring school staff to conduct privacy and security training and offering related resources to all stakeholders in the community.
- Classroom, including implementing educational procedures and processes to ensure transparency while advancing curricular goals.

The designation was formed by CoSN using input from school system leaders and lead partners AASA, The School Superintendents Association; the Association of School Business Officials (ASBO); and ASCD. Their collective expertise and experiences pinpointed the steps school districts should take – beyond regulatory compliance – to ensure student data privacy and security.

"Fulton County Schools has built a culture of trust and transparency," said Keith Krueger, CEO of CoSN. "It continues to make these efforts every day while taking advantage of the benefits and promise of technology in modern learning settings."

Joining Fulton County Schools on the TLE Seal list are Butler County (AL) Schools, Cambridge (MA) Public Schools, Denver (CO) Public Schools, Lewisville (TX) Independent School District, Miami-Dade (FL) County Public Schools and Raytown (MO) Quality Schools.

The schools districts are required to maintain their commitment to digital privacy and reapply for the TLE Seal every two years.

CoSN is the premier professional association for school system technology leaders. The mission of CoSN is to empower educational leaders to leverage technology to realize engaging learning environments.

Big Data

[Chicago Tribune] U. of C. researchers use data to predict police misconduct

Ted Gregory

18 August 2016

<http://www.chicagotribune.com/news/ct-big-data-police-misconduct-met-20160816-story.html>

two Loop office buildings about eight blocks apart, a pair of University of Chicago research teams are analyzing big data to answer a thorny question that has become especially charged in recent months: Will a police officer have an adverse interaction with a citizen?

The team from the university's Crime Lab is in the first stages of working with the Chicago Police Department to build a predictive data program to improve the department's Early Intervention System, which is designed to determine if an officer is likely to engage in aggressive, improper conduct with a civilian.

The other team, part of U. of C.'s Center for Data Science & Public Policy, is expected to launch a data-driven pilot of an Early Intervention System with the Charlotte-Mecklenburg Police Department in North Carolina by the end of the summer. The center is working on similar efforts with the Los Angeles County sheriff's office and the Nashville and Knoxville police departments in Tennessee.

Data crunching has been used in policing since the late 1970s. But applying this level of big-data processing — similar to techniques that help determine email spam, a person's movie preferences or advertisements on a social media page — to predict police misconduct is new, experts say. In this foray, data scientists are encountering deep suspicion from officers concerned about the system's fairness and effectiveness. The new approach also raises the complex issue of what to do once the system predicts an officer is likely to misbehave.

The efforts come at a volatile time in Chicago and around the country. The Chicago Police Department is under a federal probe after last year's release of video showing an officer fatally shooting Laquan McDonald 16 times in October 2014. The release of another video earlier this month, from the scene of a July stolen car crash in which police fatally shot 18-year-old Paul O'Neal in the back, further roiled relations between the community and its police force.

Those incidents were followed by weekend rioting in Milwaukee after a police officer shot and killed a man who reportedly refused to drop his gun during a foot chase.

While the police misconduct application is one of the more controversial elements of this version of big-data processing, the researchers say their goal is broader.

"The thing we're finding is that using it (big data) to predict officer adverse incidents is just one use," said Rayid Ghani, director of the Center for Data Science & Public Policy and previously chief data scientist for President Barack Obama's 2012 campaign. "Inside police departments, they are doing a lot of other things — performance management, other safety things, training. This is easily extensible to all those things."

Jens Ludwig, director of the Crime Lab, added: "Ultimately the goal here is that you want to train and retain the very highest-quality police force that you can."

Lingering concerns

Most departments, including Charlotte-Mecklenburg, use a threshold system to determine if an officer is likely to have an adverse interaction with a citizen and needs intervention. That system typically flags an officer if he or she has been involved in multiple worrisome incidents — citizen complaints, vehicle accidents, on-the-job chases and injuries, or uses of excessive force — in a short time period.

The problem with threshold systems is that they place an inordinately high and inaccurate number of officers in the at-risk categories, while letting other officers in need of intervention slip by undetected, experts say.

The advantage of data-driven analysis is that it can take mounds of law enforcement information and look for patterns that lead to misconduct and those that lead to exemplary performance, supporters say.

Chicago police in 1994 became one of the first departments in the country to start a pilot Early Intervention System using data analysis. The software program, called BrainMaker, was started partly in response to police union criticism that the existing human supervisors were too arbitrary and subjective.

It was abandoned less than two years later amid Fraternal Order of Police contentions that the system was too intrusive, unable to accurately assess the nuance of police work and would set up an officer for punishment even though he or she had not misbehaved.

Those concerns linger to this day.

In Charlotte-Mecklenburg, which has a nonunionized department that serves a steadily growing, diverse region of more than 1 million, some officers are nervous about sharing extensive personal information with researchers, said Capt. Stella Patterson, who leads the department's professional standards unit. Those fears have eased somewhat after department administrators showed the officers that the information was made anonymous before turning it over to researchers, she added.

Other concerns by experts who have studied law enforcement for decades resemble earlier issues: An officer who is flagged as being at high-risk for an adverse interaction could be stigmatized and damaged professionally — before he or she has misbehaved, experts said.

"There's just kind of a discomfort for anybody who's involved in criminal justice about singling out and punishing people without basis of anything that they've done, but based on attributes that they have," said Locke Bowman, Northwestern University clinical law professor and one of the lawyers who successfully pushed for a special prosecutor in the McDonald shooting case.

Related to that is the question of what to do with the information suggesting an officer may be headed for an adverse interaction.

Finding effective interventions — such as additional training or counseling — is challenging, experts say. Those efforts are complicated by a lack of credible data on citizen complaints and what experts see as an inefficient process to adjudicate police officer discipline. Both are common problems in departments across the country, including CPD.

Tribune examinations of the department have found a police union contract that shields officers from scrutiny in exchange for the union's concession on pay. In addition, the city's police oversight agency, the Independent Police Review Authority, has been slow and often superficial in its investigations into alleged police abuse. When wrongdoing is confirmed, the agency often recommends light punishment, the Tribune has found.

Chicago police Superintendent Eddie Johnson has characterized the department's early warning system as "not effective." In a March interview with the Tribune, Johnson said part of the reason for its ineffectiveness "is because too many people had a hand in it." An excessive number of supervisors would review individual issues with an officer but often would be unaware of the officer's entire record, Johnson said.

"The mechanism we're putting into place is so there's a few supervisors that would review that, and then they'll see a pattern of behavior," he added.

On Wednesday, CPD spokesman Anthony Guglielmi said in an email that the new system will "spot problems before they exist and support police officers with training and peer-to-peer mentoring on the front end."

Context may help accuracy

Advocates of the data-driven approach agree that its success depends on reliable and extensive data. The quality of data is improving and the capacity for processing that legitimate data is rapidly becoming more sophisticated, supporters say.

In addition, the U. of C.'s data science teams have visited Charlotte-Mecklenburg police several times, participating in ride-alongs and officer focus groups seeking their input on what factors may predict an officer having an adverse interaction. Blending that context with the higher quality data processing has made the newer system even more accurate, U. of C.'s analysts say.

"There's a lot of human intuition in it," said Lauren Haynes, senior project manager at the Center for Data Science & Public Policy. She added that Charlotte-Mecklenburg officers who once were suspicious of the data program have welcomed the chance to share their perspective.

Early tests from modeling have yielded encouraging results. Compared with the Charlotte Police Department's existing threshold-based system, the Data Science & Public Policy system accurately flagged more officers who went on to have adverse interventions, Patterson said.

"That was an indication that we're going in the right direction," she said. She emphasized that the proposed system "is not punitive in any fashion. They're early warnings that alert us."

Guglielmi also stressed the new system's "nonpunitive" structure would be "based on industry best practices."

Researchers from the university last visited Charlotte-Mecklenburg in mid-July, and the department is making final tweaks to the model, Patterson said.

"And then we'll see if it works," she said. "If it doesn't, we'll go back to the drawing board."

Those running the University of Chicago projects and the collaborating law enforcement agencies across the country describe the new approach as the pursuit of a well-rounded personnel system that would help officers perform a tough job in the most effective way.

At the same time, the system can identify certain strengths of officers and place them in capacities that allow them to succeed, supporters said.

"We are looking for an early warning system that would allow the department to intervene with an employee to help ensure they are the best they can be," Nashville police spokesman Don Aaron said in an email.

The university's Crime Lab endeavor with CPD has recently cleared "legal and bureaucratic issues and is just now getting going," said Ludwig, the Crime Lab director. "Everyone is eager to get something in place that is high-quality as soon as possible," he added.

Guglielmi said the Police Department expects to roll out the new system next year.

[\[Engadget\] Can big data and AI fix our criminal-justice crisis?](#)

Andrew Tarantola

17 August 2016

<https://www.engadget.com/2016/08/17/can-big-data-and-ai-fix-criminal-justice/>

America, land of the free. Yeah, right. Tell that to the nearly 7 million people incarcerated in the US prison system. The United States holds the dubious distinction of having the highest per capita incarceration rate of any nation on the planet -- 716 inmates for every 100,000 population. We lock up more of our own people than Saudi Arabia, Kazakhstan or Russia. And once you're in, you stay in. A 2005 study by the Bureau of Justice Statistics (BJS) followed 400,000 prisoners in 30 states after their release and found that within just three years, more than two-thirds had been rearrested. That figure rose to over 75 percent by 2010.

Among those who do enter the criminal justice system, a disproportionately high number are people of color. In 2010, [the BJS found](#) that for every 100,000 Americans, 380 inmates are white, while 2.5 times that many (966) are Latino. A whopping 2,207 are black -- nearly six times as many black Americans are incarcerated as their Caucasian counterparts.

Is it any wonder, then, that America's minority communities [express such little faith](#) in the fairness of US legal institutions? In a nation that incorporated structural racism into its social system for nearly a century -- after hundreds of years of slavery -- are you really surprised that people of color have [historically distrusted](#) the legal system?

Change is already happening. Police departments across the country are adopting the mantra "work smarter, not harder" and are leveraging big data to do it. For example, in February of 2014, the city of Chicago launched the [Custom Notification Program](#), staging early interventions with people who were most likely to commit (or be the victim of) violent crime but who were not under investigation for such. The city sent police, community leaders and clergy to the person's house, imploring them to

change their ways and offering social services. According to [Chicago Mayor Rahm Emanuel](#), of the 60 people approached far, not one has since been involved in a felony.

This unique method of community policing used an equally novel method of figuring out which citizens to reach out to first. The Chicago PD turned to big data to analyze "prior arrests, impact of known associates and potential sentencing outcomes for future criminal acts" and generate a "heat list" of people most in need of these interventions. According to the CPD, this analysis is "based on empirical data compared with known associates of the identified person," though as we'll see with other big data algorithms, the actual mechanics of how the algorithms place and rank people on these heat lists remains opaque.

The Obama administration is also making forays into big-data solutions for law enforcement. In December 2014, President Obama launched the Task Force on 21st Century Policing, a blue-ribbon commission tasked with uncovering the challenges that modern police forces face and figuring out how to grow their standing within the communities they serve.

Based on the task force's recommendations, the administration set forth the [Police Data Initiative](#) (PDI) in May 2015. This initiative focuses on using technology to improve how law enforcement handles [data transparency and analysis](#). The goal is to empower local law enforcement with the tools and resources they need to act more transparently and rebuild the trust of the public.

Since the Initiative launched, 61 police departments have released more than 150 data sets for everything from traffic stops and community engagement to officer-involved shootings and body-camera data. All this data is collected by the local departments -- neither the White House nor any federal agency collects anything -- and then organized for public consumption through [open data web portals](#) as well as police department websites

Both the police and nonprofits around the country have already begun to leverage this information. Code for America and CI Technologies are working to integrate these data sets into the popular IA Pro police-integrity software, which will enable departments to spot troublesome officers sooner. Likewise, North Carolina's Charlotte-Mecklenburg Police Department (CMPD) has teamed with the Southern Coalition for Social Justice to better map and visualize key policing metrics within the city, making them more accessible to the public. "Local departments have found that this data transparency helps paint a more-complete picture of what policing looks like in their neighborhoods," Denise Ross, senior policy adviser at the White House and co-lead on the Police Data Initiative, told *Engadget*, "and helps bring a more authentic, informed conversation to the public."

This openness couldn't come at a more urgent time. "I think people are feeling vulnerable in different ways on both sides," Jennifer Eberhardt, Stanford professor of psychology, told *PBS* last December. "I mean, you have community members who feel vulnerable around the police. And then there's a vulnerability on the police side, where, when something happens in Ferguson or anywhere in the country, police departments all over the nation feel it."

Those feelings of vulnerability have life-and-death consequences. A yearlong study conducted by [The Washington Post](#) found that of the nearly 1,000 people killed by police officers in 2015, 40 percent

were unarmed black men. Now consider, black men make up just 6 percent of the national population. Granted, of those 1,000 or so people, white men were more likely to be shot while brandishing a gun or threatening the officer. However, a staggering 3 in 5 who were killed in response to benign behavior -- "failing to comply" with an officer, as [Philando Castile](#) was -- were either black or Latino.

"The system does not affect people in the same way," Lynn Overmann of the White House Office of Science and Technology Policy told the [Computing Community Consortium](#) in June. "At every stage of our criminal-justice system [black and Latino citizens] are more likely to receive worse outcomes. They are more likely to be stopped, they're more likely to be searched for evidence, they're more likely to be arrested, they're more likely to be convicted and, when convicted, they tend to get longer sentences."

North Carolina's CMPD also partnered with the [University of Chicago](#) to develop a more effective early intervention system (EIS) that helps departments identify officers most likely to incur adverse interactions with the public. These interactions can include use of force and citizen complaints. The system enables the CMPD to more accurately track at-risk officers while reducing the number of false positives. When implemented, it spotted 75 more high-risk officers than the current system, while incorrectly flagging 180 fewer low-risk officers.

In addition to the data sets released by the Police Data Initiative, many local law enforcement agencies have begun integrating body worn camera (BWC) data into their training and transparency operations. Body cams are a hot-button issue -- especially following Ferguson -- but in California, the Oakland Police Department implemented them nearly six years ago. Since their adoption in 2010, the Oakland PD has seen a 72 percent decrease in use-of-force incidents along with a 54 percent drop in citizen complaints.

Unfortunately, managing the large volumes of data that the body-camera system produces -- eight terabytes a month from the department's more than 600 cameras -- is not easy. There's simply too much information to comb through with any reasonable efficiency. That's why the Oakland police have partnered with Stanford University to automate the video-curation and -review process. It can also help the department better train its officers by highlighting both negative and positive interactions to reduce the prevalence of unconscious bias exhibited by officers.

This video data has been put to good use by other organizations as well. A [study](#) conducted by [Stanford SPARQ](#) (Social Psychological Answers to Real-world Questions) researchers leveraging BWC data (as well as police reports and community surveys) found that Oakland police officers exhibit clear bias when stopping motorists. The report, which was released in June, found that black men were four times more likely to be pulled over than whites, four times more likely to be searched after being stopped and 20 percent more likely to be handcuffed during their stop, even if they were not ultimately arrested.

Among the 50 recommendations made by the study, SPARQ researchers strongly advocated for more police-interaction data collection and that body-camera data be regularly used to audit and continually train officers to reduce this bias. Paul Figueroa, Oakland's assistant chief of police, echoed the sentiment in a post on [The Police Chief](#) blog. "Video can provide invaluable information about the impact of training on communication techniques," he wrote. "Significant knowledge is available about verbal and nonverbal communication, and effective communication training on a regular basis is required for

California law enforcement officers." To that end, police cadets in California have long been taught communication and de-escalation techniques -- the "tenets of procedural justice," as ACP Figueroa calls them.

Body cameras are far from the perfect solution, especially at this relatively early stage of use by law enforcement. Among the numerous issues facing the technology is: How does a department store all that data? The Seattle PD took [a novel approach earlier this year](#) by simply dumping all of its BWC data onto YouTube in the name of transparency, though that isn't necessarily an ideal (or even scalable) solution.

There are also issues of use requirements -- that is, when, where and with whom these cameras should record interactions -- and the basic technological limitations of the cameras themselves. The officers involved in the Alton Sterling encounter earlier this year reported that their body cameras "fell off" during the incident. Similarly, a scandal erupted in Chicago earlier this year when evidence came to light indicating [officers had intentionally disabled](#) their patrol cars' dash cameras. And earlier this month, a Chicago police supervisor could be heard telling two officers to turn off their body cameras immediately after the pair fatally shot unarmed teenager [Paul O'Neal](#).

These are not isolated incidents. A study by the Leadership Conference on Civil and Human Rights [published last Tuesday](#) found that only a small fraction of police departments that have implemented body cameras have also created robust policies regarding their use. For example, only four jurisdictions out of the 50 surveyed have rules in place expressly permitting citizens who file complaints against an officer to see video footage of the incident. Not one of these departments fully prohibits an officer from reviewing video footage before filing an incident report, though many will revoke that right in certain cases.

In addition, half of the departments don't make this information easily available on their websites. And when states like [North Carolina pass obfuscating laws](#) that demand a court order before the police will release body-camera footage, transparency and accountability suffer. That's the exact opposite of what the Police Data Initiative was designed to address.

Then there are the issues endemic to the data itself. "The era of big data is full of risk," the White House press staff wrote in a May [blog post](#). That's because these algorithmic systems are not inherently infallible. They're tools built by people who rely on imperfect and incomplete data. Whether the algorithm's designers realize it or not, there's the chance that they can incorporate bias into the mechanism, which, if not countered, can actually reinforce the discriminatory practices that it's built to eliminate.

Privacy, of course, is a primary issue -- both for the public and the officers themselves. As Samuel Walker, emeritus professor of criminal justice at the University of Nebraska, [stated in 2013](#), "The camera will capture everything within its view and that will include people who are not suspects in the stop. So, will that information be stored? Will it be retained?"

What's more, who will be in control of it and for how long? Privacy advocates have long warned that centralizing all of these data sets -- which previously existed in isolation within their respective private-

sector, governmental and academic databases -- could shift the balance of power between those who have this data (i.e., the federal government) and the people who represent that data (the rest of us).

Then there's the issue of security. It's not just the fear of data breaches like we've seen with the numerous credit card and Social Security scandals over the past few years. There are also previously unseen issues such as the Mosaic Effect wherein numerous separate sources of anonymized data are inadvertently combined to reveal a person's identity -- the big-data equivalent of the game Guess Who. These sorts of leaks could very well endanger civil protections involving housing, employment or your credit score. Remember that short-lived idea about using your Facebook friends to [gauge your FICO score](#)? It could be like that, but using every friend you've ever had.

Finally, these data sets are large and difficult to parse without some form of automation -- much like the OPD's body camera footage. In many cases, these algorithms could replace human experts, at least partially. But who's to say that these systems are coming up with the correct answer?

For example, [a recent Harvard study](#) found that when searching a black individual's name (i.e., "Trevon Jones" vs. "Chet Manley") or that of a black fraternity, arrest record ads popped up far more often. Similarly, [Carnegie Mellon University](#) recently found that Google was more likely to show ads for higher-paying executive-level jobs to men than it was to women. It's not like there's a team of programmers twisting their mustaches and cackling about sticking it to the minorities and women, but unconscious biases can easily make their way into algorithms or manifest through the way the data is collected, thereby [skewing the results](#).

That's not ideal when dealing with advertising, but it could be downright dangerous when applied to the criminal-justice system. For example, the Wisconsin Supreme Court just found that the sentencing algorithm COMPAS -- Criminal Offender Management Profiling for Alternative Sanctions -- [does not violate due process](#). Granted, the algorithm's function was only one of a number of influencing factors in the court's decision, but that doesn't resolve a key issue: Neither the justices nor anyone else outside of the company knows how it actually works. That's because the algorithm is a proprietary industry secret. How is the public supposed to maintain faith in the criminal-justice system when critical functions like sentencing recommendations are reduced to black-box functionality? This is precisely why transparency and accountability are vital to good governance.

"The problem is not the AI, it's the humans," Jack M. Balkin, Knight professor of constitutional law and the First Amendment at Yale Law School, told attendees at the [Artificial Intelligence: Law and Policy](#) workshop in May. "The thing that's wrong with Skynet is that it's imagining that there's nobody behind the robots. It's just robots taking over the world. That's not how it will work." There will always be a man behind the curtain, Balkin argues, one who can and will wield this algorithmic power to subjugate and screw over the rest of the population. It's not the technology itself that's the problem -- it's the person at the helm.

Balkin goes on to argue that the solution is surprisingly simple and is based on longstanding legal code. "The idea that I've been pushing is that we should regard people who use AI and collect large amounts of data to process for the purpose of making decisions, we should consider them as having a kind of fiduciary duty over the people [on] whom they are imposing these decisions."

This is just one of many solutions being considered by the White House, which held four such workshops throughout the US in 2016. Broadly, the administration advocates "investing in research, broadening and diversifying technical leadership ... bolstering accountability and creating standards for use within both the government and the private sector." The administration also calls upon academia to commit to the ethical use of data and to instill those values in students and faculty.

For better or worse, body-camera footage and big-data technology are here to stay. Just like fire, automobiles and atom bombs, big data is simply a tool. It's up to the users to decide whether it will be employed for the good of humanity or its detriment. Yes, big data could be leveraged to segregate and discriminate. It could also be used to finally bring meaningful reform our criminal-law system, deliver justice to entire cross-sections of American people -- maybe even help rebuild some of the trust between the police and those they're sworn to protect.

Zero-rating

[The Hill] [Wireless trade group defends free data plans](#)

David McCabe

17 August 2016

<http://thehill.com/policy/technology/291775-wireless-trade-group-defends-free-data-offerings>

A major wireless trade group is mounting a defense of "zero-rating," the practice of giving free mobile data to consumers who use certain services or applications.

The group, CTIA, on Wednesday unveiled [a new study](#) they funded that argues regulators would be wrong to limit those offerings.

"Proposals to ban or severely restrict the use of data caps or free data plans would essentially amount to the imposition of a form of price regulation on a well-functioning competitively vibrant industry, and would do more harm than good," wrote Northwestern University Professor William P. Rogerson, who served as the Federal Communications Commission's top economist in the late 1990s.

The programs in question allow wireless customers to access certain content — a streaming video or an advertisement, for example — without it counting against their monthly allotment of data. Critics of the programs say they violate net neutrality, or the principle that all content on the web should be treated in the same way.

Despite the criticism, the programs have expanded. T-Mobile offers free data to customers using certain music and video streaming services, and other carriers have tested "sponsored data" programs.

Rogerson argues in his paper that such programs improve access for customers and allow providers to use the mobile network more efficiently. He also says that the competition in the mobile broadband market renders net neutrality concerns partly moot.

CTIA seized on the study on Wednesday to make its case against regulatory intervention.

"Let's be clear: if regulators listen to those urging a ban of free data services, the government would be engaging in rate regulation, a point Rogerson makes plain," [wrote](#)

Kevin Ryan, a senior adviser at the trade group. “Policymakers should allow free data services to continue to flourish.”

Last year, the FCC sent letters to several providers asking them about their zero-rating practices. It remains to be seen whether the FCC will act on what it’s learned from the probe.

“We’re not going to rush it,” said FCC Chairman Tom Wheeler this month, “but we are going to have a thoughtful inquiry and that we will be bringing forth the kinds of things that we have discovered in that process when we have completed that thoughtful inquiry.”

Healthcare

[WSJ] [The Unstable Economics in Obama’s Health Law](#)

Greg IP 14 August 2016

<http://www.wsj.com/articles/the-unstable-economics-in-obamas-health-law-1471452938>

Barack Obama’s signature health-care law is struggling for one overriding reason: Selling mispriced insurance is a precarious business model.

[Aetna](#) Inc. dealt the Affordable Care Act a severe setback by announcing Monday [it would drastically reduce its participation](#) in its insurance exchanges. Its reason: The company was attracting much sicker patients than expected. Indeed, all five of the largest national insurers say they are losing money on their ACA policies and three, including Aetna, are pulling back from the exchanges as a result.

The problem isn’t technical or temporary; it’s intrinsic to how the law was written. By incentivizing insurers to misprice risk, the law has created an unstable dynamic. Total enrollment this year will be barely half the 22 million the Congressional Budget Office projected just three years ago. Premiums, meanwhile, are set to skyrocket, which will further hamper enrollment. It isn’t clear how this can be fixed.

Historically, millions of Americans went without insurance because they’re not poor enough for Medicaid, but too poor or too sick to afford private insurance. The ACA tackled their predicament directly by expanding Medicaid and giving individuals subsidies. It also did so by in effect requiring healthy customers to pay higher premiums than their actual claims would justify to subsidize sicker, older customers.

The premise of insurance, of course, is that the lucky subsidize the unfortunate. Most holders of auto or flood insurance will pay more in premiums than they collect in benefits unless their car crashes or their house floods. Nonetheless, insurers want premiums to reflect all the known risks of the insured. So if you have a teenager you pay more for auto insurance and if you live on a floodplain you pay more for flood insurance.

The market for individual insurance—coverage that individuals didn’t get through their employer—was once similar. Older customers, women and people with pre-existing conditions paid higher premiums or paid more out of pocket. The ACA changed all that: Insurers can no longer charge or exclude coverage for pre-existing conditions or charge men and women different rates. They can’t charge older customers more than three times as much as the young. They must cap out-of-pocket costs.

By circumscribing insurers' ability to underwrite risks, the ACA thus distorts how insurance is priced. Avik Roy, a health-policy expert who advised Republican Senator [Marco Rubio](#) during his presidential campaign, says the average 64-year-old consumes six times as much health care as the average 21-year-old. To adhere to the 3-to-1 maximum ratio, an insurer would have to charge the 21-year-old 75% more than his actual cost and the 64 year old 13% less.

The rational response to such pricing would be for young, healthy customers to stay away and sick, older customers to flock to the exchanges. The ACA included several mechanisms to prevent that: income-linked subsidies to purchase insurance; penalties for those who didn't buy insurance; and three separate mechanisms to compensate insurers in the early years for outsize costs.

It hasn't worked. The compensation payments have been much less generous than insurers were led to believe. Jonathan Gruber, a Massachusetts Institute of Technology health economist, says those missing payments would have eliminated most of insurers' losses. Customers game the enrollment process by buying or changing plans only when their health changes. Third-party providers such as dialysis centers pay customers' premiums so as to provide them with costly treatment. All this compounds the law's unstable economics.

ENLARGE

According to Avalere, a health-care consulting firm, enrollment drops sharply as subsidies shrink: 81% of people earning between 100% and 150% of the federal poverty level and eligible to enroll did so in 2016; just 2% of those earning more than 400% did. "The more consumers must pay themselves for what the ACA is offering, the less attractive they find it," notes a report by 10 health policy experts, including Mr. Roy, issued by the conservative American Enterprise Institute last December.

So how can the ACA be fixed? Democrats' solution is, essentially, more subsidies. Mr. Obama has called for a "public option," a federal health plan to supplement private insurers. [Hillary Clinton](#), the Democratic nominee for president, goes even further: She wants anyone over 55 to be able to opt into Medicare. Both would nudge the U.S. closer to a "single payer" model like Canada's that liberal activists have long sought.

Yet this would require a lot more money and further erode market forces in health care.

Republicans have long called for repealing the ACA, yet their leading thinkers now concede the pre-ACA status quo isn't an option.

The AEI report represents one promising alternative: every individual would receive a refundable tax credit, rising with age, to buy a basic plan. Insurers would be largely free to design a plan to fit that price point. This would stabilize the market by realigning premiums with risk. Some people with pre-existing conditions would need additional subsidies. For some individuals, the credit may only be enough for catastrophic coverage. But that, they note, is what insurance is supposed to do: "The insistence that only 'comprehensive' insurance coverage is really insurance...encourages a great deal of economic irrationality."

[\[WSJ\] The Aetna Mugging](#)

17 August 2016

<http://www.wsj.com/articles/the-aetna-mugging-1471475229>

Democrats claimed for years that ObamaCare is working splendidly, though anybody acquainted with reality could see the entitlement is dysfunctional. Now as the law breaks down in an election year, they've decided to blame private insurers for their own failures.

Their target this week is [Aetna](#), which has announced it is withdrawing two-thirds of its ObamaCare coverage, pulling out of 536 of 778 counties where it does business. The third-largest U.S. insurer has lost about \$430 million on the exchanges since 2014, and this carnage is typical. More than 40 other companies are also fleeing ObamaCare.

The mass exodus will leave consumers consigned to the exchanges with surging premiums and fewer options, but don't mention these victims to Democrats. They're trying to change the subject by claiming Aetna is retaliating because the Justice Department is trying to block Aetna's \$37 billion acquisition of [Humana](#).

The 2010 ObamaCare law makes it nearly impossible for non-mega insurers to operate, and a tide of regulations has encouraged consolidation. Aetna says the Humana tie-up will create economies of scale that could sustain the money-losing exchange policies.

But Massachusetts Senator [Elizabeth Warren](#) is now emoting on [Facebook](#) that "The health of the American people should not be used as bargaining chips to force the government to bend to one giant company's will." This week the Administration also released a July 5 letter from Aetna in response to a Freedom of Information Act request. Democrats claim the document shows CEO Mark Bertolini conditioning Aetna's ObamaCare cooperation on merger approval.

This is some gall. Aetna was answering a June 28 "civil investigative demand," in which Justice's antitrust division specifically asked how blocking the merger would "affect Aetna's business strategy and operations, including Aetna's participation of the public exchanges related to the Affordable Care Act."

Soliciting sensitive internal information that Aetna is legally compelled to provide—and then making it public to sandbag the company—is the behavior of political plumbers, not allegedly impartial technocrats. If police tried this, it'd be entrapment.

Mr. Bertolini had merely replied that the legal costs of an antitrust suit would strain Aetna's performance. The insurer would have "no choice but to take actions to steward its financial health" and "face market realities," such as reducing unprofitable business. Public companies have a responsibility to shareholders, and the wonder is that any insurer is still part of the exchanges.

ObamaCare's troubles aren't the result of any business decision. The entire industry is caught in the law's structural undertow. Despite subsidies, overall enrollment is flat, there's too much monthly churn, and the exchanges aren't attracting enough healthy people to make the economics work.

Blame the law's architects, not Mr. Bertolini, who must wonder what happened to the political goodwill he has tried to bank over the years. Aetna was inclined to accept the exchanges as loss leaders to support ObamaCare's mission of universal coverage. The company led ObamaCare's industry pep squad in 2009 and 2010.

The calculation then was that subsidies would open a new market, and consumers would be mandated to buy their products. But in the final frenzy to pass the law, Democrats decided that insurers made too

much money and they imposed price controls on profit margins. Now insurers are accused of declining to throw away more money.

The ObamaCare implosion means that about a quarter of U.S. counties will have only one or two plans, and in some zero. Areas in Arizona, North Carolina, Pennsylvania and Texas seem to be hardest hit, though the extent of the damage is still emerging.

Democrats figure they have insurers over a barrel because a Hillary Clinton Presidency is coming. She's running on higher subsidies for beneficiaries, a taxpayer bailout for the industry, and a "public option" akin to Medicare for the middle class. In health care the solution to a problem caused by government is always more government, which will create new problems and beget more government.

Republicans have no obligation to participate. They had no hand in creating this mess and they've been mocked by Democrats and the media for years for warning about ObamaCare's flaws and trying to repeal and replace the law. Assuming the GOP holds at least the House, they should insist that any "fixes"—which are fast becoming inevitable—create a rational health-care market. Democrats deserve to be held accountable for the collapse of their ideas.

Drones

[The Motley Fool] 4 Best Stocks to Invest in Drones

Sam Mattered 17 August 2016

<http://www.fool.com/investing/2016/08/17/4-best-stocks-to-invest-in-drones.aspx>

Sales of unmanned aerial vehicles -- drones -- will exceed \$12 billion in 2021, according to [Business Insider](#), up from just over \$8 billion last year. Consumer demand will surge, spurred on by new technologies and an improving regulatory environment. At the same time, drone-related military spending will remain elevated.

The coming drone revolution offers investors an opportunity. It's difficult to predict who will benefit the most from drones, but a few companies appear well-positioned. The following four stocks give investors a way to add drone exposure to their portfolios.

AeroVironment manufactures drones for the military

Last quarter, almost 90% of **AeroVironment's** ([NASDAQ:AVAV](#)) revenue came from the sale of drones. The company manufactures a variety of them for the U.S. military. Most of its drones are fairly small, and can be carried by troops to the front lines of combat. AeroVironment's Raven, for example, weighs just 4.2 lbs and has a wingspan of only 4.5 feet. It's a reconnaissance machine, intended to aid in scouting and information gathering. AeroVironment's Switchblade is small enough to fit in a backpack and can be used like a missile.

Despite the increasing popularity of combat drones, AeroVironment hasn't enjoyed much sales growth in recent years. Its drone-related revenue actually contracted 3.5% on an annual basis last quarter. The potential for the company, and by extension its stock, may lie with corporations rather than the Department of Defense. AeroVironment's management has been vocal about its desire to use its drones

in commercial endeavors. Currently, it's targeting four industries for deployment: agriculture, energy, transportation, and utilities.

Unfortunately, to date, the company has produced little in the way of tangible results. "...we continue our investment to develop solutions for the commercial [drone] opportunity, which we will introduce to the market once we are confident our solution is robust and scalable," CEO Wahid Nawabi said during the company's June earnings call.

To its credit, AeroVironment has managed to secure several small customer contracts. Currently, the company is working with an energy company to help survey a pipeline. Still, the company hasn't disclosed sales data or provided much in the way of guidance. "...[W]e have a fairly optimistic view on our commercial sales in general, but we have not guided to the product level." Nawabi said.

GoPro will launch its first consumer drone later this year

GoPro ([NASDAQ:GPRO](#)) plans to enter the market for consumer drones later this year. "Karma, our new drone, is on track to launch later this year," said CEO Nick Woodman during the company's July earnings call.

GoPro believes it can leverage its relationship with retailers, its household name, and its cameras to take a leading position in the consumer drones market. "...[W]e recognize we're not the first to market in this category," admitted Woodman. "But...the leading brands there now are not household names. And thankfully GoPro is globally a household name. And the drone category grew...thanks to GoPro, with GoPro being the original enabling camera on drones....many people think we already make drones..."

GoPro has been an incredibly disappointing stock since it entered the public markets in 2014. Shares are down more than 70% in the last 12 months alone. That's mostly been driven by falling sales: GoPro believes it will generate between \$1.35 billion and \$1.5 billion of revenue this year, down from \$1.6 billion last year. Exactly how much of that will be attributable to Karma management won't say, but if it succeeds with consumers, it could provide some upside for GoPro in the quarters ahead.

Elbit Systems is a military contractor with significant drone exposure

Elbit Systems ([NASDAQ:ESLT](#)) is a similar company to AeroVironment, but with much less exposure to drones. It's a general defense contractor, and it sells a variety of defense solutions. Still, drones generate much of the company's revenue -- Elbit's airborne systems segment accounted for almost 40% of the company's revenue last quarter. Elbit offers a variety of different drones, including the Hermes 450 and Skylark II. Both are medium-sized drones larger than most of AeroVironment's offerings.

Elbit has exposure to many geographies. It's an Israeli company, and its products are popular with the Israeli military (Israel generated about one-fifth of Elbit's sales last quarter), but it also sells to countries in Europe, Latin America, Asia, and North America. Its drones have seen some commercial uses, but the company's management remains committed to its core defense business.

As countries around the world look to add drone technology to their military arsenals, Elbit Systems could reward shareholders.

Ambarella provides chips used in many drones

Ambarella ([NASDAQ:AMBA](https://www.nasdaq.com/symbol/ambarella)) doesn't manufacturer any drones, and it doesn't plan to anytime in the near future. Yet the company's business remains inextricably linked to the drone industry.

Ambarella makes chips that are used in image processing. Many companies that make HD digital video cameras, including GoPro, use Ambarella's chips in their products. Most drones, particularly most consumer drones, include high-end digital video cameras. Many of Ambarella's chips, therefore, can be found in drones available for purchase today. During Ambarella's most recent earnings call, CEO Dr. Fermi Wang highlighted Xiaomi's new Mi Drone as a product that utilized Ambarella's chips.

Ambarella serves many other markets, including home security, wearables, and action cameras. But drones are on track to generate over one-fifth of the company's revenue in 2016. Shares have performed well this year, rising more than 18%. That gain has been driven by the drone industry: Ambarella's management cited strong drone-related demand to explain its better-than-expected gross margin last quarter.

10 stocks we like better than Ambarella

When investing geniuses David and Tom Gardner have a stock tip, it can pay to listen. After all, the newsletter they have run for over a decade, *Motley Fool Stock Advisor*, has nearly tripled the market.*

David and Tom just revealed what they believe are the [ten best stocks](#) for investors to buy right now... and Ambarella wasn't one of them! That's right -- they think these 10 stocks are even better buys.

[LA Times] [Drones take to the sea as Pentagon looks to extend its robot fighting forces](#)
Samantha Masunaga 18 August 2016

<http://www.latimes.com/business/la-fi-adv-underwater-drones-20160722-snap-story.html>

This fall, an unusual vessel will begin sea trials off the coast of California.

The 51-foot-long Boeing Echo Voyager will have no crew. It will glide underwater for days or weeks, quietly collecting data from the ocean floor to send back to crews on ships or on land.

Ever since the start of the war in Afghanistan in 2001, the U.S. military has relied more and more on flying drones to take on dangerous air missions. But increasingly, drones are taking to the sea as well.

The U.S. Navy has proposed about \$319 million for the development and purchase of underwater drones in the president's budget for the coming fiscal year. It envisions them stealthily gathering intelligence on opponents, detecting and neutralizing mines, hunting submarines and charting the ocean floor.

Last year, the Navy created the first deputy assistant secretary position focused on managing the development of unmanned systems, including underwater, surface and aerial efforts.

Recent advances in autonomy, data transmission and miniaturizing computing power coincide with the military's increased interest in finding ways to integrate unmanned systems into its war planning.

It's part of a much broader strategy to leverage artificial intelligence and stay one step ahead of rivals, as the Pentagon did with guided weapons in the 1990s.

“As tensions continue to grow with China and Russia, two militaries that have sophisticated and very large navies, there is a growing interest in making use of unmanned technology in the maritime sphere,” said Arthur Holland Michel, co-director of the Center for the Study of the Drone at Bard College in New York.

“They are scalable, they are dependable, they can operate with a fairly high degree of autonomy,” he said. “All these things would have been useful 30 years ago, but the technology wasn’t quite there.”

The potential for naval drones to operate free of human operators was shown earlier this year when the Defense Advanced Research Projects Agency, or DARPA, unveiled its Sea Hunter, a largely autonomous, unmanned anti-submarine vessel.

The prototype, 132-foot-long Sea Hunter is designed to sail on its own for up to three months, find a submarine using sonar and other sensors, and trail it while sending location data back to human operators. The vessel completed its first performance trials off San Diego in late July, according to its builder, Reston, Va.-based Leidos.

Underwater drones face different challenges than their aerial counterparts. For one, communication is more difficult, making it hard for an autonomous vehicle to report information it might pick up underwater.

That hurdle is being worked on by Liquid Robotics, a Sunnyvale firm that makes the Wave Glider. The unmanned vehicle floats on the surface and uses wave and solar power to propel itself and its sensors for up to a year.

The surfboard-shaped drone functions as a kind of gateway between underwater acoustic communications and air-based radio transmissions. The vehicle’s sensor computer connects a surface radio modem and antenna with an underwater acoustic modem, allowing information to be transmitted quickly back and forth.

The same connection can be established with ships, though that can be expensive, or with buoys, which don’t allow for much movement.

Other underwater vehicles have towed long antennas, but that is a much slower method of transmitting data, said Graham Hine, senior vice president of global partner development at Liquid Robotics.

“We’re thinking it would be the router of the ocean,” he said. “Once you start to network things and then have ubiquitous communications and positioning, things start to get interesting.”

The Wave Glider can carry a range of acoustic sensors that listen for vessels on the sea or piece together a picture of the ocean floor.

Originally developed by company co-founders Roger Hine and Joseph Rizzi to listen to whale songs, the Wave Glider caught the interest of the Navy, which has worked with the company since 2008, Graham Hine said.

Two years ago, the company struck a partnership with Boeing Co. to develop a military version, the Sensor Hosting Autonomous Remote Craft, or SHARC, that combines the Wave Glider platform with Boeing’s sensor technology.

Boeing sees the platform as a potential communication conduit between underwater vehicles and aircraft, ships or satellites. It is working with the Navy's research lab to develop additional capabilities for SHARC.

"Ultimately, it is a more efficient and effective way to do maritime surveillance, we think, in large ocean areas," said Egan Greenstein, senior director of autonomous maritime systems at Boeing.

But to do a thorough job of surveillance and undersea data collection, drones need to stay submerged for weeks or even months without external help or power.

Boeing experienced this challenge first-hand when it used its Echo Ranger unmanned underwater vehicle for oil and gas surveying. The drone charged up and reported its status at a host ship, but when storms blew in all operations had to stop.

Eventually, Boeing stopped using the Ranger for that kind of commercial work.

"It was profitable while we were out doing the survey missions," said Dan Tubbs, deputy director of Sea & Land at Boeing Phantom Works in Huntington Beach. "It was not profitable when it was in port all the time."

In March, Boeing unveiled the 50-ton Echo Voyager, which is designed to carry out months-long surveillance and reconnaissance missions for defense, commercial and scientific customers.

Powered by a hybrid electric-battery/marine diesel system, the drone periodically surfaces to snorkel depth to recharge its batteries by raising a mast and running the diesel engines. That's when the drone also can connect to satellite operations to transmit data to operators. It can send limited communications while submerged, but only to a nearby ship.

To bolster its endurance, the Echo Voyager has backup systems. To give it a degree of autonomy, the navigation system incorporates motion and rotation sensors, as well as sonar to avoid obstacles.

Autonomous systems have the potential to cut personnel costs, but developing them has proved to be complex and costly.

In February, the Navy canceled further production of a remote mine-hunting system developed by Lockheed Martin Corp., cutting down the expected order from 54 to 10 that had already been delivered. The system was to be used in the Navy's new littoral combat ships, but the autonomous vehicles that towed mine-hunting sensors were unreliable.

"The autonomy side of the equation, the research is happening at a very quick pace," said Holland Michel of Bard College. "But as you see time and time again, it's very challenging to make unmanned systems that can make intelligent and dependable decisions on their own."

The biggest challenge to the industry's growth could be its lack of versatility. There are simply more applications for unmanned aerial vehicles than underwater drones, especially in the commercial market, said Michael Blades, senior industry analyst for aerospace and defense at research and consulting firm Frost & Sullivan.

"I think the market will grow steadily, but it won't be explosive like the unmanned aerial vehicle market," he said.

Eventually, though, the two drone worlds will merge.

In May, AeroVironment Inc. of Monrovia announced it had a contract to sell to the Navy its small, Blackwing unmanned aircraft, a single-use drone that shoots out of a tube from submarines or autonomous undersea vehicles. It sends back data, then drops into the water once it's done.

A company spokesman said he could not comment on the size of the contract.

Autonomous Vehicles

[WSJ] [Volvo, Uber to Jointly Develop Autonomous Sport-Utility Vehicles](#)

John Stoll 18 August 2016

<http://www.wsj.com/articles/volvo-uber-to-jointly-develop-autonomous-sport-utility-vehicles-1471518577>

Volvo Car Corp. and ride-hailing giant Uber Technologies Inc. have signed a \$300 million agreement to co-develop autonomous sport-utility vehicles that will either be used as self-driving taxis or sold to consumers.

The two companies will announce the joint project Thursday, saying the Swedish auto maker will conduct much of the initial engineering on a platform for an XC90 SUV that is capable of piloting itself. At some point, Uber will take that technology and use it as the foundation to develop its own self-driving vehicle technology. Volvo will do the same.

Under the agreement, Uber will buy XC90 SUVs manufactured by Volvo. Volvo is owned by China's Zhejiang Geely Holding Group Co. and has been among the more aggressive players in the established auto industry when it comes to developing and advocating for autonomous vehicles.

Uber, known for its ride-hailing service, has been developing autonomous vehicles and envisions a day when those cars could replace its tens of thousands of contract drivers. It recruited a team of researchers and scientists from Carnegie Mellon University, hired the hackers who wirelessly took control of a Jeep in 2015, and earlier this year hired Ford's Sherif Marakby to head its global vehicle programs.

Uber and Volvo will work together on dynamic mapping, object identification and other hurdles that face many companies working on driverless cars.

[The Verge] [Uber's self-driving cars will pick up their first customers this month](#)

James Vincent 18 August 2016

<http://www.theverge.com/2016/8/18/12532412/uber-self-driving-cars-test-pittsburgh>

Uber's self-driving taxis will get their first real-world test in Pittsburgh this month, with the semi-autonomous vehicles assigned at random to customers using the company's app. According to a [report from Bloomberg](#), the test fleet will consist of modified Volvo XC90 SUVs, with each car supervised by a human in the driver's seat (a legal requirement) as well as a co-pilot taking notes. The trips themselves will be free, with a tablet in the backseat informing the passenger about the car's capabilities.

Pittsburgh has been the home of Uber's self-driving ambitions since 2014, when the company began its quest to [poach engineers](#) from the robotics department of the city's Carnegie Mellon University. By early 2016, says *Bloomberg*, Uber had a team of hundreds of engineers, roboticists, and mechanics at its [Advanced Technologies Center](#). Self-driving test vehicles were soon spotted around the city, and in May, the company released its [first official photo](#) of a prototype vehicle — a modified Ford Fusion.

The company has iterated quickly since then, and this month's deployment of semi-autonomous vehicles to actual (non-paying) customers is a significant step. Tesla's Autopilot software has been slowly increasing its functionality for drivers (despite a fatal crash in July that's [currently being investigated by the NHTSA](#)), and Google's self-driving fleet has been undergoing extensive testing, albeit with custom cars limited to speeds of 25 miles per hour. However, with this pilot program Uber is testing a rudimentary version of its final vision for self-driving cars: to replace its one million plus human drivers.

As *Bloomberg* reports, full autonomy for Uber's vehicles is still a way off. For now, supervising engineers will sit with "their fingertips on the wheel," with chimes sounding when they need to take control of the car — like on bridges, for example. Volvo has so far delivered a "handful" of the self-driving test vehicles, with 100 due by the end of the year. The automaker also [announced today](#) that it has signed a \$300 million agreement with Uber to develop a fully autonomous vehicle by 2021 — the same target set by Ford for its own self-driving car, [announced earlier this week](#). The future, it seems, is coming on fast.

[\[Wired\] Tesla's Cars Have Driven 140M Miles on Autopilot. Here's How](#)

Jack Stewart

17 August 2016

<https://www.wired.com/2016/08/how-tesla-autopilot-works/>

AUTOMAKERS KNOW THE FUTURE is autonomous. Ford promises to put [thousands of robocars](#) on the road by 2021. Mercedes-Benz and [General Motors](#) hope to get there sooner, even as they race to catch up with Google and [Baidu](#).

Meanwhile, some 90,000 Teslas already have Autopilot, which gives the Model S and Model X many of the features people consider autonomous.

The technology, which Tesla Motors introduced with an over-the-air software update in October, allows the cars to accelerate, maintain lane position, change lanes and even park without any input from the driver. Strictly speaking, AutoPilot is a driver assistance tool that requires drivers to keep their hands on the wheel and their eyes on the road.

Not that they do. The Internet is awash in videos of people [sitting in the backseat](#) and [sleeping](#), and [ignoring Tesla's TOS](#) requirement that they maintain control at all times. That's prompted [calls for Tesla to deactivate](#) Autopilot, arguing the company is moving too quickly.

Rubbish, says CEO Elon Musk, who insists the technology saves lives. Ironically, he cites a fatality to prove it. A man in Florida died in June when [his Model S slammed into an 18-wheeler](#) after Autopilot and the driver failed to hit the brakes. The company said Autopilot-enabled cars had covered 130 million miles without a fatality, compared to a national average of one fatality every 94 million miles. Musk says it would be "morally reprehensible" to delay its rollout.

Still, Tesla has redoubled its efforts to convince drivers to maintain control at all times. And although the future is autonomous, the debate will surely continue. Here's WIRED's guide to Tesla's Autopilot.

[Mashable] [Autonomous cars will be data-consuming monsters](#)

Damon Beres

17 August 2016

http://mashable.com/2016/08/17/intel-autonomous-car-data/#f5nJGvkc_Oq1

If you think we're hyperconnected today, just wait until autonomous cars are everywhere.

In 2020, we'll all download and upload a lot more data, and so will the objects around us. The average person will soon use 1.5 gigabytes of data daily, while autonomous vehicles will use about 4,000, Intel CEO Brian Krzanich said in a [presentation](#) at the Intel Developer Forum in San Francisco Tuesday.

"The average person today generates about 6-to-700 megabits a day. By 2020, the estimate is 1.5 gigabytes a day for the average person," Krzanich said. "We're talking like 3,000 people per car in data."

A representative for Intel told *Mashable* that the numbers come from [an article on Dataflog](#). Their estimates assume that the driverless car will generate .75 gigabytes per second, as Google's driverless car prototype reportedly does, and that the average person spends 600 hours a year in their car — which seems a bit high.

Still, the point remains. There's going to be a *ton* of information flying around in the near future, and humans aren't going to be the only ones generating it. Your car will send and receive location data, check in on the weather, navigate traffic and so on.

Meanwhile, the smartphone you have today, likely connected to a 4G network, may soon seem like a fossil, and you might look back and wonder "How did we live like that?" (Those [early iPhones](#) look slow and awful now.)

As advanced as the world around you seems, it's sort of a half-filled balloon.

Think of it like this: As advanced as the world around you seems, it's sort of a half-filled balloon. We'll soon consume more media on our devices, and advanced technology like self-driving cars will also send and receive information online — "inflating" the amount of data produced overall. For that to happen, we'll need faster connections, too.

Carriers like AT&T and Verizon are working on 5G wireless networks to handle all of the information. Your phone probably connects to a 4G network right now, which allows you to stream video and browse social media — but 5G connections will be [much faster](#), meaning you'll be able to download movies in a flash, stream higher quality video and immerse yourself in streaming virtual reality experiences with people on the other side of the world.

We still have a little waiting to do, though. The first 5G network is [slated to launch in 2018](#) at the Winter Olympics in Pyeongchang, South Korea.

Artificial Intelligence

[WSJ] Intel Unveils Plans for Artificial-Intelligence Chips

Don Clark

17 August 2016

http://www.wsj.com/articles/intel-unveils-plans-for-artificial-intelligence-chips-1471462581?mod=WSJ_TechWSJD_NeedToKnow

[Intel](#) Corp. signaled it wants a bigger role in artificial intelligence, revealing plans to modify a line of chips to target a fast-growing market turning into a battleground for technology suppliers.

The company told technology developers Wednesday that it plans next year to deliver a new version of the Xeon Phi processor—a product line previously targeted at scientific applications—with added features designed to accelerate tasks associated with what Silicon Valley calls artificial intelligence.

Intel said the technology will help accelerate a technique called deep learning, increasingly used for tasks such as interpreting speech, identifying objects in photos and piloting autonomous vehicles.

Intel's Xeon processors already are a fixture in data centers, and have a role in nearly all deep-learning tasks carried out there. But some users also install auxiliary processors for artificial-intelligence tasks, notably chips called GPUs that rival [Nvidia](#) Corp. has long sold for videogames.

Intel has said the Xeon Phi line, which has more processors than standard Xeon chips, is already being used for some deep-learning applications. Diane Bryant, executive vice president in charge of Intel's data center group, said Wednesday at an Intel event that the model coming out next year will handle additional instructions designed specifically for such computing jobs.

Intel says Xeon Phi can run most analytic software without tapping external processors that can slow analytical tasks, something it bills as a key advantage over other approaches. Executives added that it can also make use of more memory than GPU-based approaches.

"When it comes to AI, Intel's Xeon Phi is a great fit," said Jing Wang, a senior vice president at the Chinese search-engine company [Baidu](#) Inc., who joined Ms. Bryant on stage at Intel's annual developer forum in San Francisco.

Baidu has been a prominent user of Nvidia chips for deep-learning tasks. A spokesman for Baidu declined to comment on whether it will continue to use that technology.

Nvidia, whose chief executive has been highlighting deep-learning applications for years, this week disputed recent Intel claims about performance advantages of Xeon Phi. Nvidia says its latest chips remain much faster than Intel's technology.

"It's great that Intel is now working on deep learning," Nvidia said in a blog post Tuesday. "But they should get their facts straight."

Besides Xeon Phi, Intel signaled a strong interest in artificial intelligence with a [deal last week to buy](#) Nervana Systems, a startup working on specialized chips and software aimed at deep learning.

In another announcement at its annual forum, Intel disclosed that is delivering the first optical-networking components that have resulted from a 16-year effort to use silicon in place of other

materials to reduce manufacturing costs. The company said components designed to deliver 100 gigabits of data a second are now on sale.

Commercial Space

[Forbes] 'Making Space Great Again' Through Commercial Partnerships

Mark Whittington

17 August 2016

<http://www.forbes.com/sites/realspin/2016/08/17/making-space-great-again-through-commercial-partnerships/#2ab10cbe4414>

The speech that was delivered by Col. Eileen Collins, the first woman to command a space shuttle mission, to the Republican National Convention was worth noting because it was the first specifically about America's space program to be made at a major party's national convention in living memory, perhaps ever. Her speech contained few specifics but could be distilled to a paraphrase of Donald Trump's main campaign slogan, "Make space great again."

Collins was reflecting angst felt by people in the aerospace community that the days of America's greatness in space have passed. While this feeling may be overwrought, considering the spectacular achievements of space probes such as Mars Curiosity, Juno and New Horizons, it does have some basis in fact. Americans have not been able to travel into space without the help of Russia since the end of the space shuttle program. The advent of commercially-developed, government-funded space vehicles will not restore that capability until 2018.

President Obama's decision to cancel the Constellation space exploration program has proven to be particularly irksome, especially to Collins, who condemned it in congressional testimony earlier this year. Whatever the reasons, said and unsaid, for ending that program, Constellation has been replaced by the ill-defined and underfunded Journey to Mars, which will not see astronaut boots on the Martian soil before the 2030s. One does not have to be an Apollo nostalgic to think this to be thin gruel when it comes to American space greatness.

Indeed, American space greatness has always been defined by astronauts, when they walked on the moon in the late 1960s and early 1970s and when they live and work on the International Space Station today, researching science and developing technology. Considering this fact, how does America "make space great again?"

A clue could be found in the [Republican Party Platform](#):

"The public-private partnerships between NASA, the Department of Defense and commercial companies have given us technological progress that has reduced the cost of accessing space and extended America's space leadership in the commercial, civil and national security spheres. The entrepreneurship and innovation culture of the free market is revitalizing the nation's space capabilities, saving taxpayer money, and advancing technology critical to maintain America's edge in space and in other fields."

The private sector has always been part of the civil space program, ever since companies like Boeing, Lockheed, and McDonnell Douglas built the hardware to take men to the moon. President George W. Bush took the next step by mandating publicly-funded spacecraft that would be constructed

and operated by commercial companies. President Obama has doubled down on that policy, the result being that the next American spacecraft to fly into orbit will be operated, not by NASA, but by a private company, SpaceX or Boeing.

An effort to revitalize American space exploration provides both a challenge and an opportunity. Apollo was a brilliant program that brought many benefits to the United States and the world. But nearly 50 years later, America has so many more tools with which to do the work, some of them being developed by the commercial sector.

Imagine a joint NASA/commercial return to the moon. NASA would provide an Orion spacecraft and a heavy-lift Space Launch System rocket. SpaceX could provide a version of its Dragon spacecraft configured to land on the moon and a Falcon Heavy rocket. Bigelow Aerospace could provide an inflatable habitat to sustain explorers on the lunar surface. The mission would be to scout out a site for a future lunar mining base.

We could even use Comsat, President John Kennedy's other great space initiative, as a model for space exploration. Comsat was a publicly-created and privately-run company that helped to create the communications satellite system. Suppose that the next president, along with international allies, created the Lunar Development Company. The purpose of the company would be to open the moon for economic development and scientific exploration. NASA would be a customer of the corporation, and so would companies like Moon Express, which envisions mining the moon for its resources. The flexibility of the private sector would be brought to bear to bring the moon into Earth's economic sphere. The enterprise would potentially make lots of money.

NASA can still make the Journey to Mars. But with a private company mining lunar water, refining it into rocket fuel, and then selling it to the space agency, the task of sending people to the Red Planet would become simpler and cheaper. Spacecraft headed into the solar system would no longer have to take all the fuel they need from Earth. They could stop by lunar orbit to top off before going to Mars, an asteroid, or any other destination.

That would be huge.

Miscellaneous Tech

[NY Times] Debt. Terror. Politics. To Seattle Millennials, the Future Looks Scary.

Kirk Johnson 18 August 2016

http://www.nytimes.com/2016/08/19/us/seattle-millennials-economy-student-debt-politics.html?ref=technology&_r=0

SEATTLE — Part of Jillian Boshart's life plays out in tidy, ordered lines of JavaScript computer code, and part in a flamboyant whirl of corsets and crinoline. She's a tech student by day, an enthusiastic burlesque artist and producer by night. "Code-mode" and "show-mode," she calls those different guises.

"My mother got stage fright for me," she said on a recent night while talking about her childhood performances and dreams. She looked like a 1940s starlet in a tight, black sequined dress, a red rose pinned into her red hair. "I like to be prepared," she said. "I like to be in control."

At age 31, she seems to be. This year she won a coveted spot at a nonprofit tech school for women here, whose recent graduates have found jobs with starting salaries averaging more than \$90,000. Seattle, where she came after college in Utah to study musical theater, is booming with culture and youthful energy.

But again and again, life has taught Ms. Boshart, and others in her generation, that control can be elusive. In the dot-com crash of the early 2000s, her family lost the college savings they had been putting aside for her. Her father, a nurse, was laid off after 35 years on the job. Her sister and brother-in-law lost their house in the throes of the Great Recession. And very little in the world around Ms. Boshart has led her to feel a sense of comfort and ease: not the soaring costs of living in Seattle, not the whirlwind roar of reinvention in the tech world, certainly not the barbed clamor of national politics. Even for someone who seems to have drawn one of her generation's winning hands, it feels like a daunting time to be coming of age in America.

"I don't just expect things to unfold, or think, 'Well, now I've got it made,' because there's always a turn just ahead of you and you don't know what's around that corner," she said.

Opportunity, but Also Anxieties

On the 10th floor of a downtown office building here on a rainy morning in June, a software development instructor stood in a darkened classroom, the images and words from a screen projection branding his white shirt with the fractured, punctuation-mark language of computer code.

In the classroom, at [Ada Developers Academy](#), the tech school Ms. Boshart attends, were a former motorcycle stunt-rider, a former college counselor, a waitress, a teacher — all women, most in their 20s and 30s, and all there to change careers. It was the day after the mass shooting at a [nightclub](#) in Orlando, Fla., where the victims, as no one needed reminding, were about the same age as everyone in the room.

The students at Ada — Adies, as they affectionately call one other — are in many ways representative of Seattle's churning, anxious arc of growth and change. The 61 women who have graduated since the school's founding in 2013 have been drawn here from across the nation and several other countries. Tuition is free for applicants who pass the rigorous admissions process, with costs underwritten by Seattle tech giants like Amazon.

Of the 13 most populous counties in the nation, King County in the Seattle metro area is second only to Brooklyn in the highest percentage of residents age 25 to 34, part of the biggest demographic wave since the baby boom, according to census data. And Seattle is luring those millennials from all over, with King ranking second among big counties in the percentage of people who moved here within the past year from another state.

But even in a place of alluring opportunity, the Adies, like Ms. Boshart, mirror their generation's anxieties.

Many [are terrified of debt](#) and deeply worried about their economic future. [Student loan](#) burdens sharply increased nationally during the recession, according to [a report by the Federal Reserve Bank of Atlanta](#), more than tripling to \$1 trillion from 2004 to 2012. Unemployment for people under 25 is more than twice the national rate, which has made many of those loans harder to pay off. Millennials have

postponed marriage and decisions about where to live and what careers to pursue, the Federal Reserve study said, far longer than previous generations, often out of economic necessity.

SEATTLE, WASH.

- **Area**

83.94 square miles

- **Population (July 2015)**

684,451

- **Largest Employer**

Computer technology and aerospace

- **Racial Breakdown**

White, 66.3 percent; Asian, 13.8 percent; Black, 7.9 percent; Hispanic, 6.6 percent

- **Median Household Income (year?)**

\$67,365

- **Change in Median Household Income (2000-2014)**

47.29 percent + (up from \$45,736 in 2000)

- **People Living in Poverty**

14 percent

U.S. Census Bureau

Hailey Willis, for example, was accepted to Ada and arrived here last year from Chicago with six months of savings to her name. In Seattle, markedly more expensive than Chicago, the money was gone in 90 days. Asked about her financial future, Ms. Willis, 31, said she saw no chance that anything like [Social Security](#) would be there for her or anyone her age.

Elsa Moluf, 26, an Ada graduate, said the terrorist attacks of Sept. 11, 2001, still resonated when she thought about personal safety — a feeling compounded recently by a shooting on a Seattle street in broad daylight only a few feet from her. “In the era of terrorism, I think about stuff like, ‘If I go to this crowded festival, what are the chances,’ ” she said.

Baby boomers, to whom millennials are often compared — if only by the force of their numbers — also reached adulthood amid tumult and angst, during the Vietnam War and the struggle for civil rights. But people now in their 20s and 30s say that the 1960s were different, that there seemed to be a clearer goal then — to end racial segregation, poverty or the war. The economy seemed better and the nation’s future more assured. Now, from niche anxieties like [genetically modified crops](#) to defining ones like climate change, questions feel open-ended and unprecedented: Is the food we eat still food? How do you get your head around a threat to the entire planet?

Contradictions and paradoxes, millennials say, come with the territory. Ms. Boshart, for example, would love to own a house someday. But at the same time, debt to her feels perilous. “I don’t want to be beholden to any bank, ever,” she said with quiet vehemence. She counts the months until the tech job she hopes to get after Ada can help pay off the \$22,000 student debt she has left.

And then there are presidential politics, with one candidate, [Donald J. Trump](#), who scares her to death and another, [Hillary Clinton](#), whom she admires but is sometimes hesitant to praise too loudly in an area where most people she knew supported Senator Bernie Sanders. She sees politics through a feminist lens and believes that women’s rights would be undermined by a Trump presidency and a Trump-selected Supreme Court. And even though recent polls and surveys show Sanders supporters largely rallying to Mrs. Clinton, it is not enough to create any sense of security, Ms. Boshart said, that an October surprise of hacked data or a hidden pool of misogyny and rage do not still lie in wait.

“There are just so many things you can be anxious about — it’s an anxious time,” she said. “My biggest fear is that America hates women more than they hate Donald Trump.”

A ‘ Broken’ Political System

Riley Spicer, 26, said she cannot help buying food on sale and socking it away. She arrived in Seattle last year from rural Oregon to start classes at Ada, and she and her boyfriend, Jakob Lundy, 27, a fireman, have planted a garden and started a beehive to harvest honey.

“I had the radishes today in my salad at work,” Ms. Spicer said on a recent evening, as she carefully exposed the leaves to reveal red-topped bulbs. “When I go to the store and I get three bags of mushrooms, they’re like, ‘What are you doing?’ I’m stuffing mushrooms and freezing them — doesn’t everyone do that?”

Jeremy Flores taught a class about JavaScript, a computer code, at Ada Developers Academy in June. Credit: Ruth Fremson/The New York Times

Ms. Spicer, who studied philosophy and the history of science at St. John’s College in Annapolis, Md., has had jobs as a barista, a taxi dispatcher and a deli worker. She has \$72,000 of student debt and has never been paid an annual wage, she said, of more than \$17,000. Based on the track record of Ada graduates, she could soon be making five times as much.

So on one level, she and Mr. Lundy — young, in love and employed or soon to be — might look as if they are living the American dream.

But neither one is buying it.

“I look out there and it just seems completely hopeless to me,” she said as their 12-year-old mutt, Cordelia, wandered through their apartment. “The political system seems so overwhelmingly broken that I have no idea what to do about it.”

Her views are echoed in national polls, where young people are consistently, deeply downbeat about the future and the political system. A recent poll of people 18 to 29 years old by Harvard’s [Institute of Politics](#) found nearly half agreed with the statement that “politics today are no longer able to meet the challenges our country is facing.” More than two-thirds said the country is “on the wrong track,” and a

majority rejected both capitalism and socialism as models for the future. The poll, of 3,183 American citizens, had a margin of error of plus or minus 2.4 percentage points.

Mr. Lundy rejects the two-party political system entirely and has voted mostly for third-party candidates, if only as a statement of opposition to the choice of a Republican or a Democrat. He is not sure what he will do this year.

“I don’t want to support the false dichotomy,” he said. He said he liked Mr. Sanders partly because a Sanders insurgency “would be best at reforming the party, or tearing it apart from the inside.” He also applauded Mr. Trump’s antics, which Mr. Lundy believes will shatter the [Republican Party](#), too.

Either way, he added, a shake-up is coming. “Things are going to have to burn before they get better,” he said.

‘The Power to Change’

Technology is the sea that millennials swim in — a kind of second nature, especially to Adies. But many of them feel a deep ambivalence. Tech, they say, means military drones, loss of privacy and [cyberbullying](#). Social media, the new town square, often feels more like a combat zone than a place to share ideas. Tech companies are driving up rent in places like Seattle, forcing out lower-income people, even while creating excellent jobs that Adies are likely to get.

Ms. Spicer picked radishes in the small garden she and Mr. Lundy keep. The couple grow vegetables and harvest honey to save money. CreditRuth Fremson/The New York Times

“The tech industry is a huge part of the problem,” said Jessica Weeber, 31, who is studying at Ada alongside Ms. Boshart. “As people get paid more and work in tech jobs, rents and housing go up and gentrification happens,” she said. “I don’t know how to solve it.”

But tech is also an unquestionably powerful tool.

“Tech gives us the power to change — that’s why I’m here,” said Mindy Carson, 31, an Ada student and strong supporter of Mr. Sanders. She wants to start a nonprofit after graduation, using technology to work on social justice issues. “We don’t have to take what they’re saying on TV for face value, we don’t have to take limited information for face value, because we see the truth, we are connected,” she added.

Ms. Boshart used technology in a recent burlesque performance, including a recorded voice-over appearance by the astronomer Carl Sagan, to make about a point about humanity’s intertwined role with science.

She walked on stage wearing a glamorous evening gown, opera gloves, and a corset underneath with 160 LED lights and a tiny computer to run them. Mr. Sagan’s voice came on, talking about the cosmos. As her clothing came off, she said, “I became more and more human. And that was kind of the point: We are artifice to the world, what we present, but as we get deeper and deeper into the human element we are atoms and star dust.”

Ms. Boshart in a burlesque costume in June. She has used technology in her performances. Credit Ruth Fremson/The New York Times

Ms. Boshart gravitated to burlesque, she said, partly to make such statements. But after her mother died last summer, things became more profound and personal. The women of the Seattle Burlesque Society showed up at the apartment she shares with her fiancé. They brought food. They cleaned. They carved out a quiet corner for grieving and meditation.

They became, in their embrace, her sisters. Like many people in her generation, Ms. Boshart does not expect to find those connections in political parties. She no longer goes to church. The workplace doesn't seem to offer much hope either.

"My dad was laid off after 35 years, and that was supposed to be his community, right? That was supposed to be the group of people that understood," she said before a recent Monday night performance that she was producing at a brewpub north of downtown. "He worked for years and years for you and he's just out? It was appalling to me."

What should be tossed out, or clung to, is the question of the moment, she said. And for her, a big part of her answer lies in the proud and quirky universe of burlesque, her anchor of belonging in a world that can feel fragmented and frayed.

As she got up from the table for a final chat with the cast, music pounded out as performers — various ages and body types in heavy eye shadow and feathered boas — got ready to go on. They hugged, and she cautioned them about a low table with sharp corners that would be hard to see in the dark. One small peril avoided, it was time for show-mode.

[\[The Hill\] Uber challenges English test for London drivers](#)

David McCabe

17 August 2016

<http://thehill.com/policy/technology/291721-uber-challenges-english-test-for-london-drivers>

Uber on Wednesday announced its intention to bring a legal challenge over new regulations in London that would require some of its drivers to take an English test.

The English language requirement is one of four rules governing for-hire drivers that the ride-hailing company is challenging in court.

"This legal action is very much a last resort," said Tom Elvidge, Uber's general manager for London, in a statement. "We're particularly disappointed that, after a lengthy consultation process with Transport for London, the goalposts have moved at the last minute and new rules are now being introduced that will be bad for both drivers and tech companies like Uber."

Uber is also challenging a strengthened insurance requirement and other regulations that it says unfairly put a burden on its business, including one it says will require building a call center in London. The English-language test goes into effect in October.

Under the requirement, drivers would need to take a test measuring their written proficiency in English. The requirement applies to “new applicants and existing private hire drivers renewing their [license] who are not from a majority English speaking country.”

Uber says that it supports some sort of English-language requirement but specifically objects to testing written English skills, rather than just testing the ability to speak and understand the language.

Transport for London, the regulator behind the rules, said it plans to fight the legal challenge.

"We responded to Uber's letter and will be robustly defending the legal proceedings brought by them in relation to the changes to private hire regulations," said a spokesperson for the agency. "These have been introduced to enhance public safety when using private hire services and we are determined to create a vibrant taxi and private hire market with space for all providers to flourish."

The company, as it has done in its major United States policy battles, appealed to its customers for help in the case. In an email earlier this month, Elvidge said that “bureaucratic new rules from Transport for London send the opposite message and threaten the livelihood of thousands of drivers.”

“Fewer drivers will mean longer waiting times or no cars when you need them most,” the company told users.

[Ars Technica] [Oracle says trial wasn't fair, it should have known about Google Play for Chrome](http://arstechnica.com/tech-policy/2016/08/at-hearing-oracle-complains-of-tainted-trial-against-google/)

Joe Mullin

17 August 2016

<http://arstechnica.com/tech-policy/2016/08/at-hearing-oracle-complains-of-tainted-trial-against-google/>

SAN FRANCISCO—Oracle lawyers argued in federal court today that their copyright trial loss against Google should be thrown out because they were denied key evidence in discovery.

Oracle attorney Annette Hurst said that the launch of Google Play on Chrome OS, which happened in the middle of the trial, showed that Google was trying to break into the market for Java SE on desktops. In her view, that move dramatically changes the amount of market harm that Oracle experienced, and the evidence should have been shared with the jury.

"This is a game-changer," Hurst told US District Judge William Alsup, who oversaw the trial. "The whole foundation for their case is gone. [Android] isn't 'transformative'; it's on desktops and laptops."

Google argued that its use of Java APIs was "fair use" for several reasons, including the fact that Android, which was built for smartphones, didn't compete with Java SE, which is used on desktops and laptops. During the post-trial hearing today, Hurst argued that it's clear that Google intends to use Android smartphones as a "leading wedge" and has plans to "suck in the entire Java SE market."

"Android is doing this using Java code," said Hurst. "That's outrageous, under copyright law. This verdict is tainted by the jury's inability to hear this evidence. Viewing the smartphone in isolation is a Google-gerrymandered story."

Google attorney Christa Anderson responded that Oracle asked for, and received, information about App Runtime for Chrome, or ARC, during discovery. Oracle knew that Google was trying to port Android apps over to laptops, and if it wanted to use that argument during trial, it could have, she said.

"No party had a duty to supplement discovery with matters beyond the scope of trial," said Anderson. "Our answers were appropriate and complete."

Google was considering an update to ARC, internally called ARC++. But that wasn't available when Google was answering discovery questions back in October.

"It's right now in a sort of Beta release phase," said Anderson. "It was not developed, and ready to roll, during the discovery period."

Alsup asked Hurst why Oracle couldn't just file a new lawsuit if it believed that Chrome desktops were infringing copyright and not protected by fair use. Hurst replied that she could do that, but it didn't change the fact that the just-concluded trial was "infected and tainted" by this issue.

"Google's whole pitch was 'We didn't harm Java SE because we weren't on desktops and laptops.' This jury was entitled to consider the context—yes, now they are on desktops and laptops. It's outrageous. They're lying to the jury! The court can't countenance this!" Hurst said.

Hurst referred to [an Ars Technica review of Google Play for Chrome](#), published May 19, which posited that the "real shocker" about Google's new system was that it wasn't based on ARC.

"Ars Technica, the premier publication in this industry, called it a 'shocker,'" he said.

"There was no such platform available during the discovery period," responded Anderson.

Alsup is going to take it under submission and will rule later in writing. But he did leave Anderson with these words: "If I had been in your position, I would have disclosed."

Evidence and costs

While the accusations over desktops and laptops dominated the hearing today, Alsup also addressed two other matters. One was Oracle's motion for a new trial, which simply argued that Google presented so little evidence during the trial to support its case that Oracle should win, notwithstanding the jury verdict.

Oracle attorney Nathan Shaffer argued that Google was knowingly making a "market replacement" for Java-based phones, and that isn't covered by fair use. "They copied [the APIs] because they wanted to capture developers," he said.

Alsup was unimpressed by that argument.

"Don't we let the jury decide this?" he asked. "You had all those e-mails. A jury certainly could have found your way if a jury wanted to. But the other side put in evidence the other way. Bad faith, or good faith? Isn't that the most classic jury question imaginable?"

"It would be a jury question if there was evidence to support good faith—" Shaffer began.

"There was—of course there was," Alsup said. "You can't just put on blinders and say the other side didn't put on a case. "Take Mr. [Jonathan] Schwartz. [Oracle attorney Peter] Bicks tried to rake him over the coals. I thought he did a pretty good cross-exam. But the jury can say, 'We like Jonathan Schwartz. We didn't like that cross-examination. Too bad, Oracle loses.' That's the way it works in trials."

Later, it was Google's turn on the hot seat when the two sides argued over the [\\$3.9 million bill of legal costs](#) that Google wants Oracle to pay.

"We're arguing over a cost bill," said Alsup as two different attorneys sidled up to the podiums to argue the matter. "Do you know how many Social Security claimants I can't rule on, while I'm ruling on your cost bill? Why can't you resolve this on your own?"

Google lawyer Reid Mullen pointed out that technically, it was Oracle's objections to the bill of costs that caused the hearing.

"Can I go through your cost bill and deny the entire thing?" Alsup asked Mullen. "Because I think you're being greedy and asking for too much. Maybe I should just deny it based on greed. I've done that in other cases."

"Your Honor, we stand by the cost bill," he said. "These are discovery costs, authorized by the 9th Circuit."

Alsup told the two sides to get together and see if they can't work it out.

Google's \$3.9 million cost bill includes only things like document production and court-ordered experts; it doesn't include the far more costly parts of litigation, which include lawyers' fees and their own experts.

"Go through these line items and reach an agreement," said Alsup. "Failing that, I may deny everything you want, because of greed and overreaching."

Oracle originally sued Google in 2010, saying the company violated copyrights related to application programming interfaces (APIs) in the Java programming language. After a first jury trial in 2012, Alsup found that APIs aren't subject to copyright at all, but that ruling was overturned on appeal. The dispute went to a second jury trial in May of this year, after which the jury found that Google's use of Java APIs didn't violate copyright law because it was "fair use." Oracle has said it will appeal that verdict.

[\[Ars Technica\] Verizon has a plan to make the Android bloatware problem worse](#)

Jon Brodtkin

17 August 2016

<http://arstechnica.com/gadgets/2016/08/verizon-has-a-plan-to-make-the-android-bloatware-problem-worse/>

Verizon Wireless is reportedly trying to add more bloatware to Android phones by installing apps from other companies in exchange for payment. "The wireless carrier has offered to install big brands' apps on its subscribers' home screens, potentially delivering millions of downloads, according to agency executives who have considered making such deals for their clients," *Advertising Age* [reported yesterday](#). "But that reach would come at a cost: Verizon was seeking between \$1 and \$2 for each device affected, executives said."

Bloatware has been a problem on Android phones [for years](#), and this [wouldn't be the first time](#) Verizon Wireless was [the culprit](#). But the company's latest moves sound like they have the potential to make things worse.

Verizon started pitching the app installs to retail and finance companies, among others, late last year, according to *Advertising Age*. Verizon only makes the offer for Android phones since carriers don't have the same access to Apple's iPhone.

It isn't clear whether any companies have actually taken Verizon up on the offer. One agency executive advised a client not to buy the Verizon app installs because customers could easily delete the apps.

The apps would reportedly download to new devices when customers activate the phones. The process could take advantage of Android's [Play Auto Install feature](#) that's used to download carrier apps during the setup process.

We asked Verizon questions about the app install program's progress this morning, but the company declined to comment.

[\[Vox\] The case for making New York and San Francisco much, much bigger](#)

Timothy Lee

17 August 2016

<http://www.vox.com/a/new-economy-future/big-cities>

The geography of innovation and economic growth is changing. In the 1990s, technology companies like Google and Yahoo were founded in the leafy suburbs of Silicon Valley. More recently, entrepreneurs have flocked instead to downtown San Francisco to start companies like Uber and Airbnb.

That's part of a larger trend: Economic progress is increasingly being driven by big cities. During the business boom of the 1990s, suburbs and small towns tended to add jobs more quickly than the most populous areas. But a recent study showed that [this pattern has reversed](#), with urban centers emerging as America's most prolific job engines.

That's a huge shift for the US economy. And it's one economists, policymakers, and ordinary Americans are only starting to grapple with.

Economic growth is increasingly urban growth. And so if we want the economy as a whole to grow faster, we need to figure out how to get cities to grow faster. That may require rethinking how we build housing, office space, and transportation infrastructure.

How big cities make workers more productive

In the 1990s, there was a lot of talk about the ["death of distance"](#) as the rise of telecommuting allowed people to do their work from anywhere.

"The expectation in the 1990s was that you could work in high tech in Phoenix and be as productive as if you were in Palo Alto or San Francisco," says Enrico Moretti, an economist who studies cities and economic growth. "And therefore, the high rents that people are paying in places like San Francisco or San Jose would go away because you can just do it from Phoenix or Kansas."

Instead, the opposite happened. Jobs — especially [high-paying white-collar jobs](#) — are becoming increasingly concentrated in big cities like San Francisco, Los Angeles, New York, Washington, DC, Houston, and Seattle.

"The share of investment in research and development, the share of patents, the share of startups, the share of venture capital" — all have been going up, not down, in America's leading high-tech clusters, Moretti argues. "We even see companies moving back from the suburbs to downtown locations, even though the costs of doing that are pretty steep."

Why are companies willing to do this? The most important reason is that it's often where the best workers are. The best programmers disproportionately live in the San Francisco Bay Area — and increasingly in San Francisco itself. New York City is a magnet for design talent. Houston is a mecca for petroleum engineers. And so forth.

And, of course, this works in reverse too: Talented workers move to big cities because that's often where the opportunities are greatest.

In fast-changing and intellectually demanding professions like software development or biotechnology, working with other smart, ambitious people is essential to getting better at your job. Working for cutting-edge companies allows employees to tackle hard problems, learn new skills, and increase their impact.

The informal spread of information between companies in the same city helps drive innovation, Moretti says. When an employee jumps from one company to another, she brings her skills and experience with her. People share knowledge at the bar after work. Over time, this kind of promiscuous information sharing helps an entire region become more productive.

The *Pokémon Go* economy

Why is all this happening now? Globalization is creating a lot of giant winner-take-all markets where the best companies are hugely profitable — think Apple, Nike, or Coca-Cola — while everyone else gets left in the dust. So companies are willing to pay more than ever to make sure they have the best talent.

Meanwhile, the IT revolution means that more of a company's operations can be managed from headquarters, eliminating many regional and local jobs. This is especially true for media products, which can now be distributed entirely online, eliminating the need for complex infrastructure to ship CDs, movie reels, or other physical media around the world.

The runaway success of the smartphone game *Pokémon Go* this summer provides a [good illustration](#) of the economic forces that are concentrating opportunity in large cities. *Pokémon Go* could [generate as much as \\$1 billion](#) in its first year, and almost all of it is going to flow to big technology companies like Niantic (located in San Francisco) and Nintendo (based in Kyoto, Japan).

People in the rest of the country will certainly play a lot of *Pokémon Go*, and the game's geographical focus may lure some people out to patronize existing bars and restaurants. But the game will not directly create any jobs in most parts of the country. That's a big contrast with older media industries like movies — which created jobs selling tickets and popcorn — and music recording, which created jobs in record stores.

More housing would mean lower rent and a bigger economy

If big cities like New York and San Francisco are the future of the economy, and if we want the economy to grow, then there's an urgent need to figure out ways for these cities to grow faster.

The issue isn't a lack of opportunities. Last month, for example, the Wall Street Journal reported that the city of San Jose was [opposing the construction of new office space](#) because "it would add far too many jobs, exacerbating the region's housing shortage."

Of course, the real problem here isn't an excess of jobs but a shortage of housing. San Jose — like most other big, prosperous cities — has adopted strict housing regulations that make it impossible for developers to significantly expand the housing supply. These restrictions include prohibitions on apartment buildings and townhomes in many areas, limits on building heights, minimum lot size requirements, parking mandates, and bans on adding basement apartments or "granny flats" to existing homes.

If San Jose reformed these laws to allow more housing to be built, then an influx of new jobs wouldn't be such a problem. Growing demand for homes would simply trigger a building boom.

Critics of strict housing regulations — including me — usually emphasize that reforming these laws would help keep rents down. That's true, but it's not the only argument for reform.

The other key reason is that many workers would become more productive — and enjoy substantial raises — if they moved to big cities. And if enough people did that, it would have a substantial effect on the nation's productivity.

If more people moved to San Francisco, some of them would be highly skilled workers taking jobs at fast-growing companies like Google and Apple. But expanding the housing supply could also create opportunities farther down the income spectrum.

A barber in the San Francisco Bay Area makes a lot more money than a barber in the Phoenix area. So moving some barbers from Phoenix to San Francisco would raise those barbers' incomes while reducing the high cost of hair-cutting in the Bay Area.

Unfortunately, housing restrictions make this kind of move very difficult. Indeed, in recent years there has been more migration in the opposite direction: people leaving high-wage, high-cost cities for low-wage, low-cost ones.

Over the last five years, the fastest population growth has been in low-wage sun belt cities like Dallas, Houston, and Phoenix. The San Francisco and Washington metropolitan areas have seen moderate growth, while growth in Boston and New York has been downright anemic.

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How much richer could better housing laws make the country? In a [2015 study](#), Moretti and co-author Chang-Tai Hsieh estimated that fully eliminating restrictive housing regulations could boost the output of the US economy by 13.5 percent.

However, that number is worth treating with considerable skepticism. To capture those large gains, more than half of the US population would need to relocate. New York City would have to grow eightfold — making it far larger than any city in the world right now. And the American city would lose 80 percent of its population. Obviously that's not realistic.

But even in a less extreme scenario in which 10 percent of the US population moves to higher-paying cities, Moretti and Hsieh estimate that the US GDP would be boosted by 3.4 percent, or almost \$2,000 per American.

Serious population growth will take serious planning

If rising demand for urban housing is a long-term trend, then city leaders are going to have to change how they think about urban planning. So far, even the most progressive city leaders have taken a largely reactive approach to the issue — liberalizing housing regulations at the margins in an effort to relieve soaring housing costs.

But what city leaders haven't done is take seriously the possibility that their populations can and probably should add millions of new residents over the coming decades.

Is that feasible? Moretti and Hsieh's projections show that New York's population would have to nearly double, and the San Francisco Bay Area would have to grow by around 75 percent, to achieve a 3.4 percent gain in national economic output. That's a lot faster growth than we've seen in those cities recently, but China has shown that this kind of rapid growth is possible, even for very large cities.

Shanghai's population was 13.3 million in 1990 — already much larger than the San Francisco Bay Area's population of 7.7 million. Since then, Shanghai has grown by 70 percent to 23 million people. During the same period, the San Francisco Bay Area grew its population by just 27 percent.

The city of San Francisco is half as dense as Brooklyn, and San Jose and Silicon Valley are much less dense than that. So there's a lot of potential to build more housing. The region would also have to build more transportation infrastructure — probably including a more extensive subway system — to support an expanded population.

To be sure, many people in the San Francisco Bay Area don't want it to look more like Brooklyn. But they also probably don't want housing to become so expensive that their children can't afford to stay in the area. And that's ultimately the choice they face.

Technology millionaires aren't going away. If the region doesn't find ways to accommodate soaring demand for housing, it will wind up being a place where only technology millionaires can afford the rent.

And leaders in other major metropolitan areas, including Los Angeles, DC, Boston, and New York, face less severe versions of the same dilemma. More and more people want to live in these areas. Leaders can either find ways to accommodate that growing demand — through relaxed housing regulations and investments in transit infrastructure — or they can watch gentrification steadily erode opportunities for ordinary, middle-class people.

[Huffington Post] This Tech Entrepreneur Is Bridging The Gap Between Silicon Valley And China

Matt Sheehan

17 August 2016

http://www.huffingtonpost.com/entry/tech-entrepreneur-china_us_57b38513e4b0b42c38af18ac

When Uber sold its [China operations](#) to its Chinese competitor Didi Chuxing earlier this month, Silicon Valley's latest hope for conquering the Chinese market bit the dust. The Valley's leading tech juggernauts have, one by one, lost the battle for China's 700 million internet users, falling victim both to Chinese censors (in the case of Google, Facebook and Twitter, among others) and local competitors (in the case of Amazon, eBay and Uber).

At the same time, China's own tech titans — Alibaba, Baidu and Tencent — have seen little progress in their attempts to gain traction internationally. Despite a stranglehold on Chinese markets — and some [innovative apps](#) that Western firms now look to [imitate](#) — global consumers have yet to truly embrace Chinese tech companies.

Instead of direct competition, Chinese and Western internet companies are increasingly turning toward [partnerships and reciprocal investments](#). As these firms exit each other's markets and opt for cooperation rather than competition, some analysts describe the global internet being carved into "[spheres of influence](#)."

For insight into trans-Pacific tech rivalries and relationships, The WorldPost spoke with Li Zhifei, founder and CEO of Mobvoi, a Beijing-based artificial intelligence [startup](#) that in many ways bridges Beijing and Silicon Valley. Li worked as a research scientist at Google before returning to Beijing to found his own company. Mobvoi has since taken on [investment from Google](#) and served as the company's proxy for bringing [Android Wear](#) to China, where Google services are blocked. Mobvoi is now marketing own smartwatch, Ticwatch 2, to international consumers through a Kickstarter campaign that has [raised almost \\$1.5 million](#).

Li spoke with The WorldPost about innovation ecosystem in Silicon Valley and Beijing, and why Chinese and U.S. tech companies can't seem to crack each other's markets.

You've spent time as a research scientist at Google in Silicon Valley and now founding Mobvoi in Beijing. How would you compare the innovation ecosystem between these two places?

I would argue that Beijing has caught up with Silicon Valley really quickly. If you think about two or three years ago there was still quite a difference in terms of business models and talent. I think right now Beijing is really close to Silicon Valley in many aspects, and in some ways Beijing might be ahead.

Beijing has caught up with Silicon Valley really quickly.

In terms of talent, those really good people — really motivated, smart, well-educated and professional — I think Silicon Valley is still much better than Beijing. But it's a process. I would argue that Beijing is catching up because all those things can be trained, as long as you're facing real problems. Right now companies like Didi and Xiaomi have tough problems, and commercializing is very important. They gradually become better and better because they face real problems, and if they solve the problem they get real returns.

If you think about the VC money, I think Beijing is comparable to Silicon Valley and sometimes the market size might actually be bigger. It's much easier for you to attract 1 or 2 million users just in Beijing. That's the benefit of China.

But Silicon Valley certainly has a lot of advantages. If you're a company in Silicon Valley, from day one you're a global company. When the world looks at Beijing and Silicon Valley, they always think Silicon Valley really represents the global values of human society, while Beijing is seen as China-specific. Especially in the Western world, I think there still exists bias towards the Chinese system. From that sense I think Silicon Valley companies still have an advantage: from day one they can go global, they have a global brand.

Recently Uber sold its China operations to Didi, and we've seen lots of new partnerships between companies in the two ecosystems. What's driving this trend of increasing cooperation and partnerships between Silicon Valley and Beijing?

I think absolutely the relationship between Beijing and Silicon Valley is going to be much tighter, and there will be a lot more interaction. The real motivation is commercial — the business side. I remember in 2010 when Google withdrew from China, their revenue from China might have just been 1 percent of their global revenue. That's really nothing.

The relationship between Beijing and Silicon Valley is going to be much tighter.

But if you think about how mobile has changed in the last three or four years, the Chinese mobile phone market is now the largest in the world, I think around 20 percent globally. That means as long as you're a global company and you care about that 20 percent of the market, then you've got to either operate here locally or have a good partner in China.

On the other hand, Chinese companies also want to go global. Now companies here are confident: they have money, they have people, they have the market share and they also have a global view. That's why you're seeing so much foreign investment by Chinese tech companies in Silicon Valley and Europe.

Given that desire to access China, what are the main obstacles — other than outright government blocking of sites — that U.S. tech companies face in China?

I think for U.S. companies coming to China, if your company is more operational — if it's really not about technology — those companies really don't have a lot of competitive advantages here. It's more about local operations, speed of action, competition in fundraising. For funding or speed of operations, I think local Chinese companies are really, really strong. That's exactly why a company like Uber has a really tough war here. Didi is so aggressive in terms of raising money, speed of execution, growth, etc. You have to make quick decisions, quick reactions to changes in the market, and if your headquarters is in the U.S. it's going to be difficult.

But I think for technology companies it might be a little different. If it's really technology-driven and it's actually at the frontier, those companies still have an advantage when they come to China. But for the operations, they still need to have some really localized operation teams. I think Silicon Valley companies have a really global view, but they need local action.

A Tibetan Buddhist monk talks on his smartphone as he sits on the grassland of the Tibetan Plateau in Yushu County.

When talking about your own company's move into international markets, you've said, "We're not going to emphasize that we're a Chinese company, but we're not going to hide it either." What do you think are the obstacles for Chinese companies as they go global?

Chinese companies are much more confident now in terms of the technology, the speed we can execute, how hard we can work on the problem. But we certainly face problems in the way the Western world thinks about Chinese companies: they don't have real technology, they don't have innovation, they produce cheap products, they are not trustworthy. I think those ideas are still in the minds of most Western people, and those are real obstacles we're going to face.

But for me and for many Chinese technology companies, if you want to go overseas, I think you really have to focus on the product and the user itself. As long as you have a really, really good product, when users are purchasing the product they won't be worried if you're from China or from Russia. If you don't have a good product or user experience you have zero chance of being successful in the U.S. Once you have this, you might have a chance, as long as you're patient.

Our mission is to define the next generation of human-computer interaction by using AI technology.

Your international Kickstarter campaign for the Ticwatch 2 has already raised over a million dollars. Why did you choose to launch Ticwatch 2 on global markets, and what will it be like entering into the global marketplace?

For Mobvoi, we want to be a global company, and we want to be a technologically innovative company. Our mission is to define the next generation of human-computer interaction by using AI technology. I think this is really something new; it's a mission that hasn't been fulfilled by anyone in the U.S. or any other country.

We really want to collect feedback globally. If you get a global view of the market and you get a lot of feedback from all kinds of places, it will actually change the way you think about the problem and address it.

We're pretty confident that our product is competitive. In China we face the exact same competition: Apple, Huawei, Samsung, Moto 360. They all have products here [in China], so when we go overseas it's the exact same competition we're facing. In China we're doing very well when compared with those big brands.

The Western market for this new emerging category is really interested in seeing a new brand, a new way of doing the smartwatch. I think our way of doing the smartwatch is really different: we do the algorithm, operating system and hardware all by ourselves, so it's an entirely integrated product and its highly optimized. I think we're going to bring something new and unique to the smartwatch market.

[Wired] WIRED ENDORSES OPTIMISM

Scott Dadich 18 August 2016

<http://www.wired.com/2016/08/wired-endorses-hillary-clinton/>

WIRED HAS NEVER BEEN NEUTRAL.

For nearly a quarter of a century, this organization has championed a specific way of thinking about tomorrow. If it's true, as the writer William Gibson once had it, that the future is already here, just unevenly distributed, then our task has been to locate the places where various futures break through to our present and identify which one we hope for.

Our founders—Louis Rossetto, Jane Metcalfe, and Kevin Kelly—all supported a strain of optimistic libertarianism native to Silicon Valley. The future they endorsed was the one they saw manifested in the early Internet: one where self-organizing networks would replace old hierarchies. To them, the US government was one of those kludgy, inefficient legacy systems that mainly just get in the way.

Over the past couple of decades, we've gotten to watch their future play out: We've seen the creative energies of countless previously invisible communities unleashed—and, well, we've watched networks become just as good at concentrating wealth and influence in the hands of a few people as the old hierarchies were. We've seen geeks become billionaires, autocrats become hackers, and our readers (people curious about how technology is shaping the world) become the American mainstream. Like any sane group of thinkers, we've calibrated our judgments along the way. But much of our worldview hasn't changed. We value freedom: open systems, open markets, free people, free information, free inquiry. We've become even more dedicated to scientific rigor, good data, and evidence-driven thinking. And we've never lost our optimism.

I bring all this up because, for all of its opinions and enthusiasms, WIRED has never made a practice of endorsing candidates for president of the United States. Through five election cycles we've written about politics and politicians and held them up against our ideals. But we've avoided telling you, our readers, who WIRED viewed as the best choice.

Today we will. WIRED sees only one person running for president who can do the job: Hillary Clinton.

RIGHT NOW WE see two possible futures welling up in the present. In one, society's every decision is dominated by scarcity. Except for a few oligarchs, nobody has enough of anything. In that future, we build literal and figurative walls to keep out those who hope to acquire our stuff, while through guile or violence we try to acquire theirs.

In the other future, the one WIRED is rooting for, new rounds of innovation allow people to do more with less work—in a way that translates into abundance, broadly enjoyed. Governments and markets and entrepreneurs create the conditions that allow us to take effective collective action against [climate change](#). The flashlight beam of science keeps [turning up cool stuff](#) in the [corners of the universe](#). The grand social experiments of the 20th and early 21st centuries—the mass entry of women into the workforce, [civil rights](#), LGBTQ rights—continue and give way to new ones that are just as necessary and unsettling and empowering to people who got left out of previous rounds. And the sustainably manufactured, genetically modified [fake meat tastes really good](#) too.

Our sights might not be perfectly aligned, but it's pretty clear Hillary Clinton has her eye on a similar trajectory. She intends to uphold the Paris Agreement on climate change and reduce carbon emissions by up to 30 percent in 2025. She hopes to produce enough renewable energy to power every American home by the end of her first term. She wants to increase the budgets of the National Institutes of Health and the National Science Foundation, two major drivers of research and innovation via government

funding. And she wants to do the same for Darpa, the defense research agency—without which, let's face it, WIRED probably wouldn't exist, because no one would have invented the things we cover.

Clinton also has ideas that clear away stumbling blocks for [entrepreneurs and strivers](#). She proposes linking entrepreneurship to forgiveness of student loans, as a way to help young people start businesses. Clinton favors net neutrality—giving every packet of data on the Internet the same priority, regardless of whether they originate from a media corporation or from you and me. She has proposed easier paths to legal immigration for people with science, technology, and engineering degrees. And she has spent my entire adult life trying to work out how to give the maximum number of Americans access to health care; she will continue to strengthen the Affordable Care Act, which among other things has helped people walk away from crappy, dead-end jobs by alleviating the fear that they'll lose their insurance.

We don't always agree with Clinton. As secretary of state, her inclination toward military solutions had disastrous [consequences in the Middle East](#), and the US still has an alarming tendency to try to solve complex foreign policy problems with [flying killer robots](#). Her specific position on encryption is tough to pin down, but she seems to favor encryption weak enough for law enforcement to penetrate. That [violates basic privacy](#).

But having met Clinton and talked about all these issues with her, I can tell you that her mastery of issues and detail is unlike that of any politician I've met. She comes to every policy conversation steeped in its history and implications, and with opinions from a diverse set of viewpoints. She is a technician, and we like technicians.

The country can go one of two ways, right now: toward a future where working together in good faith has a chance, or toward nihilism.

Now, it's true: Engineers, the heroes of WIRED, often misunderstand politics. They tend to confuse political problems with technological ones (because those are the ones they know how to solve), and they get impatient with the inefficiency, ugliness, and open-endedness of governing. If you think WIRED's ideal future is an engineer's future, you've misread us, and I apologize for being unclear. Making policy based on ideas, science, evidence, and compromise—as we believe Hillary Clinton will do—is not an approach to building a fully optimized system. When human beings are involved, optimization is asymptotic; you aim for it but never reach it. Clinton's approach is merely prudent.

It's also skillful. Among those who've worked with her, Clinton is renowned for how well she listens and works in teams. And of course her inauguration would start to remedy a certain hiring bias that the nation's HR department—the electorate—has displayed over the past 241 years.

Her campaign has been trying to incept us with these ideas for months now, of course: Her vision is bright and forward-looking; Donald Trump's is dark and atavistic. She's qualified, she knows the material; Trump is all bluster. We happen to believe that for all the barbs aimed at Hillary Clinton—the whole calculating, tactical, Tracy Flick enchilada—she is the only candidate who can assess the data, consult with the people who need to be heard, and make decisions that she can logically defend. Sure, she's calculating. She's tactical. There are worse things you can ask of [a person with nuclear codes](#).

PERHAPS YOU FEEL like this is a low bar: Support a candidate because she [believes in science](#)? Get behind a politician because she approaches policymaking like a professional? Maybe you were hoping to be more inspired. We think the opportunity presented to us is more than inspiring enough. The country

can go one of two ways, right now: toward a future where working together in good faith has a chance, or toward nihilism.

Trump's campaign started out like something from *The Onion*. Now it has moved into George Orwell—as-interpreted-by—Paul Verhoeven territory. When he isn't insulting the parents of a dead soldier, or promising to build an impossible wall between the US and Mexico to keep out rapists, or advocating a ban on Muslims, he's saying that Barack Obama and Hillary Clinton are the founders of ISIS, or that "Second Amendment people" should do something about his opponent, or that he watched a nonexistent video of a plane delivering cash to Iran. And that's mostly stuff he said in the space of a few weeks.

When Trump beats up on Clinton for her misuse of a private email server as secretary of state—an egregious mistake that the head of the FBI called "extremely careless"—we hear him. But when Trump goes on to ask Russian hackers to continue their apparent assaults on an American election by finding more of Clinton's emails, even as a wan joke, he takes the side of the arsonists while attacking his opponent for a fire code violation. When he says the press is corrupt and the electoral system is rigged, he's not acting like someone who wants to lead. He's acting like someone who demands to be followed.

Ultimately, it's impossible to judge Trump's claims as actual statements of belief or intention. We don't know if President Trump would totally renege on that Paris commitment or actually pursue his policy of Muslim exclusion; but we have to assume he'll try. We have no way of knowing if he actually believes that vaccines cause autism, as he claimed in a debate, but they don't. Does he really think that wind power kills "all your birds"? Who knows. But it doesn't; cats kill all your birds.

Here's the thing about Donald Trump: In his 14 months as a political candidate, he has demonstrated an utter indifference to the truth and to reality itself. He appears to seek only his own validation from the most revanchist, xenophobic crowds in America. He is trolling, hard.

WHEN WE SAY we're optimistic, it isn't just because we can point you to a trove of evidence that we're all very, very lucky to be alive right now: We live longer, we're less violent, and there's less extreme poverty than at any time in human history. And it's not just because optimism is endemic to Silicon Valley, though that's also true. It's because of the way optimism conditions how people act in the world. As Stewart Brand, one of our heroes, once described in these pages, people behave better when they think things are improving: "If you truly think things are getting worse, won't you grab everything you can, while you can? Reap now, sow nothing. But if you think things are getting better, you invest in the future. Sow now, reap later."

We'll keep fighting for the future instead of for the past. And part of that fight is endorsing Hillary Clinton for president.

Of course it would be glib for privileged people like us to expect everyone to just buck up about tomorrow. The future isn't the only thing that's unevenly distributed in the present: so are wealth, influence, skills, and other deep-seated advantages. So are fears. It's easy to celebrate the digital revolution when it has enriched the 40 square blocks surrounding your office; less so when you've seen your wages stagnate over the past 35 years. It's natural to [welcome social justice](#) when it vests you in American culture and not, I suppose, when it tells you that you've been the problem all along. We don't blame people for worrying about their future. But we think most Americans recognize that it's

important to have leaders who believe things get better from here—who want to build things other than barriers.

Besides, Donald Trump's supporters aren't even the people who have been most left behind by globalism and technology. Consider that, institutionally, Trump has no better remaining friend than [the National Rifle Association](#), whose industry leaders have profited enormously from the climate of fear and paranoia surrounding mass shootings. And according to a recent study of Trump supporters by Gallup—the most extensive one yet—the candidate's rank-and-file fans are in fact wealthier than average and less likely to live in areas affected by immigration and trade. The most charitable explanation is that they are afraid their children will lose ground. But let's be clear: What these Americans stand to lose is nothing compared to the threat their political movement now poses to millions of African-Americans, Muslims, and immigrants, who experience the rise of Trumpism as an immediate menace to their families.

The person who has the least to lose is Trump, who has a long history of walking away relatively unscathed from things he's destroyed.

So no, WIRED has never been neutral. But now we're declaring our alignment—one shared by an overwhelming number of tech leaders. The newsroom will continue to do critical, fair journalism about both candidates and the world around us. We'll keep fighting for the future instead of for the past. And part of that fight is endorsing Hillary Clinton for president.

[\[Wired\] Kobo's Giant E-Reader May Put the Kindle in Its Place](#)

Brian Barrett 17 August 2016

<http://www.wired.com/2016/08/kobo-aura-one/>

IN THE ANNALS of great underdogs, a Canadian subsidiary of a Japanese mega-retailer makes for an unlikely entrant. And yet here's Kobo, [again](#), with a new e-reader that could give Kindle owners some serious second thoughts.

The new Kobo Aura One is literally big, a 7.8-inch behemoth in a world of standard 6-inch displays. But its features are also outsized, whether it's robust waterproofing, a clever new nighttime lighting system, or a way to help you read as many top-shelf books as you please without paying a cent. More importantly, they're all enhancements you won't find on an [Amazon Kindle](#).

Kobo A-Gogo

It's a rocky time for e-readers. Last month, the Association of American Publishers [reported](#) that while overall book revenue increased .6 percent in 2015 versus the year before, e-book revenue fell a precipitous 11.3 percent. Of Amazon's extensive e-reader lineup, only two crack the company's top 100 sellers in electronics.

So it's not surprising then that Kobo has felt some of this decline as well; in fact, the only surprising thing for most people may be that an e-reader called Kobo exists at all. The upstart's parent company, Japanese e-commerce giant Rakuten, [wrote down](#) its 2011 Kobo acquisition by nearly \$250 million earlier this year.

The bleak economics of e-reading belies the steadily increasing joys of the devices themselves, especially in the burgeoning premium category. Not many people may be willing to spend hundreds of dollars on an e-reader, but if you're one of them, you're in for a treat. That applies to Amazon's \$200 [Kindle Voyage](#), its more recent \$290 [Oasis](#), which comes with its own leather charging case, and now to the \$230 Kobo Aura One, which launches on September 6. It does things neither of those Amazon devices can dream of, and it has to if it wants to shake people from their e-reader lethargy.

"When people talk about seeing declines in the space, one of the things that's embedded in that is that people are still reading on devices that they bought in 2011 and 2012," says Kobo CEO Michael Tamblyn. "Then they slowly upgrade until something comes along that's good enough to make them step upward. It's not like smartphones, where you're getting a giant influx of new customers every 18 months."

If e-reader success is a matter of enticements, the Aura One makes for a pretty solid siren. Previous Kobos have been waterproof, but the latest model can survive submerged two meters for up to an hour, not that you'd need to. The Aura One hops on the anti-blue-light trend, phasing out blue spectrum over time so that reading in bed doesn't go on to affect your sleep. (There are studies that say this is helpful, and Apple introduced a similar feature in iOS 9.3, but mileage will vary).

It's also bigger. Tamblyn says the 7.8-inch display helps mimic the feel of a hardcover, rather than a paperback, and that aging e-book enthusiasts prefer having more words on a page even at blown-up font sizes. In my short time with the Aura One, I can confirm that despite its size, it's comfortable to hold one-handed, thanks to minimal weight and a pleasantly texturized rubber back. I don't know that I prefer a bigger display yet, or prefer it enough to sacrifice even that little bit of room in my bag. All that surface area can also make the Aura One a little awkward to navigate when you're using the keyboard to search the store, or adjusting far-flung settings.

But you're mostly just reading. And besides, any annoyance quickly disappears when you get to the Aura One's best feature. The one where you don't have to buy books anymore.

Maximum OverDrive

Apologies if this comes as no surprise, but you don't actually have to purchase e-books. You can rent them from your local library, through a company called OverDrive.

I know, right? Free books! And it's not like you were going to display them on your built-ins anyway. The reason more people don't know about this, or maybe more accurately just don't do it, is that the process is a pain. You have to sign up at your library, register at OverDrive on your browser, download a book, transfer it to your device; it's a mess, no matter what e-reader you own.

"The previous experience of people side-loading to the device was 16 steps to borrow through a library," says Tamblyn. "And if any one of those went wrong, it was usually a customer service call to us."

You'll notice that Tamblyn uses the past tense. That's because Rakuten bought OverDrive in 2015 for over \$400 million, which means OverDrive and Kobo are siblings, which is why (thanks, corporate synergy!) the Kobo Aura One has OverDrive built right in.

That gets a little tangled, so let me clarify: You can borrow e-books directly on the Aura One, for free, with just a few taps. I picked up National Book Award finalist *Fates and Furies* last night with about 30 seconds of work, including the download time. It retails for \$13 on Amazon.

There are hiccups to OverDrive borrowing. The titles eventually disappear from your device when the lending period is over (although you can re-up), and the selection can be scant. But giving OverDrive equal weight as a paid bookstore is a remarkable thing. If you borrow 10 books a year, that's easily a hundred dollars you've saved, not to mention avoiding the hassle of side-loading.

For now, the direct OverDrive access is limited to the Aura One, though Tamblyn didn't rule out the possibility that it could come to other models as well. It goes a long way towards making that \$230 purchase price more palatable, though. Especially when that still undercuts Amazon's best by a solid amount.

"We were certainly quite delighted to see someone come out with something up in the \$300 range that was still a 6-inch screen, that hadn't done anything with light and sleep, not waterproof," says Tamblyn. "That was a great gift to us."

There are things not to like about the Aura One. It has no physical buttons, if you prefer those, and Kobo's e-book store selection still falls well short of the Kindle Store. The larger size might throw you off. But there's also so much to like. More importantly, there's so much here that you won't find anywhere else. At the very least, it makes Kobo worthy of a closer read.

TT Clips August 29 2016

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Broadband

[NY Times] [Broadband Law Could Force Rural Residents Off Information Superhighway](#)

Cecilia Kang

28 August 2016

http://www.nytimes.com/2016/08/29/technology/broadband-law-could-force-rural-residents-off-information-superhighway.html?_r=0

WILSON, N.C. — On the first day of the harvest last week, a line of trucks brimming with sweet potatoes rolled into [Vick Family Farms](#), headed for a new packing plant that runs on ultrafast internet.

The potatoes were tagged with online bar codes to detail the plots where they grew, their types of seed, and dates and times picked. On a conveyor belt, 50 flashing cameras captured and sent images of the spuds to an online program that sorted the Carolina Golds by size and quality and kicked them into boxes.

The Vick family built the plant only after the nearby city of Wilson agreed early last year to bring its municipal broadband service to the 7,000-acre farm. Since the plant opened in October, the farm’s production and sales to Europe have jumped.

But now, after a legal battle between state and federal officials over broadband, the farm and hundreds of other customers in the eastern region of the state may get unplugged.

“We’re very worried because there is no way we could run this equipment on the internet service we used to have, and we can’t imagine the loss we’ll have to the business,” said Charlotte Vick, head of sales for the farm.

Vick Family Farms got caught between the [Federal Communications Commission](#) and North Carolina state legislators over the spread of municipal broadband networks, which are city-run internet providers that have increased competition in the broadband market by serving residents where commercial networks have been [unwilling to go](#).

This month, the United States Court of Appeals for the Sixth Circuit [upheld restrictive laws](#) in North Carolina and [Tennessee](#) that will halt the growth of such networks. While the decision directly affects only those two states, it has cast a shadow over dozens of city-run broadband projects started nationwide in recent years to help solve the [digital divide](#).

In siding with the states, the court hobbled the boldest effort by federal officials to support municipal broadband networks. While the court agreed that municipal networks were valuable, it disagreed with the F.C.C.’s legal arguments to pre-empt state laws.

Now, cities like Wilson fear they have little protection from laws like those in about 20 states that curb municipal broadband efforts and favor traditional cable and telecom firms. City officials say cable and telecom companies that have lobbied for state restrictions will be encouraged to fight for even more draconian laws, potentially squashing competition that could lead to lower prices and better speeds to access the web.

“This is about more than North Carolina and Tennessee,” said Deb Socia, executive director of [Next Century Cities](#), a nonprofit coalition of cities exploring broadband projects. “We had all looked to the F.C.C. and its attempt to pre-empt those state laws as a way to get affordable and higher-quality broadband to places across the nation that are fighting to serve residents and solve the digital divide.”

In Wilson, officials said cable and telecom companies rejected requests to team up with them and upgrade aging networks, which led the city to start its own broadband network called [Greenlight](#) in 2008. The service provides speeds of one gigabit per second, which lets people download big video files in seconds or minutes instead of several hours with DSL or basic cable broadband.

In 2011, companies like Time Warner Cable, represented by the cable lobbying association, asked the North Carolina legislature to adopt a law to limit Wilson’s ability to serve customers outside Wilson County, even though the city serves electricity customers in four additional counties.

Grant Goings, Wilson’s city manager, said the court decision made it unclear “how we can bridge the digital divide and create economies of the future when there are corporate interests standing in the way.”

Empty sweet potato crates at Vick Family Farms. Charlotte Vick, head of sales, said she “can’t imagine the loss we’ll have to the business” without ultrafast internet. Credit: Jeremy M. Lange for The New York Times

But some lawmakers and free-market-oriented think tanks say public broadband projects should be carefully scrutinized by local regulators because they are costly and, if unsuccessful, can be a financial burden on taxpayers. In addition, the F.C.C. cannot intervene in state laws, they said.

The court decision “affirms the fact that unelected bureaucrats at the F.C.C. completely overstepped their authority by attempting to deny states like North Carolina from setting their own laws to protect hardworking taxpayers and maintain the fairness of the free market,” Thom Tillis, a Republican United States senator who pushed through the 2011 bill when he was North Carolina’s House speaker, said in a statement.

[CenturyLink](#), one of the broadband providers serving Wilson and surrounding areas, says it offers competitive internet speeds and has upgraded its networks. The company says it wants to partner with municipalities but is concerned that city-run networks may have an unfair advantage.

“If local governments choose to compete with private internet service providers, there needs to be a level playing field,” said Rondi Furgason, CenturyLink’s vice president for operations in North Carolina.

The F.C.C. does not plan to appeal the federal court’s decision “after determining that doing so would not be the best use of commission resources,” Mark Wigfield, a spokesman for the agency, said in a statement. That means municipalities that want to keep expanding their municipal broadband networks will have to fight to overturn state laws on their own.

The legal fight is being closely watched by other cities in states that have similar broadband restrictions, such as Colorado and Washington. Even big cities like Los Angeles and San Francisco are in the early stages of exploring municipal broadband networks, which they view as crucial to serving [low-income families who cannot afford service](#) from cable and telecom companies.

“It’s bad news for projects looking to expand beyond their borders in hostile, anti-muni broadband states,” said Robert Wack, president of the City Council in Westminster, Md., which began its own gigabit municipal network last year.

For thousands of residents in communities near Wilson, about an hour from Raleigh, the court decision has created whiplash.

In Pinetops, a short drive east of Wilson, many residents cheered the arrival of the Greenlight service last year. The former railroad stop, known for its picturesque pine trees, has long struggled to maintain its population of 1,300. Though many cars pass through the town, there is little reason to stop, since many storefronts are shuttered.

Last year, Pinetops officials pleaded with Wilson, its much larger neighbor that provides water and power to the area, to also bring its broadband service. They saw how having Greenlight had helped Wilson attract companies like [Exodus FX](#), a visual effects company that has worked on movies like “Captain America” and “Black Swan.” In February, Wilson expanded Greenlight to Pinetops by extending fiber lines to 200 homes, and it has plans to serve 400 homes by later this year.

Tina Gomez, a Pinetops resident, quickly saw Greenlight’s benefits. She recently got a telework job with General Electric, which requires reliable high-speed internet service to run a customer service software program. Ms. Gomez, 37, also started online courses in medical billing and coding. Before subscribing to Greenlight, finding telework was a challenge because the existing home internet service was too slow, she said.

Now the political squabble over broadband may hurt her livelihood. Mark Gomez, Ms. Gomez’s husband, said they would move from Pinetops to Wilson when their broadband service was disconnected.

“We can’t stay if the basic services we need aren’t here,” Ms. Gomez said.

At Vick Family Farms, Ms. Vick recalled what life was like before Wilson’s municipal broadband service. Her previous service, supplied by CenturyLink, often stalled or stopped entirely. One week before Thanksgiving a few years ago, the farm was shut down for hours because of an internet failure, so workers had to pack boxes by hand.

“We can’t step back in time when everyone else is moving forward,” she said.

[\[WSJ\] Hillary Clinton’s Broadband Plan Draws Criticism From Experts](#)

Colleen McCain Melson

28 August 2016

<http://www.wsj.com/articles/hillary-clintons-broadband-plan-draws-criticism-from-experts-1472389201>

On the campaign trail, Democratic presidential nominee [Hillary Clinton](#) sketches a vision where [every home in the U.S. is connected to broadband](#).

In just four years, children in inner cities and rural areas alike will be able to access the internet to do their homework, Mrs. Clinton tells voters. And entrepreneurs everywhere in this country will be able to get online to sell their products or start new businesses.

The cost? She doesn’t say, but the former secretary of state urges a bold push to quickly close the digital divide.

“I happen to think we should be ambitious,” Mrs. Clinton said earlier this month. “Let’s connect every household in America to broadband by the year 2020.”

Experts say the Democratic nominee’s proposal is indeed ambitious—and expensive. And some question whether her timeline is realistic.

“I would be pleasantly surprised if the country could actually attain Secretary Clinton’s goal in four years,” said Sharon Stover, director of the Technology and Information Policy Institute at the University of Texas at Austin. But she’s dubious. “Too many things have to fall into place.”

Beyond the price tag, it is unclear which part of the federal government would execute this plan and whether Republicans in Congress would back the legislation that is needed to deliver on this campaign promise—a challenge Mrs. Clinton couldn’t overcome when she was pushing similar initiatives while serving as a New York senator.

Sara Solow, domestic policy adviser for the Clinton campaign, said the initiative has a good shot at drawing bipartisan support in today’s digital age.

“Universal broadband connections and really good fiber-optic networks are more and more perceived as something that is essential for the 21st century economy, and there are such economic payoffs to it,” she said.

Mrs. Clinton’s high-speed-internet initiative [would be part of broader infrastructure legislation](#) she has said she would push Congress to act on within the first 100 days of her administration.

A study would be needed to determine the cost of the broadband plan, where coverage gaps remain and which federal agency should take the lead, a senior Clinton campaign aide said.

Bradley Tusk, CEO of the tech regulatory and political firm Tusk Ventures, called Mrs. Clinton's plan to upgrade the country's digital infrastructure "pretty uninspired and general," deeming it a "very analog tech plan in a very digital world."

Mr. Tusk, who supports Mrs. Clinton's candidacy and has donated to her campaign, also said the Democratic nominee's proposal lacks bold ideas and creative thinking about different ways to provide internet access to hard-to-reach areas.

"The government is not going to become a giant telecom provider, and even if they were, they would not meet this 2020 deadline," he said. "Not every problem has to be solved with the most government-intensive, labor-intensive plan."

The federal government has played a role in bringing high-speed internet to more parts of the country. The 2009 American Recovery and Reinvestment Act included \$6.9 billion to deploy broadband infrastructure and expand access in rural areas.

Five years later, the president's Council of Economic Advisers reported that 110,000 miles of broadband infrastructure had been added or improved, and 20,000 community institutions had gained access to high-speed connections.

If the former secretary of state is elected, one of the first steps she would take would be to examine federal broadband programs that were implemented under President [Barack Obama](#) and then build on efforts that have proved successful, said the senior campaign aide.

In a report earlier this year, the Federal Communications Commission estimated that [10% of Americans lack access to what it considers quality broadband](#). The digital divide comes into stark relief in rural areas, where 39% don't have access to quality broadband, the FCC said.

Ms. Stover, of the University of Texas, said Mrs. Clinton could struggle to deliver on her promise because the people who still lack broadband live in areas that will prove costly and logistically difficult to connect.

Republican presidential nominee Donald Trump hasn't laid out a plan for expanding broadband access in this country. Trump campaign officials didn't respond to requests for comment.

Mrs. Clinton has tried with limited success to deliver on similar campaign promises.

As a U.S. Senate candidate in 2000, Mrs. Clinton pledged to enact programs that would bring high-speed-internet connections to rural and underserved urban communities in New York.

Six years later when she ran for re-election, Mrs. Clinton called for a rural renaissance, pledging to accelerate efforts to build networks and deploy broadband in communities that had been left behind.

But she struggled to pass legislation that would have advanced that cause. Mrs. Clinton introduced bills aimed at enhancing broadband access in upstate New York and other rural and underserved areas, but they failed to pass Congress. She did [co-sponsor legislation that became law](#), requiring the FCC and the U.S. Census Bureau to track broadband access nationally.

Campaign officials have expressed optimism that in 2017, Mrs. Clinton could find a more receptive audience in Congress. Connecting every household to broadband is important to voters and should have resonance with lawmakers as well, they said.

“When she’s gone to various communities, this discussion and that policy area have gotten a lot of response,” Ms. Solow said. “Sometimes it’s the biggest applause line in her remarks in some rural places in particular. It really resonates with people, and we have seen how important it is to communities that this really be a high priority.”

ICANN/IANA

[WSJ] An Internet Giveaway to the U.N.

L. Gordon Crovitz

28 August 2016

<http://www.wsj.com/articles/an-internet-giveaway-to-the-u-n-1472421165>

When the Obama administration announced its plan to give up U.S. protection of the internet, it promised the United Nations would never take control. But because of the administration’s naiveté or arrogance, U.N. control is the likely result if the U.S. gives up internet stewardship as planned at midnight on Sept. 30.

On Friday Americans for Limited Government received a response to its Freedom of Information Act request for “all records relating to legal and policy analysis . . . concerning antitrust issues for the Internet Corporation for Assigned Names and Numbers” if the U.S. gives up oversight. The administration replied it had “conducted a thorough search for responsive records within its possession and control and found no records responsive to your request.”

It’s shocking the administration admits it has no plan for how Icann retains its antitrust exemption. The reason Icann can operate the entire World Wide Web root zone is that it has the status of a legal monopolist, stemming from its contract with the Commerce Department that makes Icann an “instrumentality” of government.

Antitrust rules don’t apply to governments or organizations operating under government control. In a 1999 case, the Second U.S. Circuit Court of Appeals upheld the monopoly on internet domains because the Commerce Department had set “explicit terms” of the contract relating to the “government’s policies regarding the proper administration” of the domain system.

Without the U.S. contract, Icann would seek to be overseen by another governmental group so as to keep its antitrust exemption. Authoritarian regimes have already proposed Icann become part of the U.N. to make it easier for them to censor the internet globally. So much for the Obama pledge that the U.S. would never be replaced by a “government-led or an inter-governmental organization solution.”

Rick Manning, president of Americans for Limited Government, called it “simply stunning” that the “politically blinded Obama administration missed the obvious point that Icann loses its antitrust shield should the government relinquish control.”

The administration might not have considered the antitrust issue, which would have been naive. Or perhaps in its arrogance the administration knew all along Icann would lose its antitrust immunity and

look to the U.N. as an alternative. Congress could have voted to give Icanm an antitrust exemption, but the internet giveaway plan is too flawed for legislative approval.

As the administration spent the past two years preparing to give up the contract with Icanm, it also stopped actively overseeing the group. That allowed Icanm to abuse its monopoly over internet domains, which earns it hundreds of millions of dollars a year.

Earlier this month, an independent review within Icanm called the organization “simply not credible” in how it handled the application for the .inc, .llc and .llp domains. The independent review found Icanm staffers were “intimately involved” in evaluating their own work. A company called Dot Registry had worked with officials of U.S. states to create a system ensuring anyone using these Web addresses was a legitimate registered company. Icanm rejected Dot Registry’s application as a community, which would have resulted in lowered fees to Icanm.

Delaware’s secretary of state objected: “Legitimate policy concerns have been systematically brushed to the curb by Icanm staffers well-skilled at manufacturing bureaucratic processes to disguise pre-determined decisions.” Dot Registry’s lawyer, Arif Ali of the Dechert firm, told me last week his experience made clear “Icanm is not ready to govern itself.”

Icanm also refuses to award the .gay domain to community groups representing gay people around the world. Icanm’s ombudsman recently urged his group to “put an end to this long and difficult issue” by granting the domain. Icanm prefers to earn larger fees by putting the .gay domain up for auction among for-profit domain companies.

And Icanm rejects the community application for the .cpa domain made by the American Institute of CPAs, which along with other accounting groups argues consumers should expect the .cpa address only to be used by legitimate accountants, not by the highest bidder. An AICPA spokesman told me he has a pile of paperwork three feet high on the five-year quest for the .cpa domain. The professional group objected in a recent appeal: “The process seems skewed toward a financial outcome that benefits Icanm itself.”

The only thing worse than a monopoly overseen by the U.S. government is a monopoly overseen by no one—or by a Web-censoring U.N. Congress still has time to extend its ban on the Obama administration giving up protection of the internet. Icanm has given it every reason to do so.

[WSJ] [The U.N.’s Chance to Control the Internet](#)

James Freeman 29 August 2016

<http://www.wsj.com/articles/the-u-n-s-chance-to-control-the-internet-1472470001>

United Nations control of the internet “is the likely result if the U.S. gives up internet stewardship as planned at midnight on Sept. 30,” [writes our columnist Gordon Crovitz](#). That’s because, once the Internet Corporation for Assigned Names and Numbers (Icanm) no longer operates as a contractor for the U.S. government, the outfit “[would seek to be overseen by another governmental group so as to keep its antitrust exemption](#). Authoritarian regimes have already proposed Icanm become part of the U.N. to make it easier for them to censor the internet globally,” [adds Mr. Crovitz](#).

[Where did all that money go](#) that the Obama Administration and state attorneys general squeezed out of the nation’s biggest banks to settle mortgage litigation? The regulators sold it as consumer relief,

but [Andy Koenig says](#) the administration “has quietly steered money to [organizations and politicians who are working to ensure liberal policy and political victories](#) at every level of government.”

[A Journal editorial says](#) the biggest news out of Jackson Hole this year was Federal Reserve Chair [Janet Yellen’s](#) “statement that the [Fed now considers QE bond buying to be a routine part of its ‘toolkit’](#) to keep unemployment low. Come the next recession, her implication is that the Fed won’t stop merely at buying Treasuries or mortgage securities. It will follow the European Central Bank in buying a broad swath of corporate bonds. This will [plunge the Fed even deeper into favoring some parts of the economy over others.](#)”

The California Supreme Court has refused to hear *Vergara v. California*, the landmark case challenging California law that protects incompetent teachers at the expense of students. [Theodore Boutros and Joshua Lipshutz, lawyers for the plaintiff, argue in our pages today](#) that it’s now time for the U.S. Supreme Court to consider the case.

Why did a relatively modest earthquake kill so many people in Italy? [Costas Synolakis and George Karagiannis say](#) modern buildings held up well but the “majority of the victims Wednesday were trapped in collapsed old buildings, [constructed more than a century ago and never retrofitted.](#)”

Meanwhile [a Journal editorial observes](#) another natural disaster in Louisiana and lauds the [“Cajun Navy,”](#) which is [“a loose association of volunteers](#) who have turned their fishing boats into a humanitarian fleet.” [Without any government supervision,](#) they’ve efficiently “helped in the rescue of 30,000 people stranded by the recent flooding.”

[French politicians are still trying to ban the “burkini”](#)—a head-to-toe swimsuit worn by some Muslim women—despite a recent legal setback. [The editorial board notes](#) the French voters “may soon wonder whether it makes sense to deny Muslims reasonable accommodations for their religion, such as modesty at the beach, while [failing to defend far more important liberal values such as the freedom to publish offensive cartoons](#) about religion without fear of violent reprisals.”

Writing from Turkey, [the Journal’s Sohrab Ahmari says,](#) “There is a lesson here about the destabilizing effects that follow when a superpower tires of its leadership role. For the White House, irritating the Turks was a price worth paying for a small American footprint in Syria.” [Mr. Ahmari adds that “it would behoove the next administration not to humiliate the Turks.”](#)

In “The False Childhood of Instagram,” [Dan Paley writes,](#) “Advertising used to push products on us. Now we’ve become the advertisers, our children the talent and our community the audience. It’s as if we publish a homegrown fashion magazine, and although kids are the stars, [parents become the junkies for the dopamine that flows with every new ‘like.’](#)”

Cybersecurity

[Politico] Elections security: Federal help or power grab?

Eric Geller

28 August 2016

<http://www.politico.com/story/2016/08/election-cyber-security-georgia-227475>

The federal government wants to help states keep hackers from manipulating the November election, amid growing fears that the U.S. political system is vulnerable.

But Georgia's top election official is balking at the offers of assistance — and accusing the Obama administration of using exaggerated warnings of cyberthreats to intrude on states' authority.

Story Continued Below

Georgia Secretary of State Brian Kemp's objections add to a bumpy start for the Department of Homeland Security's attempt to shore up safeguards for the election, during a summer when cyberattacks on the Democratic National Committee have called attention to weaknesses across the electoral system. Cybersecurity experts call tougher protections long overdue for parties, political advocacy groups and voting machinery, but DHS' efforts risk becoming caught in the same partisan arguments about state sovereignty that have hung up programs such as President Barack Obama's Medicaid expansion.

"It seems like now it's just the D.C. media and the bureaucrats, because of the DNC getting hacked — they now think our whole system is on the verge of disaster because some Russian's going to tap into the voting system," Kemp, a Republican, told POLITICO in an interview. "And that's just not — I mean, anything is possible, but it is not probable at all, the way our systems are set up."

During an [earlier interview](#) with the site Nextgov, Kemp warned: "The question remains whether the federal government will subvert the Constitution to achieve the goal of federalizing elections under the guise of security." Kemp told POLITICO he sees a "clear motivation from this White House" to expand federal control, citing Obama's health care law, the Dodd-Frank financial-reform legislation and the increased role of the Education Department in local schools.

Election officials in other states expressed less fear of Washington but said they understand why some might worry about an expanding federal role in election security. Homeland Security Secretary Jeh Johnson said this month that he's considering whether elections should be classified as "critical infrastructure," affording them the same kinds of enhanced protections that the banking system and the electrical grid receive.

To some election officials, this sounds like the first stage of a more intrusive plan.

"I think it's kind of the nose under the tent," said Vermont Secretary of State Jim Condos, a Democrat. "What I think a lot of folks get concerned about [is] when the federal government says, 'Well, look, we're not really interested in doing that, but we just want to give you this,' and then all of a sudden this leads to something else."

"Elections have always been run and organized by the states," said Connecticut Secretary of State Denise Merrill, another Democrat. "And I think there has always been a fear that there would be federal intervention that would not recognize differences among the states."

Merrill added that it's unhelpful to have such alarming rhetoric about election security crop up so close to November.

"We're not happy about anything that serves to make people concerned about the safety of the election at this point," she said. "I think it's wrong to think that there's some sort of threat that isn't there."

But security experts have long warned that elections are vulnerable to digital tampering, and flaws in [voting technology](#) are [well-documented](#). And as Florida's 36-day presidential recount showed 16 years ago, poor state and local decisions about election technology can unleash chaos onto the entire nation.

Joe Kiniry, an election digital-security expert and the CEO and chief scientist at Free & Fair, said it's "par for the course" for states to assert that their systems are secure.

"These are exactly the same kinds of statements made by every large organization about their security until they are the next Sony, Target, or, hell, NSA," he said.

Bruce McConnell, a former DHS deputy undersecretary for cybersecurity under Obama, rejected Kemp's suggestion that states should fear greater federal involvement in elections.

"I think it's pretty clear today which is the greater risk to the republic: citizens losing complete confidence in our election system, or the states working carefully with Washington to prevent disaster while keeping the 10th Amendment well in mind," said McConnell, now the global vice president at the EastWest Institute. He was referring to the Bill of Rights provision that declares limits on federal authority.

Fears of cyber-tampering in the political process mounted after the release of the stolen DNC emails in July, which forced the resignation of then-Chairwoman Debbie Wasserman Schultz and [raised worries](#) among supporters of Hillary Clinton about hackers using future document dumps to mount an October surprise. Cyber experts have blamed those and other breaches on Russian hackers, leading Clinton supporters to allege that Vladimir Putin's regime is trying to steer the election to Donald Trump.

In response, several lawmakers of both parties have urged the administration to improve cyber-protections for parties, political groups and election offices. So did a bipartisan group of security experts from the Aspen Institute, who [said](#) in July that "voting processes and results must receive security akin to that we expect for critical infrastructure."

Johnson told [reporters](#) Aug. 3 that DHS "should carefully consider" that question. Twelve days later, he held a conference call with state election officials in which he discussed a possible role for Washington.

But Kemp called it "troubling" for Johnson to raise the critical-infrastructure issue "before ever talking to the secretaries of state or the election officials."

Kemp also argued that "a definition of critical infrastructure" in current law "would allow the Department of Homeland Security or anybody else to come in and get into our systems."

Asked which laws the secretary had been referencing, David Dove, Kemp's chief of staff, pointed POLITICO to [several sections](#) of the U.S. [code](#) that direct DHS to develop best practices and response plans for critical infrastructure protection. But these statutes do not grant the department clear authority to impose itself on states.

A DHS spokesman declined to comment on Kemp's constitutional concerns, but a former White House cyber policy official said Kemp is wrong about the law.

"The concern about ... 'we'll be designated as critical infrastructure and then we're going to be regulated' is just based on a false premise," said the former official, who requested anonymity to speak candidly.

Instead, the ex-official said, companies can often benefit when the government declares their systems to be critical. Among other assistance, that gives them access to a DHS program, dubbed Einstein, that monitors networks for known hacking threats. Sony Pictures Entertainment gained access to those services after DHS lawyers classified the company as critical following a devastating late-2014 cyberattack, which the Obama administration has blamed on North Korea.

Far from decrying government intervention, the former official said, companies listed as critical cyber entities have said they don't get enough federal help. "Companies that have been put on the cyber list have just complained, 'We don't get anything for this. We have no support.'"

Kemp stood firm, arguing that it was clear during Johnson's conference call with state election officials that a regulatory push "was obviously something that had been in the works."

"Everybody that was on that call was in lockstep with Secretary Johnson," he added.

But other people on the call disputed that characterization.

"Johnson articulated that he was not interested in intervening, regulating or overseeing the election process," said Condos, the Vermont secretary of state. Merrill, from Connecticut, said she recalls that Johnson "specifically said they weren't talking about regulation."

Still, Merrill said, she agreed with Kemp that "we don't really know what it does mean when they say they would offer assistance." She noted that states already work with FBI offices and the U.S. Election Assistance Commission, the agency Congress created to help improve election administration after the *Bush v. Gore* soap opera.

On the call with Johnson, the state officials accepted his offer to create an election cybersecurity partnership committee.

Not everyone is convinced that the risk matches the alarm, however, even though some security researchers have commandeered voting machines with frightening ease. Dove said researchers have succeeded only in favorable conditions that are unlikely to exist during real elections — plenty of time and no security guards.

But experts who have audited voting systems condemn that argument.

"We heard these same complaints a decade ago when people started [looking at] could you hack Microsoft operating systems, or Adobe," said one voting security researcher who asked not to be named, citing political sensitivities. "We would get: 'Oh, that's just a lab environment. That could never happen in the real world.' And of course, we all know, it does."

State election officials frequently point out that their voting machines are not connected to the Internet and so are not susceptible to many forms of remote tampering. But keeping the machines offline is not a cure-all. In 2006, Princeton University researchers [developed a digital virus](#) that hopped among voting machines via the cards that election workers use to program them.

"There's no doubt in my mind that if someone wanted to, they could cause viruses and other malware to spread from one voting machine to another," the voting security researcher said.

All the state officials, including Kemp, told POLITICO that they welcomed DHS' help if it meant merely identifying cyber threats and warning states about them.

“Anybody that wants to assist us in what we’re trying to do ... that’s something that we’d be interested to entertain,” said Alabama Secretary of State John Merrill, a Republican. “We would believe that they would have our best interests in mind.”

Still, Kemp accused the news media and the federal bureaucracy of raising unwarranted fears of election cyberattacks at the worst possible time.

“It would have been nice for us to have been brought into this situation beforehand to get the perspective,” he said, “because quite honestly, all this did was help blow a lot of things out of proportion, and now every election official across the country's having to deal with these issues in the middle of a presidential election.”

Encryption

[Gizmodo] Clinton Campaign Embraces Strong Encryption, But Not For Us

William Turoton

27 August 2016

<http://gizmodo.com/clinton-campaign-embraces-strong-encryption-but-not-fo-1785841954>

Hillary Clinton has yet to offer a definitive policy stance on strong end-to-end encryption, the mathematical algorithms that protect our data, instant messages, and web browsing. Instead of calling for a ban on government mandated encryption backdoors, something computer security experts have universally urged, she’s taken a backseat, [supporting](#) a hand waving “[encryption commission](#).”

Clinton’s thoughts on encryption are vague and ill-defined, except, of course, when it comes to her own campaign. According to a new [Vanity Fair](#) article, the Clinton campaign is relying on Signal, the gold standard for unbreakable encrypted messaging. The Clinton campaign reportedly sent out an email instructing staffers on how to download and use the app.

The Clinton campaign is using the standalone Signal app, but Signal is more than just an app. It’s a specific encryption algorithm, a certain way of encrypting messages, that Google and Facebook have recently implemented into its encrypted messaging apps. Right now, there’s no better publicly available way to encrypt messages on the market. It’s received the highest praise from computer security experts for its strength against hackers and the minimal amount of extraneous data that is leaked.

As far as we know, law enforcement has no way of cracking messages encrypted using the Signal encryption protocol. There’s no backdoor or “golden key,” only the person who sent the message and the intended recipient can read it. Clinton’s campaign obviously sees the value of having encrypted messages for themselves, especially in the wake of the devastating [DNC hack](#). If Clinton’s campaign enjoys the security and privacy of using encrypted messaging with no government backdoors, why won’t it support it for the rest of us?

Data Breach

[Phys.org] Breach in fishing license system exposes data in Northwest

Keith Ridler

27 August 2016

<http://phys.org/news/2016-08-breach-fishing-exposes-northwest.html>

A breach in a vendor's system that processes online sales of hunting and fishing licenses in Idaho, Oregon and Washington state exposed several million records containing buyers' personal information, officials said Friday.

The U.S. Department of Homeland Security and FBI are investigating the hack into Dallas-based Active Network, the Washington State Office of Cyber Security said in a statement. Washington halted all sales earlier this week, allowing anglers to fish license-free, while Idaho and Oregon have stopped only [online sales](#).

"Initial assessments indicate personal information exposed by the vendor for Washington residents includes names, addresses, driver's license numbers, dates of birth and the last four digits of Social Security numbers," Washington officials said in a statement.

Active Network, whose event and activity management software is used by tens of thousands of event organizers nationwide, including marathons and other races, said the potential threat was isolated to fishing and hunting licensing systems in the three states.

The company "became aware that we were the victim of an unauthorized and unlawful attempt to access" those systems on Monday, a statement said.

It didn't say whether the hacking attempt was successful but that the company released a software update to address the threat within 15 hours and hired a cybersecurity firm to conduct a review.

Active Network said it didn't receive reports or find evidence that personal information was compromised.

"We are committed to working with our state customers and law enforcement to assist in their own investigations of this matter," the company said.

In Idaho and Oregon, state offices and certain businesses will keep selling hunting and [fishing licenses](#) because they use a different system. About 80 percent of sales occur in person at those sites, officials said.

"Until we understand the full scope of this, we're going to keep the online component of this down and will do so until we have some clear answers," Idaho Fish and Game spokesman Mike Keckler said.

While Washington officials said [personal information](#) was exposed, initial investigations in Oregon have not found identifiable information was revealed, said Rick Hargrave, spokesman for the Oregon Department of Fish and Wildlife.

Still, "the prudent thing to do was to shut down systems to make sure there is no vulnerability," he said.

Washington state opted to halt all sales, including at businesses. Through Tuesday, it will not require anglers to have a fishing license to fish or gather shellfish.

"We are as frustrated as our customers over the licensing system being shut down, but we want to make sure anglers can still hit the waters over the next several days," Jim Unsworth, director of the state Department of Fish and Wildlife, said in a statement.

California also uses Active Network to sell hunting and fishing licenses but determined it is not affected after talking with the company, said Clark Blanchard, spokesman for California Department of Fish and Wildlife.

"We use the same vendor, but our system employs completely different technology and uses more stringent security," he said.

Vehicles

[Bloomberg] 95% of China's Electric Vehicle Startups Face Wipeout

28 August 2016

<http://www.bloomberg.com/news/articles/2016-08-28/most-of-china-s-electric-car-startups-face-wipeout-by-new-rules>

China's electric-vehicle industry, with 200-plus companies backed by a raft of billionaires, verges on a [massive shakeout](#) as the government imposes stricter technology standards on fledgling manufacturers and considers limiting their number to only 10.

Any curbs would be aimed at weeding out the weak, said a senior executive with the state-backed auto manufacturers' association, and they may push as many as 90 percent of EV startups toward extinction, a government-linked newspaper said. So far, only two ventures have obtained approval to build cars, based on a review of National Development and Reform Commission documents. Three others say they plan to apply for permits.

Jack Ma, Terry Gou, Li Ka-shing and Jia Yueting are among the investors who've poured at least \$2 billion into building alternative-energy vehicles as China tries to combat the smog choking its cities. Generous subsidies helped cultivate a [gold-rush mentality](#), prompting concerns the industry is plagued by too many companies lacking the technical know-how to make electric or hybrid cars that measure up to those from Tesla Motors Inc. or General Motors Co.

"There are too many entrants in the sector, and some of them are just speculators," said Yin Chengliang, a professor at Shanghai Jiao Tong University's Institute of Automotive Engineering. "The government has to raise the threshold. It's bad to see irrational investments in projects with low technology levels."

Overcapacity Concerns

The potential cap on EV startups comes as the world's biggest auto industry [grapples](#) with overcapacity and high inventories. Carmakers are seeing pressure on their profit margins with the spread of cheap models, while stringent fuel-economy and emissions targets are set to raise costs.

China surpassed the U.S. last year to become the world's biggest market for new-energy vehicles -- comprising electric vehicles, plug-in hybrids and fuel-cell cars. Domestic automakers sold 331,092 units in 2015, according to the [China Association of Automobile Manufacturers](#).

The government's sales target is 3 million units a year by 2025 -- a 10-fold increase -- and it's offering subsidies that can total 60 percent of an electric-car's sticker price. There currently are about 4,000 new-energy vehicle, or NEV, models in development.

"It's true we're emphasizing support to develop new-energy vehicles, but should we allow everyone to go ahead?" said Dong Yang, executive vice chairman of the manufacturers' association.

10 Permits

The Ministry of Industry and Information Technology is considering restricting the number of startup EV makers to a maximum of 10, said Dong, who meets regularly with its officials. That count won't include traditional carmakers such as SAIC Motor Corp. and BYD Co. that are developing NEVs.

The MIIT didn't respond to a faxed request for comment.

Yet even those startups getting permits have more mandates to meet before switching on their assembly lines, as the government introduces stricter quality-control measures.

In a draft policy document posted for public feedback this month, the MIIT listed 17 technologies that companies intending to sell electric cars must possess in order to ensure "healthy" development of the industry. Those include a control system that determines the performance and stability of the NEV, an information system that tracks the sources and conditions of key parts, and a process for recycling or reusing batteries.

Meeting Standards

The Economic Daily, an official newspaper run by the State Council, said 90 percent of the companies currently developing EV platforms still won't meet the standards in two years. The report cited unnamed industry analysts.

One successful applicant is [Beijing Electric Vehicle Co.](#), which is controlled by BAIC Group, the state-owned manufacturer for Hyundai Motor Co. and Daimler AG's Mercedes-Benz. It will build a factory in the capital city that's capable of making 70,000 EVs a year.

The other is Hangzhou Changjiang Passenger Vehicle Co., which counts Hong Kong-traded FDG Electric Vehicles Ltd. as a major shareholder.

Once on the verge of elimination, the former state-owned bus maker was revived by an infusion from FDG, which counts Li's foundation as a minority investor. Li has an estimated net worth of \$31.2 billion, according to the Bloomberg Billionaires Index.

'Huge Problem'

"The speed at which they're granting permission is worrying," said Zhang Zhiyong, a Beijing-based independent auto analyst. "Many companies are constructing their manufacturing facilities, but they're blocked at the door from getting the licenses. This is a huge problem."

The NDRC didn't respond to a faxed request for comment.

The startups intending to apply for manufacturing permits include [Wanxiang Group Corp.](#), owner of Karma Automotive LLC, which announced a hybrid that uses solar power and costs more than \$115,000. Its \$375 million factory is planned for Hangzhou.

Another is Jia's LeEco, said Huang Hao, a Beijing-based spokesman. LeEco will invest 6 billion yuan in a factory with initial capacity for 200,000 cars a year, the company said Aug. 10.

The third is [WM Motor](#), which said Aug. 17 it raised \$1 billion in an initial fundraising round with plans to introduce its first model in 2018. The company was founded last year by Freeman Shen, a former executive at Volvo Cars owner Zhejiang Geely Holding Group Co.

'Chaotic' Situation

"It's right for MIIT to send out the signal that not everyone can get the permit," Shen said. "The current situation is a little bit chaotic with too many unqualified companies, such as low-speed EV makers and auto-parts companies, joining in the competition."

The government also plans to phase out subsidies after 2020, removing an incentive for startups depending on them to achieve profitability. Last year, the average EV maker produced about 3,000 cars, far below the scale required to ensure returns on investment, said Wang Cheng, an official at the China Automotive Technology and Research Center.

Some companies and local authorities invested in making NEVs and batteries even though they lack the necessary technology, and that worsened overcapacity, Wang said last month.

"There's definitely a bubble," said Yale Zhang, a managing director at researcher Autoforesight Shanghai Co. "If you don't own the core technology and can't build up the brand, it's 'game over' very quickly once you burn through the cash."

[USA Today] [If you hate auto insurance, you'll love driverless cars](#)

Alex Glenn 27 August 2016

<http://www.usatoday.com/story/money/personalfinance/2016/08/27/auto-insurance-driverless-cars/89429700/>

Nobody likes shelling out for auto insurance. But given the greater financial burden of a car wreck, most of us simply grin and bear it, minus the grin. After all, mistakes happen and drivers are only human — for now.

But as we hurtle into the age of computer-operated, fully autonomous vehicles, car insurance as we know it is about to change — including how much we need to buy.

Most experts expect the first driverless cars to become available by the early 2020s. By the mid-2030s, industry analyst IHS Automotive projects, more than 75 million cars with autonomous capabilities will be on the roads.

"Pretty soon we won't drive off a dealership; we'll be driven," says Donald Light, an analyst for technology consultant Celent.

The changes will only get more dramatic from there. Autonomous vehicles will not only enable safer travel but also shift the blame for most accidents away from the vehicles' owners and toward the vehicle and software makers. That could leave auto insurance companies facing a dim future in which their business shrivels as the need for personal auto insurance fades.

Driverless cars will help eliminate crashes and insurance need

Although the prospect of using driverless cars may be scary to some, we humans aren't doing such a bang-up job behind the wheel. According to the National Highway Traffic Safety Administration, driver error is the main cause of a whopping 94% of crashes. (Other causes included vehicle failure and weather.)

“We either fail to see a dangerous situation, don’t make the right decision to avoid trouble or can’t execute the correct maneuver,” Light says. “All three areas are ones in which autonomous cars will perform much better than people.”

Based on some projections, the improvement will be staggering. Jerry Albright, principal of actuarial and insurance risk practice at KPMG, a research and advisory firm, estimates that car accidents will drop by 80% by 2040.

Car manufacturers on the hook for crashes

Driverless cars will do more than just reduce collisions — they’ll also change how we assign blame for accidents that do happen.

“Many people are already hesitant to assume fault when they’re the ones driving,” says Joe Schneider, managing director of corporate finance at KPMG. “Now imagine a computer is chauffeuring you. You’re certainly not blaming yourself for a crash then.”

Although the issue of blame and liability is still murky, Light says the owners of autonomous vehicles won’t be on the hook for most crashes. Instead, the responsibility to pay damages will fall on the manufacturers and the hardware and software designers who create the self-driving systems.

By relinquishing decision-making to our cars, we’ll be able to purchase much leaner, cheaper insurance policies. For example, imagine needing only comprehensive coverage to pay for problems like car theft and hail damage that carmakers can’t control. Light estimates [car insurance rates](#) could shrink by up to two-thirds.

When to expect changes

Early 2020s

The first fully autonomous vehicles will be publicly available. Ridesharing companies such as Uber and Lyft will begin using driverless cars, perhaps even before they’re sold to the public, says John Matley, principal of insurance and technology for advisory group Deloitte.

Albright refers to this period as the “chaotic middle.” Self-driving cars will be in short supply, and the price tag may be too steep for many motorists — up to \$10,000 more than today’s cars, according to IHS Automotive. Liability issues will take a lot of time to sort through, and the auto insurance market will have yet to take a hit.

Mid-2020s

There will be fewer cars overall on the road due to ridesharing, and at least 40% of vehicles will have partially autonomous capabilities — including frontal crash avoidance, lane-departure warnings and blind-spot monitoring — according to a Celent report. Light estimates the cost of personal auto insurance will have dropped by 5% to 20%.

Late 2020s to early 2030s

There will be significantly fewer vehicles in use, and we’ll enjoy demonstrably safer roads, Matley says. By now, he believes, total annual auto insurance revenue will have dropped from today’s level of about \$200 billion to \$140 billion.

Late 2030s to early 2040s

A new normal: Ridesharing companies will operate fleets of driverless cars, and owning an autonomous vehicle will no longer just be for the wealthy. Matley believes the cost per mile of owning and operating self-driving cars will be cheaper than driving vehicles back in 2016. In addition to reduced car insurance costs, advances in lightweight construction will lower sticker prices for driverless cars and allow their owners to spend less on fuel.

Crash frequency will have plummeted, and car owners will have a minuscule need for insurance. Some of the [largest auto insurance companies](#) will leave the market altogether, Light says, while others will have to overhaul their business models to survive, focusing on commercial ridesharing or product liability coverage, or other services such as car maintenance.

By this point, Light believes, personal car insurance could cost close to 70% less than it does today. Or as he sums up, "We'll all be having a beer to celebrate."

The lure of convenience

Ultimately, consumers' willingness to embrace this technology, despite initial hiccups, will determine if this timetable holds true.

Matley acknowledges there may be a rocky transition period, but he believes motorists' reservations will start to crumble once they see driverless cars being used by ridesharing companies.

In Schneider's opinion, a new culture of "mobility on demand" will prove too convenient to resist. "It's going to click for a lot of people that driving is overrated," he says.

[Engadget] Google taps Airbnb exec to turn self-driving cars into a business

Jon Fingas 27 August 2016

<https://www.engadget.com/2016/08/27/google-hires-airbnb-exec-for-self-driving-cars/>

Google's self-driving car project hit a rough patch with [the departure](#) of one of its earliest team members, but it's evident that the tech giant is still bent on turning the experiment [into a viable business](#). The company [has hired](#) Airbnb executive Shaun Stewart, who led his former employer's vacation rental team, as a director for its autonomous vehicle group. He'll focus on commercializing the division -- just what that entails isn't clear, but previous rumors (and industry expectations) suggest that he may translate Google's self-driving technology into a robotic ride-for-hire service.

Stewart may be a particularly good fit. As our *TechCrunch* colleagues [observe](#), his expertise revolves around short-term travel rentals. Before Airbnb, he was the CEO of the luxury vacation deal site Jetsetter -- he knows a thing or two about getting these services off the ground. And that's important when the concept of a driverless taxi is still [brand new](#), with plenty of nuts-and-bolts details that need to be pinned down in the years ahead.

[Bloomberg] Fiat Chrysler CEO Flirts With Samsung in Hunt for Tech Partner

Tommaso Ehardt and Flavia Rotondi 29 August 2016

<http://www.bloomberg.com/news/articles/2016-08-29/fiat-chrysler-chief-calls-samsung-a-potential-strategic-partner>

Fiat Chrysler Automobiles NV Chief Executive Officer Sergio Marchionne is looking into a tie-up with Samsung Electronics Co., as the Italian-American company widens its search for a technology partner to gird against being left behind in the race to develop self-driving cars.

Marchionne, who dropped his push for a merger with a fellow automaker last year, has increasingly turned his intention to technology providers. In March, he offered to assemble cars for [Apple Inc.](#) and in May announced a cooperation project with Alphabet Inc.'s [Google](#) on driverless vehicles. Amid [discussions](#) with Uber Technologies Inc. and Amazon Inc., Samsung is the latest big-name technology company on Fiat's radar.

"We have a very good relationship with Samsung, both as a supplier and as a potential strategic partner," Marchionne said late Saturday in an interview with Bloomberg Television in Rome. "I happen to have a good relationship" with Samsung Electronics Vice Chairman Lee Jae Yong because both serve on the board of Exor SpA, Fiat Chrysler's biggest shareholder.

As previously reported, Samsung is advanced talks about buying some or all of Fiat's car-parts unit Magneti Marelli, people familiar with the matter said earlier this [month](#). While Marchionne declined to comment on whether Samsung is a suitor, he looks to be positioning the division as a carrot to woo a partner, noting that Magneti Marelli had drawn the interest of several potential buyers.

"Marchionne is trying to pass the message that he is not interested in a straight sale" of the parts business, but instead wants to "use Marelli as a common platform to develop self-driving cars with Samsung," Massimo Vecchio, a Milan-based analyst for Mediobanca, said in a note.

Marchionne said that Magneti Marelli has "strategic value" and "is going to provide a significant platform for technology development" for the owner of the Jeep, Maserati and Alfa Romeo brands. Magneti Marelli is part of Fiat's components division, which also includes metal-parts manufacturer Teksid and Comau, which makes robots and automation equipment.

Exor Meeting

Samsung is particularly interested in Magneti Marelli's lighting, in-car entertainment and telematics business, the people said, asking not to be identified because the discussions are private. Marchionne will have the chance to meet Lee on Monday, when the Exor board is scheduled to review the investment company's second-quarter earnings.

The talks between Fiat and Samsung on a deal have slowed recently over differences about the valuation of the businesses, South Korea's Maeil Business Newspaper reported Aug. 25. Lee is set to discuss a Magneti Marelli deal with Marchionne when the Samsung executive visits Europe for the Exor board session, it reported.

Fiat Chrysler shares dropped 2 percent to 6.04 euros at 12:14 p.m. in Milan. Samsung rose 1.7 percent in South Korea.

A partnership with a technology company has taken on added importance for Marchionne after his efforts to merge with General Motors Co. were rebuffed. Fiat Chrysler is particularly exposed to changes in the auto market because of its small size compared to the likes of GM, Volkswagen AG and Toyota Motor Corp.

A sale of some or all of Magneti Marelli would also help Marchionne, 64, achieve his goal of eliminating Fiat's debt before he retires from the CEO post by 2019. Still, decisions over the future of Magneti Marelli "won't happen overnight," Marchionne said.

[CNN Money] Michigan may soon allow self-driving cars on the road with no one behind the wheel

Chris Isidore 27 August 2016

<http://money.cnn.com/2016/08/27/technology/michigan-self-driving-car-legislation/>

Michigan may soon become the first state to allow self-driving cars on the road without a human driver sitting behind the steering wheel.

Lots of companies are already testing self-driving cars on the road all over the country, but they have an actual driver at the controls, ready to take over if there is a hazard.

Now a bill in Michigan proposes to allow these cars to hit the road without a human at the wheel. The legislation is being proposed as an economic development measure to keep and attract research and development jobs in the state. The state senate's economic development committee will hold a hearing on the bill on Wednesday, and its sponsor says it has bipartisan support that should make passage fairly easy.

"I want to make sure we plant the flag here and we maintain the lead in terms of automotive research and development," said Mike Kowall, the Republican state senator who introduced the measure.

Kowall said the bill would allow the self-driving cars on any roads in the state, including interstates and U.S. highways. He said there's no federal law prohibiting the cars, but that right now every state requires a car to have a driver.

The Michigan law even specifies who is on the hook if a self-driving car has an accident -- according to Kowall, the liability will rest with the automaker and its suppliers.

Every major automaker is working on self-driving car technology, as are several tech companies such as Google ([GOOGL](#), [Tech30](#)). Earlier this month Ford ([F](#)) predicted it would be mass producing a self-driving [car without a steering wheel, brake pedal or accelerator](#) within five years.

But the safety of self-driving cars has come into question recently, especially [after a driver was killed](#) in May while using Tesla's Autopilot feature. There have been a handful of other, non-fatal accidents with Teslas that were in Autopilot.

Tesla says it advises drivers to stay alert and ready to take control when using Autopilot. It also said that its car owners have used Autopilot to drive more than 130 million miles and this is the only fatality that has occurred, making its track record safer than that of a typical driver.

There were more than [35,000 traffic fatalities](#) on U.S. roads last year, and U.S. safety regulators say that 94% of those accidents were caused by driver error.

Drones

[The Hill] Feds brace for new drone rules to take flight

Melanie Zanona

28 August 2016

<http://thehill.com/policy/transportation/293485-feds-brace-for-new-drone-rules-to-take-flight>

The Federal Aviation Administration (FAA) is preparing for a swarm of drone applications when the first ever rule permitting small, routine drone flights goes into effect on Monday.

The FAA said more than 3,000 people have already pre-registered to take the test required to fly unmanned aircraft systems (UAS) on the very first day, underscoring the pent-up demand for the emerging technology.

To ensure things run smoothly, the agency has conducted test runs at exam sites, revamped its website, hosted a series of webinars and briefed congressional staff.

But FAA officials are warning that there could be some bumps in the road, especially if they are slammed with waiver requests to the rule - a far more timely and complicated component to process.

"Monday is a big day. We're introducing a brand new rule," Earl Lawrence, director of the FAA's drone integration office, said during a congressional briefing this week. "We've done that before, but we don't usually have as much interest."

For years, commercial drone operators have been forced to apply for a special "333 waiver" exemption from the FAA if they wanted to fly unmanned aircraft systems, a process which proponents of the technology say is timely and costly.

The FAA **finalized** a long-anticipated rule in June that permits commercial drone use for aircraft weighing less than 55 pounds.

Under the regulation, which takes effect Aug. 29, operators will just need to register their drones online, pass an aviation knowledge test at an FAA-approved testing center and be at least 16 years old.

Industries are already lining up to deploy unmanned aircraft for a wide range of reasons, from fighting wildfires to inspecting infrastructure.

Lawrence said 3,351 aspiring pilots already signed up to take the written test on Monday, while over 20,000 operators have registered commercial drones that will be able to take flight under the new rule.

Comparatively, only 5,000 drones are currently operating under the 333 waiver.

"That's a good indication we're going to have a lot of people and a lot of aircraft operating on day one," Lawrence said. "We've been doing a tremendous amount of work preparing for this day... to make sure we're not making the wrong kind of news on Monday."

Part of that effort has entailed sending inspectors to each of the thousands of testing centers, where they took a mock exam in order to ensure that the system is working properly.

Another piece of FAA's preparation strategy has been processing existing 333 waivers to pre-determine which ones will fit into the new rules, so operators don't have to reapply.

The FAA also has ramped up its educational outreach with law enforcement, farmers, journalists and others who may want to use the technology in their line of work.

And the agency has “completely revamped” its website and tested it out on mobile phones to make sure it is compatible.

Operators will be able to apply for a waiver to the rule through an online portal if they want to fly at night or beyond the visual light of sight, which is currently not permitted.

Lawrence warned that “it may be an automated front portal, but on the back end, we’re doing a lot of things manually until we have the resources to completely automate it.”

He declined to say how many staff members will be dedicated to processing waivers, although he said “staff is growing to meet demand.” He also couldn’t offer a time frame for how long it would take to respond to waiver requests, saying it will depend on the volume.

“If we get 2,000 asking for a waiver on day one, it’s going to take a while to get through that,” Lawrence said.

The FAA is suggesting that people who don’t immediately need exemptions wait and see the conditions under which other operators get waivers, which will be posted online as they are granted.

“Hopefully, we won’t be totally overwhelmed by waivers,” Lawrence said.

[\[WSJ\] Business-Drone Rules to Take Effect](#)

Andy Pasztor

28 August 2016

<http://www.wsj.com/articles/business-drone-rules-to-take-effect-1472413016>

The first detailed U.S. rules for flights of small commercial drones go into effect Monday, including nationwide licensing requirements for pilots and a ban on nighttime operations.

But the long-awaited move won’t satisfy pent-up demand for more-complex uses of unmanned aircraft—especially at higher altitudes and beyond the sight of operators—or approval of aerial vehicles substantially heavier than the 55-pound limit covered by the regulations.

Capping more than two years of debate, some 4,500 written comments and escalating industry turmoil, the rules also won’t resolve growing controversy over privacy protections. On such issues, local governments increasingly are pre-empting Washington by staking out positions before federal agencies reach a consensus.

Recognizing the need for quick action, the Federal Aviation Administration earlier this year established separate registration requirements for all drone users. Agency leaders also have pledged to craft follow-on rules with unprecedented speed, led by regulations due to be released by year-end allowing unmanned vehicles to start flying over crowds.

While stressing the need for caution and adequate deliberation, FAA chief Michael Huerta nevertheless has said the agency can’t afford to “act at the [traditional] speed of government.” Integrating drones into the national airspace “certainly is the number one issue” at FAA headquarters, Terry Biggio, a senior FAA air-traffic-control official, told an air-safety conference in Washington last week.

Yet agency officials haven't laid out the scope of future rules decisions. And the relevant technologies, as well as safety risks associated with them, continue to develop significantly faster than federal efforts to control them. Some researchers have identified hundreds of incidents in which pilots reported drones flying dangerously close to airports in recent years, prompting many safety experts, drone proponents and lawmakers to call for automated digital "fencing" to prevent such incursions.

Airline-pilot union leaders, meanwhile, still complain about what they contend is a fundamental gap in the regulatory structure: Congress has blocked the FAA from imposing tough new regulations on hobbyists and, by extension, many casual or recreational drone users.

"We have one shot to do this right," Tim Canoll, president of the Air Line Pilots Association, told the same air-safety conference, adding that incorporating unmanned vehicles can't be allowed to degrade current safeguards and "simply cannot shortchange the safety of the system." He said the union, among other things, advocates that the FAA "take a stronger stance in ensuring" that pilots of commercial drones receive adequate ground and flight training.

For now, FAA officials are focused on ensuring that testing facilities are able to cope with the expected influx of tens of thousands of pilot applicants. Through the end of the decade, business uses of drones are projected to attract millions of new operators across the U.S. annually, ranging from inspecting buildings and bridges to spraying crops to searching for downed power lines.

In response, the agency has created and staffed two senior-level offices dealing exclusively with drone policy. Shortly, Mr. Huerta is about to release the names of appointees to a new industrywide advisory committee tasked with charting a course for future policies, enforcement priorities and regulatory initiatives.

[Washington Post] [The Post's View: Relaxing the rules on drones](#)

Editorial Board 28 August 2016

https://www.washingtonpost.com/opinions/relaxing-the-rules-on-drones/2016/08/28/2622b26c-5e61-11e6-af8e-54aa2e849447_story.html?utm_term=.8e4cbc47b42e

FOR YEARS, the rules on unmanned aerial vehicles — also known as drones — have been irrational. Recreational drone users — ordinary people who buy [quadcopters](#) at Walmart and play around with them in their backyards — have been given broad freedom to pilot their flying devices. This seems to have resulted in increasingly large numbers of close-call incidents reported by commercial airline pilots. Meanwhile, companies have been largely barred from using drones for all sorts of productive uses, from surveying storm damage to taking aerial photos to delivering packages. This bizarre situation [will change on Monday](#). But the government still has a long way to go to enable the tantalizing possibilities unmanned flying machines offer.

[FAA rules](#) phasing in Monday will allow companies to fly small drones — weighing less than 55 pounds — without a special waiver from the agency. Instead, commercial drone pilots will have to be certified by taking a written test, and those pilots will have to keep their devices below 400 feet and always within sight. These rules avoid several crucial mistakes that could have grounded a young industry; for a time, there was talk that the FAA would require commercial drone pilots to have full airplane pilot's licenses. This would have been nonsensical: Drone pilots do not need to log hours of flight time in a

Cessna, they need to know the rules of the airspace and the characteristics of the craft they actually control. More appropriate drone [pilot training programs](#), which include specially designed flying courses, have already begun popping up.

Yet the new rules are still quite restrictive, particularly the requirement that operators keep drones within their line of sight. This makes sense for unsophisticated drones that require pilots' constant attention. But it also limits companies from putting drones to many valuable uses, unless they get a special waiver. Amazon.com — whose chief executive, Jeffrey P. Bezos, owns The Post — wants to use custom-built drones to deliver orders within half an hour. But there are a variety of other, less-heralded possibilities: Drones fitted with hazard-avoidance technology, advanced communications systems and other equipment could also scan electrical wires for damage, conduct [search-and-rescue operations](#), collect news and, no doubt, do [dozens of other things](#) no one has thought of yet. As long as commercial drones have to stay within a pilot's line of sight — and, indeed, have a dedicated pilot — their range and usefulness will be limited.

The FAA is not oblivious to these considerations, and even if the agency were more permissive, it would take time for the technology to prove itself to the public. But officials used to decades of regulating big airliners need to do a more nimble job adapting to the revolution in unmanned and, some day soon, automated flight.

[CNN Money] [A landmark day for drone flights arrives](#)

Matt McFarland

28 August 2016

<http://money.cnn.com/2016/08/28/technology/faa-commercial-rules-drones/>

FAA rules for the commercial use of drones go into effect Monday.

"It's an important moment," said Brian Wynne, chief executive of the Association for Unmanned Vehicle Systems International. "But it probably won't be like a light switch going on."

Interested drone pilots must pass an aeronautical exam before they are allowed to fly. The first exam will be available at 8 a.m. Monday morning, which 3,351 people have signed up to take.

The exam has generated "great excitement" from a wide range of industries around the country, according to Mark Dennehy, president of Computer Assisted Testing Service, which administers the test.

Drones are appealing because they provide aerial photos and video at a fraction of the cost of traditional methods. Potential uses include crop monitoring, construction site management, search and rescue, surveying, film-making and firefighting.

The key rules for businesses are this: Do not fly at night or over anyone not involved in your operation. Drones also may not fly higher than 400 feet, must be under 55 pounds and must remain in the visual sight of a human operator.

More than 3,000 businesses have already received a government exemption to fly.

The new rules simplify the process of flying legally. Drone operators will no longer need to receive a pilot's license, which has been a point of contention. Getting a pilot's license is expensive and time-intensive, and some of the skills taught aren't applicable to flying a drone.

The current rules include limitations that will hamper the arrival of some drone services, such as autonomous delivery. So don't expect companies to be dropping packages in your backyard anytime soon.

There is a waiver process for businesses that have their hearts' set on flying at night, over 400 feet or beyond the line of sight of a drone operator.

The new drone rules arrived late -- missing a deadline Congress set in 2012, but Wynne said he's seen the FAA adapt to the challenge of regulating the rapidly developing technology.

"It's a sea change in mentality inside the FAA to we have to work with industry on this," Wynne said. "It's a change in mentality away from the big hammer FAA to one that recognizes, 'Hey we can't be in all places at all times.'"

Ed Tech

[The Charlotte Observer] Too many students are slow to connect

Michael Meiss 27 August 2016

<http://www.charlotteobserver.com/opinion/op-ed/article98148157.html>

Imagine your life without internet access.

Unfortunately, this is the reality for millions of kids across the country, including those living in North Carolina. According to [Digital Charlotte](#), nearly one in five residents does not have internet at home or the means to access it. Children among this group must use alternative resources like libraries or their schools to try to complete assignments. And even that can be challenging as many schools struggle with the same issues: limited technology resources, strapped budgets and poor internet connectivity.

In fact, only 20 percent of educators say their school internet connection meets their teaching needs. The average American school has about the same connectivity as the average American home, but it serves 200 times more users, according to [information issued by the Obama administration](#).

When connectivity suffers, so does the opportunity to explore innovative approaches to teaching. When high-speed internet access is present in classrooms, teachers can make learning more engaging for students – think access to learning games or virtual field trips. Furthermore, familiarizing students with cloud-based software prepares them for higher education – where connectivity and digital literacy are essential.

Ultimately, cost seems to be the biggest impediment. Forty-six percent of K-12 school leaders and technology directors surveyed in the [2015 Consortium for School Networking E-rate and Infrastructure study](#) identified the cost of monthly recurring charges as their biggest problem. Fully one-third cited high upfront capital costs.

Although the digital divide is widening for our school systems, this isn't a problem without a solution. President Obama's ConnectED initiative, for example, has helped to elevate awareness in local communities about connectivity issues and its impact on students.

At the center of the ConnectEd program is a challenge to link 99 percent of students to next-generation connectivity within five years. Sprint joined President Obama and other leaders in the technology and telecommunications industry in pledging its in-kind support. For the past two years, Sprint has worked to provide wireless broadband connectivity for 50,000 low-income K-12 students across the U.S.

Here in Charlotte, the company is piloting a program with the [Charlotte Mecklenburg Library](#). This school year, 150 students will be able to check out wireless hotspots for internet access, just like books.

Continued support can help to close the digital gap for students. E2D ([Eliminate the Digital Divide](#)), the non-profit focused on ending the digital divide for students and families in the Charlotte area, is another great example of community stewards stepping in to lend a helping hand. Last year, more than 1,000 families in Charlotte received laptops, internet access and computer training from E2D.

While support from the community significantly helps, ultimately, North Carolina businesses will need to play a greater role in advancing the state's education system. The more companies commit to doing their collective part in helping to improve internet access for all North Carolina students, the closer our nation gets to achieving its goal of 99 percent connectivity.

Competition

[NY Times] Mylan to Offer a Generic EpiPen at Half the Price

Andrew Pollack 29 August 2016

<http://www.nytimes.com/2016/08/30/business/mylan-to-offer-a-generic-epipen-at-half-the-price.html?ref=business>

In another move to quell [outrage over its price increases](#), the maker of the EpiPen said on Monday that it would introduce a generic version of the product, with a price about half of the existing EpiPen's.

The company, [Mylan](#), said that the generic EpiPen would be available in several weeks and be identical to the existing product, which is used to treat severe allergic reactions. But it would have a wholesale list price of \$300 for a pack of two, compared with just above \$600 for the existing product.

Under pressure, Mylan [announced last week](#) that it would increase the financial assistance it provided to commercially insured patients to help with their out-of-pocket costs. It also said it would broaden the eligibility for uninsured patients to receive free products.

Those two measures, however, did not stem the public furor, in part because the company kept the list price the same, meaning the overall cost to the health system, mostly borne by insurers and taxpayers, would remain the same.

The introduction of the generic comes in addition to those other measures, which will remain in effect, Mylan said.

While the other measures would reduce costs only for consumers, the generic introduction would introduce savings for insurers and federal health programs like [Medicare](#) and [Medicaid](#).

"We understand the deep frustration and concerns associated with the cost of the EpiPen to the patient, and have always shared the public's desire to ensure that this important product be accessible to

anyone who needs it,” Heather Bresch, chief executive of Mylan, [said in a statement](#), calling the company’s move “an extraordinary commercial response.”

[WSJ Opinion] Competition Keeps Drugs Reasonably Priced

28 August 2016

<http://www.wsj.com/articles/competition-keeps-drugs-reasonably-priced-1472404429>

As the Journal points out (“[Anaphylactic Political Shock](#),” Review and Outlook, Aug. 25), the most effective means of keeping vital drugs (or of anything, for that matter) reasonably priced is competition in a free market. Relying on human kindness to keep drug prices reasonable is grasping at a thin reed. But depending on regulation to achieve the same goal is fraught with unintended consequences, especially when administered by politicians and bureaucrats with a limited understanding of economics, as the EpiPen episode makes clear.

It is ironic that those screaming the most loudly about Mylan’s unconscionable price increases for EpiPens are the same people who, by having the Federal Drug Administration kill off competition, provided Mylan with a monopoly for this type of product and the opportunity and incentive for such nefarious pricing behavior.

Mark Quinn

Naperville, Ill.

Epinephrine injections are a necessity for those with severe allergic reactions. These injections add a \$750 yearly cost, \$1500 if the patient is a school-age child.

At least part of this cost would be alleviated if schools could use one set of EpiPens for all students. But health-care laws prevent this and require the school store one set of EpiPens for each allergic student.

In 2011 Illinois made it possible for doctors to prescribe EpiPens to a school instead of to individual patients. In New Jersey a similar bill was proposed but hasn’t been passed.

E. Gunnar Tarnow

Fair Lawn, N.J.

Steep price hikes from Mylan, manufacturer of EpiPens, put the adrenaline-filled injectors out of reach for many who suffer from allergies: a two-pack now goes for “\$500 or more after insurance discounts and coupons,” the Journal writes in the editorial. Equally culpable, is the FDA, whose testing hurdles have prevented other manufacturers from bringing cheaper, generic equivalents to market.

What doesn’t make sense is that preteenage girls can buy the morning-after pill for as little as \$35, sometimes less. And naloxone (Narcan), a drug that reverses heroin overdoses, can be obtained for about \$20 to \$40 a dose.

Bill Apple

New York

Two of my children need EpiPens and I have to buy them when school starts every year, so I know that the price is becoming prohibitive. But [Hillary Clinton](#)'s price controls will only result in shortages of the medicine. More families will be hurt than helped by Mrs. Clinton's policies

Anna Howland

St. Johns, Fla.

Cloud

[Bloomberg] VMware New Cloud Plan: Sell Stuff for Rival Clouds

Dina Bass

29 August 2016

<http://www.bloomberg.com/news/articles/2016-08-29/vmware-new-cloud-plan-sell-stuff-for-rival-clouds>

VMware Inc. is set to unveil new products in a bid to eke out greater relevancy for the company in internet-based cloud-computing.

On Monday, the company will announce Cloud Foundation, which combines software for storage, networking and virtualization into one package, as well as the ability to use that product as a service hosted in IBM's cloud. The company will also preview new Cross-Cloud subscription services that let customers manage and protect applications hosted in clouds from International Business Machines Corp., as well as market leader Amazon.com Inc. and Microsoft Corp.

VMware is shifting its cloud strategy after little traction and executive departures. It is focusing more on selling products that work with existing leaders, rather than trying to establish itself as an alternative to the Amazons of the world. As more companies run applications on rented servers over the internet, rather than their own data centers, providing services that link the different technologies customers use is a growing opportunity for VMware.

"CIOs and IT professionals now need to manage a multiple-device, multiple-application and multiple-cloud world and they don't have the tools to do that," said VMware Chief Executive Officer Pat Gelsinger in an interview. "We can uniquely partner with them to give them the ability to run, manage and secure an application across multiple clouds and deliver it on any device."

Gelsinger will speak Monday at the company's annual VMworld conference in Las Vegas, where it will unveil Cloud Foundation and preview its Cross-Cloud services.

The shift comes after a year of upheaval for VMware. The company faced investor concern in the wake of Dell Inc.'s announcement in October that it was buying VMware parent EMC Corp. Over in the cloud business, VMware and EMC backed off a plan to jointly own cloud infrastructure provider Virtustream, instead shifting the asset and its losses to EMC. VMware cloud executives Bill Fathers and Simone Brunozzi left, and the company faced poor adoption of its vCloud Air products, which competed with Amazon's public cloud offerings, said Abhey Lamba, an analyst at Mizuho Securities USA Inc.

"Now they are taking this approach of becoming the management layer in clouds," said Lamba, who has a "neutral" rating on VMware shares. "That's a really tough battle, and I'm not sure VMware has any

strategic advantage there over the next guy." The new services aren't even in market yet, so it's hard to say how it will do until customers can see how it performs, he said.

VMware created virtualization software that lets companies cram more workloads onto servers. It dominated there by building a product that could work across many different operating systems and types of hardware. That market is maturing, so the company is looking for other opportunities but has seen its cloud efforts lag behind established players. The new approach allows VMware to return to its traditional heritage as a company that can let customers operate with different technology.

It's key for VMware to carve out a lucrative segment of cloud sales as the internet-based approach becomes more pervasive. Gelsinger, in his speech, will predict that 50 percent of corporate IT workloads will be in the cloud by 2021.

While the Cross-Cloud services will address multiple public clouds, Cloud Foundation will initially work with IBM only, though Gelsinger said in the interview that VMware will add other cloud providers in the future. Companies can also buy the software installed on servers from companies like Dell and Hewlett Packard Enterprise and place those in their own data centers.

Gelsinger will be joined on stage at VMworld by Dell founder Michael Dell and by hotel company Marriott International Inc., which is trying out Cloud Foundation. The product, which targets Nutanix Inc.'s main offerings, will be generally available this quarter.

Space

[Wired] This Aquanaut Is Defining the Next Era of Spaceflight

Marley Walker 29 August 2016

<http://www.wired.com/2016/08/meet-aquanaut-defining-next-era-spaceflight/>

MEGAN MCARTHUR HAS spent her life messing with microgravity. She was on the team that got the first commercial cargo mission to the International Space Station. She's watched her friends launch in a Soyuz rocket from Kazakhstan. And as a NASA aerospace engineer, she was the flight engineer on the space shuttle's last mission to repair the Hubble Telescope.

For Earthlings stuck here in 1G, getting to operate a robotic arm that wrangles Hubble into an airlock might seem like enough excitement for a lifetime. But earlier this month, McArthur also became the 50th person to orbit Earth—and live under the sea. The aquanaut-astronaut plunged into antigravity for the NASA Extreme Environment Mission Operations' twenty-first mission. Along with eight other crew members, she spent 16 days aboard the underwater Aquarius Reef Base, conducting research in an environment that simulates space exploration.

NEEMO is the latest in a series of NASA-operated missions designed to inform spaceflight. (Another, the Hawaii Space Exploration Analog and Simulation, finishes a year-long program this week.) "We have great simulators at NASA, and they're really good at teaching procedures," says Bill Todd, who has been a spaceflight trainer for NASA since 1986 and founded NEEMO in 2000. "But the reality is, when it's over, you go home and back to your family. You're not learning how to live for extended periods of time in an isolated extreme environment."

McArthur was primed for extremes from a young age. Her father was a naval aviator, and she grew up on air bases all over the world—where watching air shows got her interested in space flight. Eventually, she got a degree in aerospace engineering from UCLA.

Soon after graduation, a friend of McArthur's heard about the Biennial International Human-Powered Submarine Races, a competition to construct underwater vehicles. She was in. "When we built it, I was the only one that would fit in the pilot spot," says McArthur. And because it's much more complicated to build a pressurized sub, the cockpit was open to the water. "I had to be on scuba in order to drive it, so I got certified."

Previously obsessed with the wide open spaces above Earth, McArthur got sucked into the depths below. She found the Applied Ocean Science doctorate program at the University of California, San Diego, and spent her time there studying acoustic oceanography.

Between pursuing a pilot's license on the side and deploying scientific instruments on the seafloor, her talents did not go unnoticed. "Conducting operations from a ship or underwater has some similarities to operating in space," says McArthur. In the final year of her PhD, McArthur entered NASA's astronaut class of 2000. For sixteen years, McArthur offered operational support for spaceflight missions, until she finally got chance to participate in NEEMO.

As Above, So Below

Over the course of the two-week NEEMO mission, McArthur and crew spacewalked into the sea, collecting data on coral reefs. They spent time researching a hypothesis that telomeres, nucleotide sequences that play a role in aging, might shorten during spaceflight. And they did all this while simulating similar time delays that astronauts experience while flying to Mars—about fifteen minutes on either end. "It's about the crew being a little bit more autonomous," says McArthur. "You have to provide concise, clear information that describes the problem you're having, and the ground team needs to plan differently for how they're going to provide the answer."

The parallels to space don't end there. One of McArthur's favorite projects on this NEEMO mission was using Minion, the first DNA sequencer to go under the sea. "I sequence DNA in the laboratory, but it was cool to be able to take that underwater and be part of the team that was the first to do that," says Dawn Karnagis, one of McArthur's crew members (McArthur calls her "Dawn of the Deep"). One of the pocket-sized Minions went up to the ISS earlier this summer, too—and with it now in orbit, McArthur and Karnagis are excited to compare space and sea sequencing.

The NEEMO team swabbed samples around the Aquarius habitat and processed the collection with Minion, as well as sent it back to the surface for NASA to study with a standard sequencer. That's different than the approach on the ISS—for now, sequencing is limited to preset samples launched up to the station. "The idea was that we could take environmental samples all the way through sequencing, so in the future that is something you could do in a space environment," says McArthur. She may never make it back to space—but her work certainly will.

[\[The Guardian\] China: the new space superpower](#)

Stuart Clark

28 August 2016

<https://www.theguardian.com/science/2016/aug/28/china-new-space-superpower-lunar-mars-missions>

At 8pm Beijing time on 25 June this year the tropical darkness over China's Hainan province was temporarily banished by a blinding orange light. Accompanied by the thunderous roar of engines, a 53m-tall rocket pushed itself into the sky.

China is developing rapidly into one of the major space players

Fabio Favata, European Space Agency

An increasing number of Chinese rockets have launched in the past few years but this one was significant for three reasons. It was [the first launch of the new Long March 7](#) rocket, designed to help the Chinese place a multi-module space station in orbit. It was the first liftoff from China's newly constructed Wenchang launch complex, a purpose-built facility set to become the focus for Chinese space ambitions. And it was the first Chinese launch where tourists were encouraged to go along and watch.

For a space programme that has long been shrouded in secrecy, it's a major step. The Wenchang complex has been designed with large viewing areas, and in the sultry heat of that June night, tens of thousands of spectators stood cheering as the rocket began its 394km journey above the Earth and into orbit.

"China is developing very rapidly into one of the major space players," says Fabio Favata, head of the programme coordination office at the European [Space Agency's](#) (ESA) directorate of science.

The Long March 7 carrier rocket moves vertically to the launch tower in Wengchang, 22 June 2016.
Photograph: VCG via Getty Images

China launched a pioneering "hack proof" quantum communication satellite, called [Quantum Experiments at Space Scale](#), on 16 August from its older Jiuquan launch centre in the Gobi Desert. This is the first large-scale satellite designed to investigate the [weird quantum phenomenon called "entanglement"](#) that so unnerved Albert Einstein he once called it "spooky". In addition, China is preparing to launch another new rocket design, a new space station, an X-ray telescope and a crewed mission before the year is out.

China is estimated to spend around \$6bn a year on its space programme. Although that is almost \$1bn more than Russia, it is still [a fraction of the American space budget](#), which is around \$40bn a year. Despite its large budget, the US made only 19 successful space launches in 2013, compared with China's 14 and Russia's 31. With numbers like this, it is clear that China has arrived in space, and is set to become stronger.

To use a Chinese phrase, they want to bring their own mat to the table. They want respect from the space community

"You will see the Chinese quite visibly begin to match the capacity of the other spacefaring powers by 2020," predicts Brian Harvey, space analyst and author of [China in Space: The Great Leap Forward](#). Key to this will be the large manned space station, Tiangong, which they plan to have in orbit by then. Although not as physically large as the International Space Station America, Russia, Europe, Japan and other countries have been building and using since 1998, China's space station will have a broadly similar capacity to perform science.

“Science is becoming more and more important in the Chinese space programme,” says Wang Chi of the National Space Science Centre, Chinese Academy of Sciences. “We are not [just] satisfied with the achievements we have made in the fields of the space technology and space application. With the development of the Chinese space programme, we are trying to make contributions to human knowledge about the universe.”

Chinese astronauts of the Shenzhou 10 manned spacecraft mission, Wang Yaping, Nie Haisheng and Zhang Xiaoguang. Photograph: ChinaFotoPress via Getty Images

Perhaps most impressive is the broad front on which the Chinese space programme is advancing. They are making strides in everything from human space flight to space science and planetary exploration.

So do the Chinese want to take over space? Brian Harvey, space analyst and author of *China in Space: The Great Leap Forward*, believes the Chinese simply want to be seen as equals. “To use a Chinese phrase, I think they are wanting to bring their own mat to the table,” he says. “They are looking for equality, they want respect from the world’s space community.”

To that end, China’s biggest inroad has been made with the ESA through the space science programme. Soon after the turn of the century, ESA launched [the Cluster mission](#) to study so-called “space weather” and the electrical malfunctions this could cause on satellites. The Chinese were keen to learn more about space weather too and came to the European agency with a proposal: they would build extra satellites to enhance the Cluster mission if ESA would collaborate with them.

“They understood that space weather was a key challenge as we rely more and more on technology in orbit,” says Christopher Carr, a physicist at Imperial College, London, who worked on the Cluster mission. ESA took care of the negotiations, allowing scientists, including Carr, to build the instruments unhindered. Although there were some differences in working methods that had to be ironed out, Carr says: “Overall it was an enjoyable collaboration.”

The Double Star mission was launched in 2003 and became China’s first scientific satellite. Cluster and Double Star have so far produced 2,300 peer-reviewed science papers. “That is an enormously successful, astonishing scientific output,” says Carr.

China has gone from strength to strength. In December 2015, it launched the [Dark Matter Particle Explorer](#), a satellite to look for the mysterious non-atomic matter that astronomers believe makes up a large fraction of the universe. This December, it plans to launch the Hard X-ray Modulation Telescope to look for black holes. ESA and China are working together on a new mission – the [Solar Wind Magnetosphere Ionosphere Link Explorer](#) (Smile), which is slated for launch in 2021.

Advertisement

The Chinese know that the value of these collaborations extends way beyond the science. “We are the newcomers in space science, and don’t have much experience,” says Wang Chi. “International collaborations are the shortcut for [China](#) to catch up with the world. In addition, science, especially space science, should be the responsibility of all humans around the globe. International collaboration is the effective way to obtain the maximum science return from any space mission.”

Favata agrees: “At ESA we collaborate with all major spacefaring nations. If Smile works well it is likely to be the pathfinder for future missions.”

In stark contrast is America, where there is a blanket ban on working with China that dates back years. The most obvious consequence of this has been the exclusion of China from the [International Space Station](#). But far from slowing the Chinese down, the cold shoulder has actually speeded them up.

Circling above us at the moment is the disused shell of China's first space station. The eight-ton Tiangong 1 (Heavenly Palace) was launched on 29 September 2011 and hosted two three-person crews between 2012 and 2013. It is now abandoned and expected to [re-enter Earth's atmosphere some time later this year](#).

The Chinese will launch Tiangong 2, a second test station, next month. It will lead to a substantial orbital facility that will be in use by 2020. Known simply as Tiangong, it will be a key base for space research, with two large science modules joined together by a connecting service module.

"They can do a lot of science on it. It will have a research capacity that the ISS didn't reach nearly as quickly," says Harvey.

China is not planning to keep Tiangong all to itself. In June, it signed an agreement with the UN Office for Outer Space Affairs to open the station to experiments and astronauts from UN member states, specifically developing countries that find space too expensive at the moment.

And running the experiments is where China's astronaut programme comes in. There have been just five crewed space flights since 2003, and none at all since 2013. This is deliberate. "The idea is to take a significant step forward each time," says Harvey, "and they're not going to cut corners in terms of safety."

2011: the Long March II-F rocket carrying the China's first space station module Tiangong 1 at the Jiuquan Satellite Launch Center in north-west China's Gansu province. Photograph: AP

For the next decade, the Tiangong space station is likely to be the principal destination. Their crew capsule is called Shenzhou (divine vessel). It looks similar to the Russian Soyuz modules probably because the Chinese bought Soyuz technology in the mid-90s. This same agreement saw the training of two Chinese astronauts at the Yuri Gagarin Cosmonaut Training Centre in Russia, who then returned to China and trained more astronauts themselves.

Twelve Chinese astronauts have now been into space, including Liu Yang who became the first Chinese woman in space on Shenzhou 9 in 2012. Assuming the Tiangong 2 gets to orbit in September, then Shenzhou 11 will follow on 16 October, carrying two people whose identities have yet to be made public who are scheduled to spend a month on board.

I think the military element in the Chinese space programme is quite overstated

Brian Harvey, space analyst

Looking to the future, the Chinese have already begun testing the larger replacement of the Shenzhou capsule. A scaled-down version flew on the June flight of the Long March 7 from Hainan. This larger vehicle will be capable of taking up to six crew to the full Tiangong space station or on missions to lunar orbit.

It was the secondary payload, Aolong 1 (Roaming Dragon), on that launch that raised eyebrows, and stoked fears in some quarters that the civilian space programme is just a front for more covert operations. Aolong 1 has a robotic arm that can grab another satellite and guide it to burn up in Earth's

atmosphere. Officially, it is to remove space debris from orbit but it could also be used as a weapon, bringing down a rival's satellite.

Although this is true of any space debris removal system, doubts remain because China does not have an unblemished record in anti-satellite weaponry. In 2007, the Chinese shot down one of their own orbiting spacecraft in what was probably a thinly veiled warning to America. Chinese concerns had been growing since 2002 when the US withdrew from 1972's Anti-Ballistic Missile treaty, which paved the way for President George W Bush's administration to develop space-based weapons systems.

Since that time, concern over China's militarisation of space has persisted in America. To others, however, that is little more than paranoia. "I think the military element in the Chinese space programme is overstated," says Harvey. "It's based on a misreading of the fact that their facilities are protected by the military. It's a bit like saying the US military controlled the Apollo programme because the US navy took the returning astronauts out of the ocean. It doesn't stand up."

The Long March 2D carrier rocket carrying the remote sensing satellite Yaogan IV blasts off in December 2008. China claimed the satellite was used for scientific research purposes. Some western analysts believed they were spy satellites. Photograph: ChinaFotoPress/Getty Images

The military may not be in the driving seat, but it does launch about 15-20% of China's space missions. The Yaogan series of satellites are billed as remote sensing missions but analysts believe they are actually spy satellites. "I suspect they are entirely military missions. I've never seen any scientific papers from the Yaogan missions," says Harvey.

It is this American fear of China's military that's been driving the ban on collaboration, in particular the prevention of technologies being transferred to China by mistake. But now ESA has found a way to allow collaboration without the loss of control. It is "an elegant solution", says astrophysicist Graziella Branduardi-Raymont at University College London, who is working on Smile. "China builds the basic spacecraft and sends it to Europe. ESA and its collaborators then attach the payload module, which holds the science instruments, and launches the mission. That way, no western tech goes to China."

The Russians never got much further than paper studies in the 1970s. This is real, the spacecraft is already built

When it comes to rockets, China continues to develop a formidable arsenal of launch vehicles. Their rockets are called Long March and have been in development since the 1970s. The mainstay of their complement is gradually being replaced by the Long March 5, 6 and 7.

While the Long March 7 in June was capable of lifting about 13 tonnes into low Earth orbit, it is the Long March 5 that analysts are really excited about. Due to make its maiden flight this autumn, it's capable of lifting 25 tonnes to low Earth orbit, rivalling anything the Americans, Russians or Europeans currently have. It is not yet known what the Long March 5 will send into orbit, but the giant rocket's second flight, scheduled for next year, will be carrying a very special cargo. It will be a robotic mission designed to land on the lunar surface and send back samples of moon rock to the Earth for Chinese scientists to analyse.

China's Shenzhou 10 rocket blasts off from the Jiuquan space centre in the Gobi Desert in June 2013. Photograph: AFP/Getty Images

The Chinese call their lunar exploration mission Chang'e, after the Chinese goddess of the moon. In December 2013 Chang'e 3 hit the headlines after it successfully deployed a small rover on the lunar surface. Despite some technical problems, it continued to return data until just a few weeks ago.

Now, China plans to land a similar mission on the far side of the Moon in 2018. This will be a world first. "The Russians did think about such a mission in the 1970s but they never got much further than paper studies. This is real, the spacecraft is already built," says Harvey.

Also in the advanced planning stages is a rover to go to Mars. Pencilled in for launch in 2020, the Chinese Mars mission is going to find itself racing Nasa and the ESA, which have their own [Mars](#) rover missions launching that year too.

But what about a human landing on the moon? There could be no bigger sign of Chinese competency than that. Sure, America did it almost 50 years ago but with each passing year Apollo seems to have less relevance to the modern exploration of space. Nasa has held back from committing to a new round of lunar landings. Russia and ESA would both like to go to the moon but can't go it alone. The Chinese, however, seem to have the lunar surface in their sights. Designs for a Long March 9 rocket are currently being studied. With the first launch for the Long March 9 due in 2025, China could very well be in a position to land astronauts on the moon by 2030. This puts it roughly neck-and-neck with America, which currently plans to send astronauts to lunar orbit in 2023 but which has made no commitment to returning to the surface.

Liu Yang, China's first female astronaut, waves during a departure ceremony before becoming the first Chinese woman in space in June 2012. Photograph: Jason Lee/Reuters

Almost certainly this will be a flashpoint, but the ignition of a new space race would be a mistake. The Apollo programme of the 1960s cost the equivalent of hundreds of billions of dollars for little more than technological one-upmanship. Better now, surely, to cooperate, spreading the cost and the benefit across the world.

The Chinese space programme is gaining momentum year upon year. Its power lies not in unlimited funds but in carefully chosen projects, and the pursuit of clearly targeted goals – something the traditional space powers could learn from, especially when it comes to the crewed programmes.

At present there is no agreement on what to do when the current agreements to use the International Space Station come to an end in 2024. With America continuing to talk about hugely expensive missions to Mars, but with no real plans or budget in place to do this, Russia and ESA could increasingly find that their space ambitions are more aligned with those of the Chinese.

Mission control at the Jiuquan space centre in the Gobi Desert after China's longest manned space mission in 2013. Photograph: AFP/Getty Images

What is clear is that the Chinese space programme is more willing than ever to cooperate. With the signing of the UN agreement to host foreign experiments and eventually astronauts on their space station, the Chinese are opening up. It is of course hard to imagine Russia and in particular ESA abandoning Nasa altogether, but it is not inconceivable. In the aftermath of 2008's credit crunch, Nasa pulled out of a number of high-profile joint missions with Europe, including robotic Mars exploration and space-based observatories. This left ESA floundering for new partners, or frantically rescoping its

missions. Increasingly, China will play a role in the international exploration of space, and although it is early days they have so far they have proved to be highly reliable.

A seismic shift in space power is taking place. Europe could pivot either way or balance in the middle. Although most still talk about China "becoming" a space superpower, it is likely that history will record the tipping point as 25 June this year, when a giant rocket split the sky amid the cheers of more than 20,000 tourists.

Business/Market

[Bloomberg] Uber, Rival Careem Suspend Services in UAE Capital Abu Dhabi

AP 28 August 2016

<http://www.bloomberg.com/news/articles/2016-08-28/uber-rival-careem-suspend-services-in-uae-capital-abu-dhabi>

Dubai, United Arab Emirates (AP) -- Ride-hailing service Uber said Sunday that it and competitor Careem have abruptly suspended services in the United Arab Emirates capital of Abu Dhabi due to "unforeseen circumstances," suggesting potential difficulties with local regulators.

San Francisco-based Uber described the move as temporary and said it hopes to have more information in the next two days. It declined to say what prompted the suspension.

"We want to let you know that this was a decision taken by both companies, and our goal is to resume operations in Abu Dhabi as soon as possible," Uber said in a statement. The company has operated in the Emirates since 2013.

Local regulations mean that only licensed limousine drivers in the seven-state Emirates federation can drive for ride-hailing services such as Uber, which let passengers users order rides and pay through a smartphone app.

Dubai-based Careem said in a statement to The Associated Press that it decided to suspend service after some of its cars were stopped by authorities.

"Until we have further clarification on the situation, Careem has decided to temporarily limit services in Abu Dhabi to avoid any inconvenience this may cause," the company said. It did not elaborate.

Officials at the Abu Dhabi Department of Transport could not be reached for comment.

The companies' operations in the Emirates' largest city of Dubai, which has a different transport regulator, were unaffected by the suspension.

[NY Times] G.E., the 124-Year-Old Software Start-Up

Steve Lohr 27 August 2016

<http://www.nytimes.com/2016/08/28/technology/ge-the-124-year-old-software-start-up.html?ref=technology>

It may not qualify as a lightning-bolt eureka moment, but [Jeffrey R. Immelt](#), chief executive of [General Electric](#), recalls the June day in 2009 that got him thinking. He was speaking with G.E. scientists about new jet engines they were building, laden with sensors to generate a trove of data from every flight — but to what end?

That data could someday be as valuable as the machinery itself, if not more so. But G.E. couldn't make use of it.

“We had to be more capable in software,” Mr. Immelt said he decided. Maybe G.E. — a maker of power turbines, jet engines, locomotives and medical-imaging equipment — [needed to think](#) of its competitors as Amazon and IBM.

Back then, G.E. was returning [to its heavy-industry roots](#) and navigating the global financial crisis, shedding much of its bloated finance arm, GE Capital. That winnowing went on for years as billions of dollars in assets were sold, passing a milestone this summer when GE Capital was removed from the government's short list of financial institutions deemed [“too big to fail.”](#)

But in 2011, G.E. also quietly opened a software center in San Ramon, Calif., 24 miles east of San Francisco, across the bay.

Today one of San Ramon's most important projects is to build a computer operating system, but on an industrial scale — a Microsoft Windows or Google Android for factories and industrial equipment. The project is central to G.E.'s drive to become what Mr. Immelt says will be a “top 10 software company” by 2020.

Silicon Valley veterans are skeptical.

“G.E. is trying to do this the way a big company does, by throwing thousands of people and billions of dollars at it,” said Thomas M. Siebel, a technology entrepreneur who is now chief executive [of C3 IoT](#), a start-up that has done work for G.E. “But they're not software people.”

The San Ramon complex, [home to GE Digital](#), now employs 1,400 people. The buildings are designed to suit the free-range working ways of software developers: open-plan floors, bench seating, whiteboards, couches for impromptu meetings, balconies overlooking the grounds and kitchen areas with snacks.

Many industries see digital threats, of course. Yet the scope of the challenge is magnified at G.E., a 124-year-old company and the nation's largest manufacturer, with more than 300,000 employees worldwide. Employees companywide have been making pilgrimages to San Ramon for technology briefings, but also to soak in the culture. Their marching orders are to try to adapt the digital wizardry and hurry-up habits of Silicon Valley to G.E.'s world of industrial manufacturing.

G.E.'s success or failure over the next decade, Mr. Immelt says, depends on this transformation. He calls it “probably the most important thing I've worked on in my career.”

Apparently, there is no Plan B. “It's this or bust,” he said.

The Next Battlefield

The march of digital technology — mainly inexpensive sensors, powerful computing and clever software — into the industrial world has been underway for years under the guise of “the internet of things” or

“the industrial internet.” It is the next battlefield as companies fight to develop the dominant software layer that connects the machines.

It promises to be a huge market for new products, improved service and efficiency gains in industries like energy, transportation and health care. By 2020, the industrial internet market will reach \$225 billion, G.E. executives predicted in a recent meeting with analysts.

So far, a major application has been predictive maintenance. Software analyzes the data generated by a machine to identify early warning signals that it needs repair, before it breaks down.

The data volumes are exploding as machines new and old spawn sensors. By 2020, G.E. estimates that the data flowing off its machines in use will jump a hundredfold. That should enable far more detailed analysis, giving G.E. a chance to sell its customers not machines but “business outcomes,” like fuel savings. Mr. Immelt sees this as a move up the industrial food chain.

Yet all of this exposes G.E. to new competition beyond its traditional rivals like Rockwell Automation, Siemens and United Technologies. Tech giants, including Amazon, Cisco, Google, IBM and Microsoft also have their eye on the industrial internet market, as do a bevy of start-ups.

There is precedent for trouble in other industries, of course. Google and Facebook transformed media and advertising, Amazon redefined retailing, and Uber applied an entirely new business model to taxis, which hadn’t changed much in generations.

“The real danger is that the data and analysis becomes worth more than the installed equipment itself,” said Karim R. Lakhani, a professor at the Harvard Business School. “G.E. has no choice but to try to do that itself.”

Converting the Engineers

Recently, G.E. has lured software engineers and data scientists from Amazon, Apple, Facebook and Google. Early on, though, it struggled simply to hire. Last year it began running [self-deprecating television ads](#), featuring young hires, aimed at closing the company’s image gap of industrial giant but digital midget. (Applications at GE Digital jumped eightfold, the company says.)

In 1889, Thomson-Houston Electric, Bergmann & Company, American Electric and other companies formed Edison General Electric. After manufacturing shoes, Charles A. Coffin was introduced to the head of Thomson-Houston in the 1880s. For 40 years, he was G.E.’s leading influence.

Until this year, Darren Haas hadn’t thought about G.E., certainly not working there. To him, G.E. meant little more than kitchen appliances and light bulbs. “I had no idea,” Mr. Haas said.

But he was intrigued after he met with Harel Kodesh, an expert in mobile and cloud computing who led teams at Microsoft and VMware, a maker of data-center software. Less than two years ago, Mr. Kodesh joined G.E., and he is now chief technology officer of GE Digital.

That someone of Mr. Kodesh’s caliber was a G.E. convert got Mr. Haas’s attention. Then, Mr. Haas started grasping the role that G.E. equipment plays across the economy — in transportation, in hospitals — “a whole world,” he said. “I found that really, really compelling.”

The other thing Mr. Haas, 41, found appealing was the big computing challenge that lies ahead for the company. In May, he joined G.E. from Apple, where he was a member of the founding team at Siri, the

voice-based digital assistant start-up Apple acquired in 2010. When he left Apple, Mr. Haas was head of cloud engineering, managing the computing engine behind Siri, iTunes and iCloud.

At GE Digital, Mr. Haas has a similar title, head of platform cloud engineering, but in a different setting. He describes his job as applying modern software technology — machine learning, artificial intelligence and cloud computing — to the industrial arena. “I’ve got my work cut out for me,” he said.

Mr. Haas is working on the centerpiece of G.E.’s software strategy, a product called Predix. Its evolution mirrors G.E.’s software ambitions.

Predix began as little more than a brand of software used by G.E. to service the gear it sells. One showcase use was in jet engines to do predictive maintenance, saving downtime. Around 2013, William Ruh, a former Cisco Systems executive brought in to put together the San Ramon software center, started expanding Predix to other G.E. industrial businesses.

But that soon felt too small. The issue was “outside disrupters,” Mr. Ruh said, citing the online lodging start-up Airbnb as an example of rivals that can appear seemingly out of nowhere and that “bring greater productivity — but don’t own the assets they sell.” G.E., Mr. Ruh notes, is the ultimate big-asset company.

The other threat was rising interest among tech companies to take their internet connectivity expertise and try to apply it to industrial businesses. To get ahead of all this, G.E. reimagined Predix as a cloud-based operating system for industrial applications.

Top, William Ruh, a former Cisco Systems executive brought in to put together G.E.’s San Ramon software center. Above: Harel Kodesh, chief technology officer of GE Digital. Credit: Brad Swonetz for The New York Times

Mr. Kodesh leads that effort. He ticks off the looming competitors: Amazon Web Services, Google, Microsoft and others. “Those companies are going to encroach on the territory,” Mr. Kodesh said. “Are we going to capitulate, or build something like Predix?”

The basic idea is that G.E. and outside software developers will write programs to run on Predix. This software might, for instance, monitor the health and fine-tune the operation of equipment like oil-field rigs and wind-farm turbines, improving performance, reducing wear and adapting to changing environmental conditions. It amounts to software delivering the equivalent of personalized medicine for machines.

Like any other computer operating system, Predix aims to take the complexity out of writing programs, so more people can create them. And while the instincts of the industrial world are proprietary, G.E. is following an open-source model with Predix, providing a basic design, but one open to outside contributors — more like Android from Google than Windows from Microsoft.

Predix, Mr. Kodesh said, will be improved using the software equivalent of Lego blocks. “Some will be G.E.’s, and some will be made by third-party developers,” he said.

G.E. is betting that its deep knowledge of industry will give it an edge in this software arms race. The stakes for this kind of programming can be high.

For a regular consumer using the internet, a misfiring algorithm in the software — “a false positive” — might mean a person sees an irrelevant online ad, or a bad Amazon book suggestion or Netflix movie

recommendation, Mr. Kodesh said. Useless, perhaps, but not necessarily costly. But a false positive that prompts an airline to take a jet engine off the wing, Mr. Kodesh said, is a \$100,000 mistake.

“We really do need to have different technology, different algorithms and a different cloud, than in the consumer internet,” he said.

G.E. has set an ambitious target for Predix. It hopes to attract \$100 million in orders this year, on its way to \$4 billion in revenue by 2020. By then, the company forecasts that its total digital business — more than 90 percent of it software — may reach as much as \$15 billion, up from \$6 billion now.

For Predix to reach its potential, though, G.E. needs outside programmers to write software for it. The company, with its deep pockets, can start the software-writing parade, but will others follow?

Holly Hensley of Asheville, N.C., jumping between rocks at Reedy River Falls Historic Park in Greenville, S.C., where G.E. has a gas turbine plant. Credit: Jeremy M. Lange for The New York Times

This will be a major test. And G.E.’s campaign to build an industrial operating system and create a flourishing ecosystem of software for it is just getting underway in earnest.

In late July, G.E. hosted a Predix conference in Las Vegas, which attracted 1,200 software developers. Such developer gatherings are part of the playbook of every major software company but unusual for an industrial corporation.

G.E. has some built-in advantages. Its installed base is huge. For example, the company says more than a third of the world’s electricity is generated on G.E. equipment. It can make progress simply by winning over the aircraft makers, oil companies, hospitals and utilities that now depend on G.E. machinery.

G.E. is starting to attract a developer following. Tata Consultancy Services, for one, says it now has 500 programmers designing and developing Predix applications for customers in the electric-utility, aviation and health care industries. G.E. also promotes partnerships with Infosys, Wipro and Capgemini to help business write Predix software.

When he joined in 2011, Mr. Ruh had no illusions that making software a strength at a heavy-industry company would be easy. At the time, he told Mr. Immelt that would be “a 10-year journey,” he said. “We’re in the middle of that journey.”

Part of that is an effort to change an engineering culture that stretches back generations. “If G.E. is truly going to be a digital-industrial company, we can’t be separate here,” Mr. Ruh said of his software division. Digital “tools and habits” need to be embedded “in how people do their jobs,” he said.

Gas Turbines, the Digital Way

In its factory in Greenville, S.C., G.E. produces both giant power generators and evidence that this metamorphosis might work.

The three-story building is crowded with immense cranes and milling, grinding and welding machines, overseen by manufacturing engineers and technicians. The finishing touches are being put on one of G.E.’s new gas turbines.

It looks like the business end of a rocket ship lying on its side, a gleaming steel dynamo at rest. It weighs 950,000 pounds. It fires up at nearly 2,900 degrees Fahrenheit, and it can generate enough electricity to supply more than 500,000 households.

The gas turbine was brought to market in half the typical five years. That kind of accelerated product development is a performance that G.E. hopes to replicate across its industrial businesses. And it is a story of changes in design and manufacturing practices made possible by digital technology.

John Lammas, the 56-year-old vice president for power generation engineering, started his working career 40 years ago, on the shop floor of a Rolls-Royce jet engine factory in Birmingham, England. He has been with G.E. for 31 years, moving up the ranks of the company's jet engine and power turbine divisions.

"I'm an old mechanical guy," he said. But a couple of years ago, he issued an edict: no more paper drawings.

In the past, a model of a new part would be made and then converted to detailed blueprints running to 70 pages or more. These would then be physically sent to G.E. manufacturing engineers and outside suppliers to begin setting up the tooling, casting and cutting for the part.

This prototype-and-blueprint routine took up to eight weeks. Now, engineers use 3-D computer models, skip the prototype step and instantly send the models electronically.

This goes a step beyond computer-aided design, which is commonplace. In Greenville, the designers are for the first time linked directly with manufacturers and suppliers in real time, in what G.E. calls a "digital thread." This means they can collaborate in ways that have changed the work process while making it more likely that problems or defects are spotted sooner.

Traditionally, one set of engineers designed a part, and only then passed it on to manufacturing. If a problem arose on the supplier side, the design was kicked back and the process started over. "Jobs are combining in this digital world," Mr. Lammas said.

Greenville's own equipment has been a Preditrix guinea pig. The machinery and factory were retrofitted with data-generating sensors and the software. Matt Krause, the plant manager, said that last winter, when a snowstorm shut the factory for a day, the sensor network detected that the plant had consumed 1,000 pounds of argon, an inert gas used in coatings for parts. The leak was fixed, saving \$350,000 a year.

"We can see things we never did before," Mr. Krause said. Over all, 60 of 200 steps in design and production have been automated or eliminated, reducing work time by 530,000 hours over three years, G.E. estimates.

Not all the start-up ideas that G.E. is trying to breed translate comfortably to heavy industry. Lean proponents urge companies to come up with "minimum viable products," particularly test versions of software programs. But no one wants a minimum viable jet engine or power generator.

Yet in Greenville, engineers in the design stages are encouraged to move faster in smaller steps, conduct more experiments, and be willing to fail and try again. It amounts to a sea change in the engineering culture of heavy industry.

"As an engineer, not getting it right the first time, I find painful," said Bill Byrne, an engineering manager. "It's uncomfortable. But it's been incredibly liberating."

The old ways, said Mr. Lammas, the engineering chief, had merit. Each step and rule was logical on its own. But the emphasis on flawless execution and perfection fostered a fear of failure. “Overcoming that culture was probably the biggest challenge,” he said.

[\[NY Times\] Warned of a Crash, Start-Ups in Silicon Valley Narrow Their Focus](#)

Katie Benner

28 August 2016

<http://www.nytimes.com/2016/08/29/technology/warned-of-a-crash-start-ups-narrowed-their-focus.html?ref=technology>

SAN FRANCISCO — Evernote, a Silicon Valley start-up that makes a note-taking app, was supposed to be dead by now.

After a stratospheric rise over the last few years, during which investors poured about \$270 million into the company and valued it at \$1 billion, Evernote hit hard times last year. Naysayers said the company had overexpanded, was spending too much money and would be destroyed by competitors. The start-up soon became [the poster child of a coming collapse](#) in Silicon Valley.

Twelve months later, Evernote has cut back on staff, eliminated employee perks like [free housecleaning services](#), simplified its product line — and stabilized. The number of customers who pay for its file storage and sharing product is on track to grow as much as 40 percent this year, and the company is hiring again.

“Here we sit, a year after we were supposed to die,” said Chris O’Neill, 43, chief executive of the start-up, which is based in Redwood City, Calif. “It was hard for employees to readjust expectations. They had only known a world where another fund-raise was just around the corner.”

Silicon Valley start-ups were set to face a great reckoning in 2016. Yet the crash hasn’t happened.

Last year, many tech executives, venture capitalists and entrepreneurs were convinced that a multiyear boom that had propelled young companies to great heights could no longer sustain itself. Some said it would end apocalyptically. Michael Moritz, an influential start-up investor at Sequoia Capital, declared many of the companies “[the flimsiest of edifices](#).” Bill Gurley, a venture capitalist at the Silicon Valley firm Benchmark, proclaimed that the start-ups would [bite the dust](#). “[Winter is coming](#),” others intoned.

The worst fallout may yet come, but many of the start-ups have hung on. Across Silicon Valley, engineers are still commanding annual salaries that average \$136,000, according to Hired, a recruiting firm. Demand is brisk for \$4 buttered toast, and office space rents remain near record highs. The biggest start-ups, like Uber and Airbnb, continue to land billions of dollars in funding. And investors are shoveling money into venture capital funds, which raised so much cash in the first half of this year that it rivaled the amount raised in all of 2015.

For all of the hand-wringing, “there just hasn’t been much of a downturn,” said Paul Buchheit, a managing partner at Y Combinator, a prominent start-up incubator that nurtured companies including Dropbox and Airbnb. “I don’t even see many companies going out of business.”

That is not to say there has been no adjustment. Some smaller start-ups, like the live-streaming app Blab and the on-demand private chef company Kitchit, have collapsed into Silicon Valley’s dead pool. Other

young companies have laid off staff. And many entrepreneurs are [no longer able to demand whatever valuation they please](#) for their companies.

Yet it is precisely these adaptations that have allowed many Silicon Valley start-ups to stick it out — for now, at least.

“The start-up world did heed the warnings,” said Max Levchin, a former employee and a founder of PayPal and the chief executive of Affirm, a lending start-up in San Francisco.

Silicon Valley’s innovation engine continues even with the survival of so many start-ups — and not just the fittest — because of the abundance of venture capital. There has been a proliferation of new enterprises in up-and-coming fields like [artificial intelligence](#), robotics and virtual reality, creating potential areas of growth for Silicon Valley technologists to build on next.

For techies who have been grappling with the not-yet-a-crash environment, the adjustment in their outlook is evident in their speech. Entrepreneurs who once talked about how fast their start-ups were growing are now spouting from a bible of fiscal responsibility.

Sean Behr, the chief executive of the parking service Zixx, epitomizes the change. The company, named after the Ukrainian word for star, was in the “on-demand” space, providing valet parking with the touch of a smartphone button. Mr. Behr said his goal was to make all of Zixx’s consumers feel like stars.

But each customer was so expensive to acquire and serve that Zixx lost money and consumers in all six cities where it operated. By late last year, Zixx, a San Francisco start-up that had raised \$36 million, had only about a year’s worth of cash left.

So in January, Mr. Behr, 41, walked his employees through nearly 40 PowerPoint slides detailing the company’s precarious finances and explained that Zixx needed to take drastic actions. That month, he told customers Zixx was shutting down its on-demand businesses where valets would park cars for any customer who asked and would instead focus on more lucrative corporate clients.

“Investors used to say grow, grow, grow and don’t worry about costs,” Mr. Behr said. “Now you’re encouraged to not run out of money and make sure you’ll be around.”

Today, Zixx is profitable in eight of its nine markets, he said. The company has preserved \$10 million from its last financing round to keep in the bank for a rainier day.

At Bannerman, a 16-person security guard start-up based in San Francisco, Johnny Chin, the chief executive, also narrowed the company’s focus after warnings of a crash. While the start-up once pursued several types of customers, it began concentrating on serving only medium-size offices and property managers.

The company was losing money last year, but it is now profitable. Start-ups “started to cut their most frivolous spending,” said Mr. Chin, 30. “People are just cautious. It’s healthier.”

Other entrepreneurs have a newfound air of practicality, no longer shooting for their companies to be the next tech behemoth like Facebook.

Ken Denman, chief executive of the artificial intelligence start-up Emotient, was trying to drum up more money for his company last year when he heard the talk about a coming start-up calamity. So to hedge his bets, he started talking to potential buyers, too.

“In 2013, I wouldn’t have thought about selling,” said Mr. Denman, 58. But all the concerns “encouraged folks to behave in whatever way would give them the greatest chance to succeed.”

In January, he sold his four-year-old company for an undisclosed amount to Apple, where most of his team now works. “I looked at all the variables and wanted to do what was the best thing for the employees and the company,” said Mr. Denman, who is taking a break after the sale.

A Silicon Valley start-up crash may still take place, especially if the stock market tanks or if there is a financial shock to the system. And some tech investors like Mr. Gurley, the venture capitalist, are still sounding the alarm. In April, Mr. Gurley wrote a blog post that laid out how venture investors remain [overcapitalized](#) to a dangerous degree, which made investing in start-ups more risky.

While there has been no crash since then, he does not regret any prognostications. He said he was glad if young companies had stopped overspending because of his warnings.

“Funding for just anything under the sun has gone away,” Mr. Gurley said. “I spoke out because the longer those things go on, the worse things end up later on. This is the impact I wanted to have.”

[\[Bloomberg\] Zhongan Mulls IPO in Hong Kong, U.S. Within Next 18 Months](#)

Lulu Yilun Chen 29 August 2016

<http://www.bloomberg.com/news/articles/2016-08-29/ant-financial-tencent-backed-zhongan-favors-ipo-in-hong-kong>

Zhongan Online P&C Insurance Co., with more than 400 million customers, is targeting an initial public offering in the next 12 to 18 months as it targets winning over more younger consumers.

While the company currently favors a listing in Hong Kong, it’s also considering holding the IPO in the U.S., Chief Financial Officer John Bi said. Zhongan would also consider a pre-IPO private funding round to attract global investors and provide strategic value to its insurance business, he added.

Backed by Chinese giants Ant Financial and Tencent Holdings Ltd., Zhongan works with internet companies to provide policies for China’s younger users in the automotive, health care and online shopping sectors. The company operates in an online insurance market that is expected to reach 2 trillion yuan (\$300 billion) by 2025, a 10-fold increase from last year, according to Shanghai-based consultant IResearch.

Hong Kong’s listing “momentum is good,” Bi said in a phone interview on Monday. “For our next round of private fundraising, we are looking to attract influential global insurance or technology shareholders to endorse our development.”

Zhongan focuses on users who are used to simple procedures when shopping online and have no patience to fill in traditional insurance application forms, Bi said. He declined to say how much the company would seek to raise or the potential valuation except to compare Zhongan to global technology giants.

“We think of our peers as disruptive technology companies including Google, Amazon and Apple” instead of traditional insurance companies.

Google owner Alphabet Inc. has a price to earnings ratio of about 30, while Amazon trades at 191 times profit. China’s Ping An Insurance (Group) Co. has a PE ratio of 10 and Apple’s is about 13 times.

Zhongan completed an A series funding round in May last year to raise about \$1 billion at a valuation of about \$8 billion, Bi said. The company expects policy revenue to rise 80 percent to 150 percent this year from the 2.28 billion yuan it booked in 2015, he said, declining to disclose more financial details.

Ant Financial, formally known as Zhejiang Ant Small & Micro Financial Services Group, is Zhongan's largest shareholder with a 16 percent stake. Tencent and Ping An each hold 12 percent stakes. It also counts Morgan Stanley, China International Capital Corp. and CDH Investments as investors, according to Bi.

Zhongan's flagship product is one that allow merchants who sell on Alibaba Group Holding Ltd. cover shipping losses when customers return goods, ranging anywhere from 10 to 100 yuan, depending on the performance history of the seller. It also provides insurance to customers of Xiaomi Corp. to protect the screens of new smartphones and is creating a service to lower premiums to drivers with good records.

"It's valuable that we are adjust pricing based on user behavior pattern," Bi said. "When we create a product its completely driven by the results we get from our big data."

Zhongan competes with companies including Taipei-based Cathay Financial Holding Co. Ant Financial holds a [controlling stake](#) in the Chinese unit of Cathay Financial as the companies are exploring opportunities in the same field.

Miscellaneous

[Digital Trends] [From cyberwarfare to drones, the future of conflict is electronic](#)

Rick Stella

29 August 2016

<http://www.digitaltrends.com/features/dt10-military/>

nnovation can take many forms: Today's computers are faster. Space travel is cheaper. Artificial intelligence is smarter than ever before. The military is ... well ...

While the details on Intel's latest processors or LG's new OLED technology remain a simple Google search away, the uniquely secretive processes of the United States military make it tough to know what's truly cutting edge. Much of the work happens behind closed doors, and even when an innovation is made public, layers of classified details often prevent us from ever knowing the full story. We may learn about [battery-powered exoskeletons for soldiers](#) from the Defense Advanced Research Projects Agency (DARPA), or [real-life railguns](#) that shoot hunks of metal at blistering speed, but the projects we don't learn about may be even wilder.

So what has true military innovation looked like over the past decade? How are our soldiers equipped today? And what should we expect a decade from now? Are our armed forces really as advanced as Tom Clancy novels would have you believe, or is reliance on an antiquated procurement process dramatically holding it back? What would military technology look like if a company like Apple or Microsoft were in charge?

To understand it all, you'll need to step back more than 10 years, to one fateful day in 2001, to witness the genesis of modern conflict, and the technology the military uses to fight it.

New enemy, new strategies

In the wake of the deadly terrorist attacks on September 11, 2001, then-U.S. President George W. Bush took less than a month to declare war on Osama bin Laden's militant Sunni Islamist organization, al-Qaida. A coordinated attack that claimed the lives of nearly 3,000 people, 9/11 heralded a dramatic shift in U.S. foreign policy that would send ripples throughout our country's armed forces for years.

The United States entered Operation Enduring Freedom, as it became known, with the strongest, most technologically advanced armed forces on the planet. From state-of-the-art jet fighters and automatic grenade launchers to mammoth personnel carriers and tanks, it seemed as though the U.S. military would have an enormous advantage over an army equipped with Soviet-era leftovers and Toyota Land Cruisers.

Yet that technology didn't prepare the United States for what it would actually encounter once it stepped foot on Afghan soil.

"Threat at that time directly informed innovation."

"The United States lacked a real threat," former naval aviation Cmdr. Ward Carroll, who now serves as editor-in-chief of military news outlet [We Are The Mighty](#), told Digital Trends. "We were fighting an asymmetrical war after 9/11, and had to adapt to who we were fighting." And as Carroll put it, the "threat at that time directly informed innovation."

The prevalence of improvised explosive devices (IEDs) transformed the battlefield: Decades of technological advancements and military might were no match for \$10 worth of explosives, shoddy wiring, and a cell phone today's teens would be embarrassed to carry. These crippling booby traps changed the course of what was under development at home, leading to significant upgrades in body-armor technology and paving the way for sand-resistant gear, improved night vision, and a host of advancements for Humvees and other armored vehicles.

The Almighty Dollar

Innovation during the 2000s meant adapting to a new enemy, and a new landscape — one that included Iraq by 2003 and Pakistan by 2004. merely engineering solutions: procurement budgets.

A dizzying amount of money still gets spent

Though its budgets have decreased since reaching a high in 2011, the U.S. Armed Forces still saw its allocated defense budget sit at a steep \$597 billion in 2015. For context, the United States' entire defense spending in 2015 equaled that of China, Saudi Arabia, Russia, the United Kingdom, India, France, and Japan combined. In other words, the U.S. military may often dwarf the rest of the world in terms of innovation but it is a foregone conclusion — one backed up by data — that it blows every other country out of the water in terms of spending.

So where does the money go these days? For starters, some of the annual budget allocated by the Pentagon flows into Lockheed Martin — the manufacturer of the innovative but headache-inducing F-

35s. In 2014 alone, the Pentagon inked a \$4.7 billion deal with Lockheed on an eighth batch of fighter jets that was actually 3.5 percent less expensive than the previous batch and a staggering 57 percent cheaper than batch No. 1. Keep in mind that this contract covers just the F-35 jet built in its various forms and doesn't include the engine, which is separately manufactured by Pratt & Whitney.

Outside of the F-35, the military budget pie splits its funds (not evenly, mind you) between operations and maintenance, military personnel, procurement, research and development and testing, military construction, and family housing, among others. All told, the U.S. Navy tends to request (and receive) the most funding of the various branches of military, slightly edging out the Army.

"Because the Pentagon is so constrained by its budget, it's always looking to do more with less," Carroll continued. "This is why drones are so huge today, the tech saves millions of dollars. And unfortunately, sometimes decisions on what to develop are made arbitrarily — there's always a huge political factor — or by third parties." Innovation, Carroll says, takes a back seat when you're working with taxpayer dollars.

Dr. Lawrence Schuette, director of research for the Navy's Office of Naval Research (ONR), agrees. "What holds us back is that we are one of the great stewards of taxpayer's dollars," he told Digital Trends. "We are resource constrained, as is everybody, so you really don't want to be spending money on things at the wrong amount. But we definitely saw the IED threat in the 2000s, and worked very hard with what we had to go after it."

Born from this threat were sand- and IED-resistant armored vehicles and weapons, efficient body armor capable of protecting soldiers while remaining lightweight, and strategically placed forward operating bases (FOBs). As the wars in Afghanistan and Iraq plodded on, so did the ways of dealing with IEDs. The [Foster-Miller TALON](#) allowed soldiers to destroy IEDs from up to 1,000 meters away. Why put soldiers in harm's way when a remote-controlled robot could sift out danger instead?

But the IED still ruled both conflicts. According to the [Iraq Coalition Casualty Count](#) website, roughly 1,509 Americans have been killed by IEDs in Iraq since July of 2003. Clearly, there was a problem — and we threw money at it.

In 2001, before Bush launched operations in Afghanistan, Iraq, and Pakistan, the United States' annual defense budget sat at roughly \$335 billion. It was a staggering figure, but as the years went on and America became embroiled in desert conflicts, the military budget ballooned. After entering Operation Enduring Freedom, the military's budget rose just slightly to \$362 billion for the 2002 fiscal year. Each subsequent year saw a significant increase — anywhere from \$60 to \$70 billion — with spending topping out at a whopping \$721 billion by 2010, more than double where it had been at the beginning of the decade.

Boots off the ground

As far back as the Cold War, the United States has employed unmanned aerial vehicles (UAVs), more popularly referred to today as drones. Though the first batches of these devices were used strictly for surveillance, a prevailing desire to get soldiers out of harm's way led to weaponizing them as well.

"We don't need a weaponized UAV out there by itself making decisions."

Enter the Predator drone, an unmanned aerial system from General Atomics introduced in 1995, but first armed with Lockheed Martin-manufactured Hellfire missiles in 2001. Predators and similar UAVs

carried out swarms of coordinated attacks in Pakistan against al-Qaida and the Taliban: 2,341 fighters with these groups have reportedly been [killed by drone strikes](#) since 2004. By 2009 — President Barack Obama’s first year in office — drone strikes in Pakistan became as normal as any other operation carried out by the military.

“This goes back to the Pentagon always wanting to be able to accomplish more with less,” Carroll explains. “They think, ‘Why shoot one of something when you could shoot four?’ Drone technology perfectly fits into this line of thinking.”

Though drones had been used sparingly since the start of the wars in Afghanistan and Iraq, their perceived effectiveness — [though controversial](#) — kept the program thriving into 2010 and beyond. According to the Bureau of Investigative Journalism, more than 400 drone strikes have been carried out inside Pakistan’s tribal areas since 2004, with the majority coming between 2009 and 2014.

U.S. Air Force MQ-9 Reaper (Credit: [United States Air Force](#))

Just as researchers saw a need for technology to take soldiers out of harm’s way when dealing with IEDs, they saw drones as a way to take pilots out of potential danger. Operators on the ground could fly the drones without putting themselves in harm’s way.

We don’t need no stinkin’ tanks

As drones become staples in the skies above the battlefield, tanks are getting harder to find. But other new weapons are filling the void.

“People are going away from the tank a bit, but still want an armored vehicle,” Jarrod Krull, Orbital ATK communications manager, told Digital Trends. “Tank-on-tank warfare is likely going away, but having the ability to defeat hardened targets and operate in a somewhat urban terrain is still necessary. This is why we have precision weapons like the [XM395 Hatchet](#), for instance, which is a small, very precise gravity weapon.”

Capable of being dropped directly from a UAV, the Hatchet is deadly accurate. Armed with a laser-guided and laser-seeking navigation system, it’s an optimized warhead that provides a lot of punch in a very small package. Orbital began developing the weapon after seeing a need for small, propulsion-less weapons that are easily carried — and dropped — by UAVs, helicopters, or bombers. The Hatchet weighs no more than six pounds, so it’s as easy to deploy one as it is two or 10, depending on the size of the target and the goal.

“While soldiers might have eyes on a moving target, it’s hard to get assets on it quickly,” Krull explained. “The target is gone before they can get to it. ATK came up with this weapon [the XM 395] that can see the target and get to it immediately.”

Though Orbital is reacting to the almost inevitable transition in warfare away from armored vehicles toward drones, the company does still manufacture weaponized solutions for tanks. The [Mk44 Bushmaster Automatic Cannon](#), for instance, is a 30mm chain gun capable of firing a variety of ammunition types. It can even be modified to fire a 40mm round, a new area of ammunition Krull said Orbital has shifted into. Boasting low life cycle costs and supreme reliability, if the military does need to be on the ground, the Mk44 is considered bleeding edge.

A \$1.5 trillion eye in the sky

Even as reliance on drones grows, the military hasn't moved away from its jet fighter program — quite the opposite, in fact. When Lockheed Martin was awarded the contract to develop and manufacture the next great aircraft, dubbed the Joint Strike Fighter, it was supposed to serve as the revolutionary next step for fighters and supplant the decades-old F-16. The project has taken some time: Lockheed won the contract in 2001. [The Air Force declared the new plane combat-ready](#) on August 2, 2016.

Lockheed's F-35 Lightning II was to feature a combination of strong computational power, complete sensor fusion, unprecedented stealth capabilities, and an innovative new helmet to create a first-of-its-kind fighter experience. This is the futuristic military tech you were looking for.

“(The F-35 helmet) basically allows who's flying to become the pilot and the machine; it achieves ultimate synergy.”

“Having come over from other fifth-generation airplanes, I was incredibly curious to see what ‘state-of-the-art’ meant,” F-35 chief test pilot Al Norman told Digital Trends. “We've seen a tremendous transition and acceleration of capabilities over the last five years. It's been an enormous leap in tech capability.”

To make the project adaptable to different environments, Lockheed's F-35 comes in three different variations: a conventional takeoff and landing variant (F-35A), a short takeoff and vertical landing variant (F-35B), and a modified F-35A that boasts larger wings with foldable wing tips (F-35C). Norman was quick to point out that each model only takes off and lands differently; once they're in the air, the computer systems that help fly the jet, as well as the pilot interface, are all the same.

Short takeoffs and vertical landings are interesting, but the tech of the F-35 is where the craft truly shines. The new helmet is as innovative as they come, giving pilots a full range of view outside the jet. Furthermore, the head-up display from previous fighters has been completely upgraded to integrate fully with the new helmet.

[F-35 in action](#) (Credit: United States Air Force)

“It basically gives pilots the ability to see through the eyeballs of the airplane,” Norman continued. “An image is projected in a binocular sense through the visor of the helmet once it's plugged into the airplane, and this image is projected anywhere they look. It's got night vision, infrared, all sorts of sensors that switch seamlessly with one another. It basically allows who's flying to become the pilot and the machine; it achieves ultimate synergy.”

By simply looking around in the helmet, pilots have the ability to easily designate targets or waypoints. The whole contraption is as if someone were plugging themselves into something out of James Cameron's *Avatar*.

That laundry list of state-of-the-art technology also comes with intense concerns from both Congress and the Department of Defense over inflated costs, performance issues, and changes in leadership. To date, the U.S. military has dumped roughly \$1.5 trillion (yes, with a T) into the Joint Strike Fighter program, with each variation of the jet costing anywhere from three to five times more than the decades-old F-15 and F-16 planes. This isn't necessarily surprising — we're talking about cutting-edge tech versus something manufactured in the 1970s, after all. But even the Pentagon has admitted to the program's failures.

Throughout its life span, Lockheed Martin has maintained the F-35's competency, even going so [far as to say it's](#) "400 percent more effective in air-to-air combat capability than the best fighters currently available." Perhaps so, but in 2015, an investigation conducted by the Pentagon also found that the Joint Strike Fighter program inaccurately counted aircraft failures to boost statistics and neglected to address "wing drop" concerns, while the helmet continued to trigger too many false alarms and showed stability issues.

"Part of the job of flight tests is to test design to see how it's going. You know, 'What do we need to tweak or fix?'" Norman told us. "It's no different than making software and beta testing to refine it with better software. Many times we hit the nail right on the head — which is by and large what we find — but you just don't know some things until you test it. You can't replicate it until you put the craft through its paces."

Despite a projected annual cost of roughly \$12.5 billion, the Department of Defense is not committed to the Joint Strike Fighter program at this point. Whether it will help battle the enemies of today and tomorrow remains to be seen.

The military tech of tomorrow

Based solely on Hollywood's portrayals, you'd surely picture future military squadrons stock full of robotic soldiers — and their drone counterparts, of course — equipped with concentrated laser weapons capable of incinerating anything on contact. It's not even that far-fetched to think the U.S. military might soon consist of super soldiers outfitted with brain-enhancing drugs or wearable exoskeletons.

This shift from boots on the ground to fingers on a keyboard means military innovation could see yet another dramatic transition.

In reality, however, this question of what military tech might consist of over the next decade boils down to politics, and the threat at hand. As the last decade in the Middle East has shown, the tech we invested in wasn't always at the forefront of what's possible but rather, what was necessary.

But with laser-guided precision rockets, futuristic fighter jets, and an increased reliance on drones proving to be imperative fixtures of today's military, it's clear there's now a renewed interest in emerging technology. In the past, heavy-handed process had an uncanny knack of striking down innovation at every turn because there just wasn't a day-to-day need for it. Today, we have one. For the first time in 15 years, the U.S. military is utilizing science fiction to fight an asymmetrical enemy — and it just might work.

Though the conflict following 9/11 shined bright lights on the inadequacies of relying on old strategies and old technology, the battlefield of tomorrow already appears to be bringing an entirely different threat altogether.

All signs point to cyber warfare

When attempting to forecast a future U.S. military threat, it's hard to avoid mentioning cyber warfare: digital attacks from abroad that can spill secrets, disable weapons, hijack key systems, or even shut down power grids. The means may be electronic, but the damage can be quite real.

Though the biggest battles are yet to come, back-office preparation for the change has [reportedly been underway](#) since George W. Bush's residency in presidential office. In an apparent effort to derail Iran's nuclear program, the United States (along with Israel) allegedly developed a piece of malware geared toward targeting programmable logic controllers — i.e., the type of computers used for automating assembly lines, light fixtures, and in this case, nuclear centrifuges located in Iran. Dubbed Stuxnet, this malware-based cyberweapon was manufactured to destroy the centrifuges, sabotaging Iran's nuclear enrichment. Though neither the United States or Israel have publicly verified their involvement, various U.S. officials all but confirmed its suspected origin [to the Washington Post](#) in 2012.

Obama's administration also [says it's currently considering](#) elevating the status of the Pentagon's cyberspace defense outfit, Cyber Command — which is currently just a branch of the National Security Agency. Essentially, it would become a sixth branch of the military. With [NATO officially deeming cyberspace](#) a potential "battlefield," the U.S. government granting more operational control to a division like Cyber Command seems like the logical next step.

Not only would this open the door for widespread development of cyber weaponry with fewer hurdles, but an elevation in status would also tighten network security across other Department of Defense branches.

"Just imagine operating at 160 IQ during your entire day at work and what that would mean for productivity."

This shift from boots on the ground to fingers on a keyboard means military innovation could see yet another dramatic transition over the next 10 years. Instead of developing the next autonomous robot capable of sniffing out IEDs or flying over an enemy camp unsuspected, a hardened focus on strengthening information systems and thwarting cyberterrorists may take precedence. The U.S. military, particularly the U.S. Navy, is already seeing a spike in jobs surrounding cyber warfare, so preparation for this future threat is underway.

On that battlefield, brains may be more important than brawn.

"Instead of focusing on creating a supersoldier that's capable of increasing his strength, what's more likely to happen is a push to increase cognition and cognitive ability over an entire group of people," ONR's Schuette added. "Just imagine operating at 160 IQ during your entire day at work and what that would mean for productivity."

A dramatic increase in cognitive ability assures you're seven or eight steps ahead of the other side — think Bradley Cooper in *Limitless* without the terrible side effects. Futuristic? Check. Necessary? On a cyber battlefield, quite possibly.

Tech from today that's built for tomorrow

Outside of wild theories and closed-off research, a few of the technological advances of today have specifically been built for use in the future.

[DARPA's Sea Hunter](#), an autonomous submarine-hunting surface vessel, for instance, is essentially a drone for the open seas. A roughly \$23 million project, this first-of-its-kind craft only began open-ocean testing this past year. It may still be a couple years from service, but it's loaded to the gills with futuristic tech.

“(The ACTUV) launches an entirely new class of unmanned vessel with vast possibilities for the future.”

For starters, the rig (dubbed ACTUV) has an abundance of sensors, antifire mechanisms, and fuel tanks that would make some think it was ready to launch into space as opposed to navigating the open ocean. An onboard computer made up of [31 blade servers](#) is the only thing responsible for piloting the rig. Considering it can be out on the open ocean for up to three months at a time, it’s paramount this computer works and works well.

“The ACTUV doesn’t just answer one of the biggest challenges the Navy faces today, it launches an entirely new class of unmanned vessel with vast possibilities for the future,” says Leidos — the company formerly known as Science Applications International Corporation that was contracted by DARPA to build Sea Hunter.

Soldiers, though less relied upon, will find themselves with new tools as well. Orbital’s XM25 Counter Defilade Target Engagement System, designed for the U.S. Army, allows soldiers to engage enemies behind cover or targets at range without cover. It uses a 25mm “air burst round” that sends shrapnel in different directions, striking combatants a soldier might not even be able to see.

“Our idea was ‘how can you engage a target that was in a defilade, or hiding behind a wall or rock or car?’ Krull explains. “Or perhaps a sniper firing from a window, or crouched down below a window.”

Striving for a functional future

After the dramatic rise of IED use in the 2000s, many returning veterans have faced a new battle: missing limbs. Finding a way to properly fit modern prosthetics to help them re-enter civilian life is another ongoing area of research.

“Right now, I have an effort with a program officer that attempts to answer this question: ‘How do you put a prosthetic limb on someone and actually have the mounting surface be titanium that works itself right into the bone?’” Schuette explained. “A prosthetic without a leather cup resting on the stump but rather something that goes right into the bone. Right now, we have departments analyzing the nanomolecular level and working to develop antirejection materials.”

Though Schuette and ONR are searching for solutions to this issue in 2016, research and development of suitable prosthetics has occurred for more than a decade. Once again, however, innovation in this field transpired as a direct response to a need generated by the U.S. military’s threat at hand. If roadside bombs weren’t as common, amputees — and the needed prosthetics that go along with such an injury — wouldn’t have experience a similar widespread demand.

Utility over novelty

Conventional wisdom would suggest the U.S. military has tech readily available to it that an ordinary person wouldn’t even be able to fathom; a weapon so destructive and mind-blowing it seems ripped straight from the pages of an Isaac Asimov novel. That may be the case behind closed research doors, but what’s actually put into the hands of soldiers has much more to do with necessity and budget. Driven by the decisions made in Washington, a soldier in Afghanistan is given only what money allows and what the decision-makers deem a requirement.

The next big military contractor could be Pfizer, not General Dynamics.

In an ever-changing sea of could-be innovation, necessary armaments, and fluctuating budgets, signing off on something shiny and futuristic doesn't always make sense. How do you prepare for the enemy of the future when you have a hard time fighting the enemy of today? Perhaps this is why military procurement often seems like a Catch-22.

Could a billion-dollar tech company like Apple do better? Maybe for comic-book fans. X-ray vision or a strength-enhancing supersuit would be astonishing and groundbreaking, no doubt, but if it didn't serve a direct purpose against the military's current threat, it would gather dust. For better or worse, our military's acquisition formula often quells innovation in favor of safety and current demand. For that reason, the next truly groundbreaking and awe-inspiring military innovation could have some application off the battlefield — think Schuette's comments about an IQ-boosting superdrug. In this world, the next big military contractor could be Pfizer, not General Dynamics.

Our military doesn't lack the tools (or minds) for innovation, but in a practical world, being on the bleeding edge often means finding a way to bleed less.

[\[Bloomberg\] Winners and Losers in the New China](#)

Christopher Balding

28 August 2016

<https://www.bloomberg.com/view/articles/2016-08-28/winners-and-losers-in-the-new-china>

Economists too often talk about policy changes in abstract, ignoring the drawbacks that even sensible reforms can bring. For years, analysts have been urging China to shift its economy away from heavy industry and toward services and consumption. Yet now that Beijing is taking heed, the costs are piling up.

Most obvious is a deepening gulf between winners and losers. A recent study from Peking University found that China has become one of the [most unequal](#) countries in the world. The richest 1 percent of households own a third of total wealth. As the government tries to transition away from coal and steel and toward tech and finance, this divergence is likely to worsen.

In fact, it's already starting to. Regionally, the differences between China's old and new economies couldn't be starker. The rustbelt province of Liaoning, long reliant on steel mills, is now in recession. In finance-focused, high-tech Shenzhen, real-estate prices have [risen](#) by more than 60 percent in a year, the fastest rate in the world.

For workers, the shift has been just as harsh. Low-skilled laborers in fading industries are facing a contracting labor market and stagnant wage growth, even as state-sponsored venture capitalists plow stunning amounts of money into technology and pharmaceutical startups. Last year, China accounted for [90 percent](#) of newly minted billionaires, overtaking the U.S. for the most in the world. This year, 1.8 million coal and steel workers are facing [layoffs](#).

Signs of a growing divide are everywhere. Although reliable wage data is hard to come by, some consumption patterns are suggestive. Highway transportation, preferred by the Chinese everyman, is down 19 percent on the year. Air travel, still mostly for the rich, is up 11 percent. International flights are increasingly popular: Chinese flying to Japan to buy toilets, Thailand for beach holidays or Europe for luxury goods are faring quite well.

Yet in many ways, China remains a developing country. More than 600 million Chinese -- some 44 percent of the population -- are classified as rural residents, with an average nominal yearly income of \$1,620. An urban worker earns nearly three times as much, enjoys better public benefits like schooling, and gets an enormous wealth boost from real-estate appreciation.

As bureaucrats in Beijing continue creating jobs for bankers and subsidizing startups, this is creating some alarming tensions: The number of strikes and workplace protests [surged](#) to a record 2,774 last year, double the amount in 2014.

China needs to address this divergence quickly. Although the government is offering cash to laid-off workers, the bigger problem is helping them make the transition to new jobs and new lives. Coal miners don't become medical technicians without training, or move to new cities without incentives.

The first step should be relaxing rules that prevent workers from moving. Successful economic transitions require letting labor flow freely, and restrictions on where migrants can work, and where their kids can go to school, only inhibit this process. Retraining programs are also crucial. Many rural towns in China have become magnets for online retailers, as small-time shop-owners enter the digital age; local residents need to have the wherewithal to capitalize on such changes.

Finally, Beijing must address housing costs. In most major cities, and especially those with flourishing economies, low-skilled and migrant workers have been largely priced out. One result is that rural-to-urban migration, once an unstoppable growth engine, has effectively ceased. A program to sell empty housing held by state-owned developers to migrants at affordable prices would help. So would easing restrictions on housing investment for lower-income groups.

China isn't alone in facing such problems. Yet its challenges are enormous. The yawning gap between winners and losers is making life much harder for a government seeking to boost growth and maintain stability. Without changes, China may very well end up with neither.

[\[WSJ\] U.S. Revamps Line of Attack in Social-Media Fight Against Islamic State](#)

Nicole Hong

28 August 2016

<http://www.wsj.com/articles/u-s-revamps-line-of-attack-in-social-media-fight-against-islamic-state-1472415600?mod=LS1>

Recent initiatives by technology companies to push back against Islamic State's social-media messaging highlight a sobering fact: The U.S. government's battle on that front has mostly sputtered.

In a number of terrorist attacks over the past year, the attackers were found to have been inspired by Islamic State propaganda and videos, which are often described as Hollywood-level productions. Despite numerous military victories against Islamic State, U.S. officials acknowledge they have struggled to counteract the terrorist group's online campaign.

"We were able to disrupt networks, arrest terrorist cells, kill terror operatives," said Ali Soufan, a former Federal Bureau of Investigation counterterrorism agent who now runs a security consulting firm, the Soufan Group. But "we haven't been doing a great job in countering the ideology."

Since early 2014, approximately 100 individuals have been arrested in the U.S. on charges related to providing support to Islamic State. In 69% of the cases, officials found the individuals had watched or

read the group's electronic dispatches, according to a report released last month by Fordham University's Center on National Security.

The government's countermessaging efforts so far have been scattershot and, some close to the government think, largely ineffective. Officials say the government's new strategy is to empower third parties to create their own messages, a contrast from earlier efforts that were criticized for having too much direct government involvement.

One of the government's earliest messaging campaigns against Islamic State began in 2013 with a Twitter account run by the State Department called "Think Again Turn Away," which aimed to dissuade people interested in joining the terrorist group. But the account would often tweet directly at pro-Islamic State accounts, sparking back-and-forths on Twitter that drew more attention to the voices of individual jihadists, critics said.

People looking to view the account's tweets are now redirected to the account for the Global Engagement Center, a new State Department initiative created this year to combat Islamic State messaging. Unlike the previous effort, the center aims to reduce the government's direct engagement online, especially in English, which officials saw as ineffective.

There are some encouraging signs. Since June 2014, there has been a 45% drop in pro-Islamic State tweets, said U.S. officials, citing data analytics technology that tracks Islamic State's presence on social media. It's unclear, however, whether the drop in tweets has resulted in fewer foreign fighters wanting to join the terrorist group. Islamic State supporters are also becoming more active on encrypted messaging apps, experts say, which raises the question of whether counternarratives on platforms like Twitter or Facebook are reaching the proper audience.

Government-backed messaging has always been fraught with challenges. In 1948, Congress passed the Smith-Mundt Act, which said government information about the U.S. could only be distributed overseas. Those restrictions were later loosened but are still seen as somewhat outdated in the internet age. Nevertheless, the legal rules have forced the State Department to be careful not to present its messaging efforts as domestic propaganda, experts say.

The most significant hurdle lies not with the messages themselves, but with the messenger, according to current and former government officials. Experts widely acknowledge that directives from the U.S. government are unlikely to resonate with young people interested in joining Islamic State.

That presents the dilemma of how the government can support [countermessaging efforts by tech companies](#) and Muslim community leaders without undermining them.

A bipartisan congressional task force and the Homeland Security Advisory Council, which advises the Homeland Security secretary, have both recommended stronger countermessaging efforts by the government.

The task force's report, released last September, noted that a State Department video featuring an Islamic State defector received only 500 views after two months, while Islamic State execution videos received tens of thousands of views within hours of going online. The task force recommended the government "urgently" develop ways to contest the propaganda and work with partners such as social-media companies and universities.

The Department of Homeland Security announced last month that it would set aside \$10 million of its budget to launch the first federal grant program devoted exclusively to “countering violent extremism,” which includes countermessaging initiatives. School districts, local governments and nonprofits around the U.S. have been invited to apply.

Both the government and private sector are trying to use data analytics to target the messaging at the most vulnerable audiences.

Earlier this month, the Institute for Strategic Dialogue, a London think tank, published a report studying what kinds of counternarratives are most effective online. The experiments were funded by Google parent [Alphabet](#) Inc., Facebook Inc. and [Twitter](#) Inc. One conclusion from the study: The messages should be narrowly targeted to a particular audience.

Over the past year, the government has helped tech companies like Facebook create competitions for college students around the world to come up with their own campaigns against extremism. The efforts recognize that young people will respond best to messages created by other young people. This spring there were 54 universities in the competitions, up from 45 schools last fall.

In April, the House passed a bill that would require Homeland Security to use testimonials of former extremists and defectors to combat terrorism, a strategy that is widely employed in Europe. State Department officials also have encouraged media companies and filmmakers to host workshops where Muslim activists can learn to film their own content.

Whether the messages are dimming the appeal of Islamic State is hard to know. It’s virtually impossible to quantify the number of people who were convinced not to join a terrorist group. For that reason, some experts say the government should be wary of devoting too many resources to this area and focus on military efforts with more tangible results.

“You’re never going to get rid of bad ideas,” said Will McCants, a former senior adviser at the State Department who now is a senior fellow at the Brookings Institution. “If we want to diminish them in the eyes of the public, let’s have it, but let’s also recognize that it is a marginal effort.”

[\[WSJ\] China Establishes New State-Owned Aircraft-Engine Maker](#)

Chun Han Wong

28 August 2016

<http://www.wsj.com/articles/china-establishes-new-state-owned-aircraft-engine-maker-1472397621>

BEIJING—China set up a new state-owned aircraft engine maker to help fulfill ambitions to develop homegrown aerospace giants and become a major player in global aviation.

In remarks published Sunday by state media, President [Xi Jinping](#) described the creation of Aero Engine Corp. of China, or AECC, as a “strategic move” that would accelerate the development of indigenously made jet engines and thereby boost national prestige and military power.

The new company, which has 50 billion yuan (\$7.5 billion) in registered capital and 96,000 employees, will focus on the design, manufacture and testing of aircraft engines, the official Xinhua News Agency said. Its investors include the Chinese government and two state-owned firms: Aviation Industry Corp. of China, an aerospace and defense conglomerate, and Commercial Aircraft Corp. of China, which produces passenger jets.

China has struggled to produce advanced jet engines capable of matching foreign rivals, despite significant state funding and decades of effort. Many Chinese military jets use Russian-made engines, while the country's two homegrown passenger-jet designs rely on Western-made engines.

By setting up AECC, Beijing hopes to create a self-sufficient aerospace sector that can serve commercial and military aviation needs with homegrown technology, industry analysts say.

AECC consolidates existing aircraft-engine businesses into a single entity. In March, three listed companies announced that they were due to become part of the new company: AVIC Aviation Engine Corp., Sichuan Chengfa Aero-Science & Technology Co. and AVIC Aero-Engine Controls Co.

The move also dovetails with Beijing's efforts to revamp its state-owned manufacturing sector, with the aim of creating high-technology industrial champions in aerospace, robotics, nuclear power and other fields.

China's state-owned aerospace firms date back to the 1950s, when they started building Soviet-designed military and civilian aircraft under license from Moscow.

Chinese engineers have since developed military jet engines, but have yet to master the technology needed to produce powerful turbofan engines suited for commercial use, given the tougher requirements for safety and reliability. While China has designed two passenger jets, both rely on foreign suppliers for their engines and other major components.

The ARJ21 regional jet, a 78-to-90-seater that entered commercial service in June, uses engines produced by [General Electric](#) Co., while the single-aisle C919 jetliner—still under development—will be powered by engines made by CFM International, a joint venture between GE and the Snecma engine unit of France's [Safran](#) SA.

[Bloomberg] China's Murky World Where E-Commerce Meets Student Lending

28 August 2016

<http://www.bloomberg.com/news/articles/2016-08-28/china-s-murky-world-where-e-commerce-meets-student-lending>

Across college campuses in China, a small army of marketers is recruiting students to borrow money at interest rates many times that charged by the nation's banks.

Those without a credit history or parental approval can borrow money to buy a smartphone, pay for holidays, or get the latest sneakers through a raft of apps such as Fenqile. The market leader, whose name literally means Happy Installment Payments, has 50,000 part-time marketers across more than 3,000 universities and proudly touts the slogan "Wait no more; love what I love."

Welcome to the regulatory gray area where peer-to-peer lending meets e-commerce in China.

In the last three years, tens of millions of students have taken out micro-loans with the tap of a button to buy things. Once just the realm of startups, the sector has attracted heavy hitters in China's online industry, including Alibaba Group Holding Ltd.'s finance affiliate and JD.com Inc., which are pouring hundreds of millions of dollars into the lending model. In a nation with [37 million college students](#), the market is expected to reach \$15 billion, according to the Beijing-based market research firm Analysys. While traditional banks, the biggest of which are state-owned, have long been regulated, such peer-to-peer lenders have not, though Fenqile at least says it welcomes more oversight.

Repackaged Loans

The apps sell everything from cameras to concert tickets sourced from third-parties, charging students annualized interest rates typically above 10 percent. The loans are then packaged and sold to wealthy individuals, who find the expected return of as much as 10 percent much more attractive than the central bank's benchmark savings rate of 1.75 percent.

"The so-called innovative financial products spring up one after another, so it's hard for regulators to discern what's innovation and what's rule-breaking behavior," said He Zhisong, a Shanghai-based partner at Zhong Lun Law Firm who specializes in internet finance. "Everyone is crossing the river by feeling the stones."

That includes students with little-to-no experience with credit, like 22-year-old Chon Chen.

Other Apps

Unable to afford the \$450 smartphone he had been eyeing, the college sophomore from the southern province of Fujian turned to Fenqile, which allowed him to pay \$42 per month for a year at an annualized interest rate of 12 percent. By the end of his junior year, he was also borrowing from six other similar apps and accumulated debt of more than \$7,500, the equivalent of 10 years of tuition.

"That I have debts to pay off before I even start my first job is such a scary thing," said Chen, adding that he hadn't told his parents about his financial situation. "I deeply regret spending so recklessly. The lending platforms captured my vanity and impulsive-buying habits."

While many online lenders say they are operating legally under the peer-to-peer framework set out by the [China Banking Regulatory Commission](#), the oversight still falls short of that imposed on banks. In April, after state media reported [suicides](#) linked to excessive online borrowing, China's Ministry of Education [issued](#) a joint statement with the banking regulator, calling for closer scrutiny of some lending apps' advertising campaigns and credit evaluation process.

Tougher Rules

Last week, the banking regulator [issued](#) what state media called the country's "[toughest P2P regulations yet](#)," and in a separate interview with state media, director of the regulator's Inclusive Finance Department Li Junfeng highlighted the student lending market as an area of concern although that segment was not specifically mentioned in the new rules.

"If unregulated, online student lending will misguide college students' consumption habits," he said.

Another official, Xu Xiaozheng, director of the CBRC inclusive finance department's online lending division, elaborated at a media conference that the new regulations are general guidelines that don't mention specific issues but apply to student-lending apps.

'Tempting Students'

"A lot of online student lending is excessive promotions and false advertising, tempting students to spend excessively. We specifically forbid excessive advertising in the new regulations," he said, without elaborating on what conditions were considered excessive.

Xiao Wenjie, chief executive officer of Fenqile, said in an interview that the industry was not regulated in the past two years, leading to "disorder" that caused officials to impose recent regulations.

"We very much welcome more regulation, as it is good for everyone in the long run," Xiao said.

The ministry and the banking regulator didn't respond to requests for comment.

Consumer Demand

Fenqile, founded in 2013 by Xiao, a former executive at Tencent Holdings Ltd., says it has a 60 percent market share. It counts JD.com and Yuri Milner's Digital Sky Technologies among backers who have invested tens of millions of dollars each. Fenqile raised another \$235 million from investors in June.

Qudian, a Beijing-based competitor founded in 2014, raised \$452 million this July, with Alibaba's affiliate Ant Financial leading a previous round of \$200 million for the company.

Representatives from JD.com and Ant Financial declined to comment.

While American P2P lending companies such as SoFi focus on refinancing student loans, their Chinese counterparts capitalize on the consumerism of the country's young adults. That includes taking their pitch straight to students through part-time marketers and advertising, including posters in campus bathrooms.

Campus Marketing

The student-targeted marketing has proven highly effective. Fenqile had \$1.6 billion in loan volume in the first half of 2016 and projects \$4.5 billion for the year, while Qudian crossed the 10 million-user threshold in June, according to the companies.

Lending to students sprung up after authorities tightened rules on credit card use in 2009, such as requiring co-signers for student accounts that had been promoted by banks.

Now apps like Fenqile are filling the gap, connecting investors hungry for returns with students who are eager to spend without asking their parents to co-sign for their debts. Fenqile verifies an applicant's identity in person and gets a phone number of a family member or friend before a three-way contract is signed between the student, the platform, and the lender.

In Chen's case, he said the seven apps that lent him money never contacted his parents.

Big Data

So far that hasn't resulted in deteriorating credit for the lenders, according to the companies. Fenqile's bad-loan ratio was 0.67 percent as of July, Xiao said. The comparable figure at China's commercial banks was 1.81 percent in the second quarter, according to China's banking authority. The lending apps, however, aren't required to report bad loans to regulators.

"We use big data to manage credit risk because we have all of our users' purchase history and location data," Xiao said.

Fenqile's practice of not requiring parental co-signers may have to change. Li, the director of the banking regulator's Inclusive Finance Department, told state media that online lending platforms should "strictly" vet college students' credit worthiness and require a guardian to co-sign.

"If the platforms want to continue lending to students, they must have parents as co-signers," Li said. Fenqile said it is studying the regulations and couldn't comment.

As online student lending grows past its infant stage, major players say they will work more closely with traditional financial institutions.

Aixuedai, a lending app founded in 2014 by former Alibaba employees, raised \$45 million in December from a fund jointly established by Bank of China and the state-owned Zhejiang Railway Investment Group. Fenqile has started selling securitized student loans to Chinese banks and other investors and will gradually link all of its user profiles to the central bank's credit system as it seeks to serve the hundreds of millions of people who don't have credit cards, Xiao said.

William Zhao, senior investment manager at Beijing-based Bertelsmann Asia Investment Fund, which has invested in Fenqile, said the apps were aligned with the government's campaign to increase domestic consumption.

"The parents' generation in China is relatively conservative," he said. "Stimulating their children to spend is much more efficient."

[Washington Post] [How this social network for neighborhoods is trying to fix its racism problem](#)

Andrea Peterson

26 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/26/how-this-social-network-for-neighborhoods-is-trying-to-fix-its-racism-problem/>

What do you do when your social network ends up revealing racism in users' back yards?

That's the problem Nextdoor, a site that connects people who live in the same area, is trying to tackle. Think of Nextdoor as Facebook, but for your neighborhood: People sign up with their address and then share local news, reunite lost puppies with their owners and report potential safety or crime issues.

But Nextdoor has faced criticism for posts from some of the site's more than 10 million registered users that have veered into racial profiling -- especially concerning crime and safety alerts. In some cases, neighbors would flag "suspicious behavior" by noting the race of someone doing something like walking a dog or knocking on doors.

Community groups like Neighbors for Racial Justice in Oakland, Calif., are fighting back by [raising awareness about the issue](#) and rallying local leaders.

"All too often, 'suspicious behavior' descriptors racially profile neighbors lawfully going about their business," Oakland City Council Member Annie Campbell Washington wrote in a [Facebook post](#) about Nextdoor in January. "This creates harm for our communities and does not provide information that can be followed up on by neighbors or police in any meaningful way. In other words, it's all harm and no benefit."

Nextdoor, which operates formal partnerships with many local police departments, took the complaints to heart.

"As Nextdoor has become one of the places where neighbors talk about how to make their local communities better, it is natural for the issue of race to be discussed and debated," co-founder and chief executive Nirav Tolia wrote in a [Wednesday blog post](#). "But it's not acceptable when mentions of race take the form of racial profiling."

Over the last year, the site has made changes such as introducing a way to flag posts for racial profiling, explicitly outlawing such behavior in its community guidelines and adding a mandatory warning screen about the issue before users can post messages in their local crime and safety section, Tolia said.

And now Nextdoor has rolled out an entirely new system of checks aimed at weeding out racial profiling across all the 110,000 Nextdoor communities in the country. Posting about crime and suspicious activity is now a multi-step process for users that's more like filing out an actual police report. Nextdoor says the changes have reduced racial profiling posts by 75 percent in the areas where it was tested.

Under the new process, when users try to make a report, they first get a warning that racial profiling is prohibited on the site, explaining that descriptions of hair, clothing, shoes and things like tattoos are useful, but that identifying someone "solely by race is not."

The warning that pops up when Nextdoor users want to report crimes or suspicious activity on the site. (Screengrab by Andrea Peterson)

On the section of the form that asks users to describe the person they're reporting, posters who only enter a racial descriptor are prompted to fill out at least two other descriptor fields -- like hair, shoes or clothing -- before they can move forward.

Users must describe suspicious persons by more than just race in Nextdoor's new forms for crime and safety posts. (Screengrab by Andrea Peterson)

The company started testing the new process this spring after getting input from Oakland officials, Neighbors for Racial Justice and the civic group 100 Black Men and credits the activists for spurring progress.

Nextdoor is far from the only local app or network that has struggled to handle race relations. Last year, The Washington Post [reported](#) on how a messaging service developed by the Georgetown Business Improvement District and the D.C. police department prompted secret surveillance of "suspicious" black shoppers in one of the city's most elite neighborhoods.

Big-name social media sites like Twitter have also struggled with racist abuse. "Saturday Night Live" comedian Leslie Jones was [temporarily driven from](#) the service earlier this year after a barrage of racist harassment. Other services, such as Airbnb, are working on how to deal with the ways that racial bias affects their platforms.

But while Nextdoor has taken concrete steps to improve its service, it still has work to do. And not everyone involved in the process was totally satisfied.

"We've been doing the work of consultants for them, and they've been taking it as free, pro-bono, volunteer advice from the community," Audrey Williams, a founding member of Neighbors for Racial Justice, told [Buzzfeed](#). "And we've been happy to give it, because it makes our lives better. But over time, it began to feel a bit like exploitation."

Still, Williams said, "it's a win for us, and it's a win for them."

[\[Wired\] Forget Self-Driving Cars. Let's Make Self-Driving Living Rooms](#)

Charles Bombardier 27 August 2016

<https://www.wired.com/2016/08/forget-self-driving-cars-lets-make-self-driving-living-rooms/>

THE IMMINENT ARRIVAL of the self-driving car will change how people move around city streets, but they could do so much more.

The Tridika is a conceptual driverless electric vehicle I created to change how we use cars in our ever-growing cities, where space is expensive and limited. Inspired by Thyssenkrupp's [Willy Wonka-esque Multi elevator](#), the Tridika works like a self-driving car you can literally park next to your apartment and use as an additional room.

Instead of wheels, it works like a maglev train: magnets lift and propel the vehicle. It pulls its electricity from the tracks, and takes you wherever you command. The boxy shape optimizes interior space: You could configure it to travel with up to six passengers or create a fair-sized office space to work while you commute. New apartment towers and condos could be designed and built to accommodate them.

A mechanical engineer and a member of the family whose aerospace and transportation company, Bombardier's actually at his best when he ignores pesky things like budgets, timelines, and contemporary physics. Since 2013, he's run a [blog cataloging more than 200 concepts](#), each a fantastic, farfetched new way for people to travel through land, air, water, and space. His ideas are most certainly out there, but it's Bombardier's sort of creative thinking that keeps us moving forward.

Tridika would connect to the outer wall of the building using a dedicated ramp, get picked up by a mechanical elevator system, and station itself in front of your apartment unit. A large sliding door on the side of the unit would open to let you enter your condo. A similar door inside your unit would open simultaneously by detecting the encrypted signature of your Tridika or smartphone.

Think how easy it would be to enter your home directly from the elevator with your arms full of groceries!

The Tridika could also be used with a townhouse or fitted inside existing garages. You could use it as a people mover, too, carry folks in certain residential areas where the infrastructure would already be in place. In this case, you would simply order the vehicle and pay your fare with your smartphone.

It may seem wild, but why shouldn't people use their vehicles for purposes other than transport?

I developed the Tridika concept with Ashish Thulkar, a vehicle designer at the Indian Institute of Science. Thulkar also created the drone tower concept.

[\[Wired\] The Famously Ugly Router Is Pretty Now Because It Has to Be](#)

Brian Barrett 29 August 2016

<http://www.wired.com/2016/08/famously-ugly-router-pretty-now/>

ROUTERS! THEY'RE THE [blobfish](#) of gadgets; aggressively unattractive, and hidden well out of the way. That's changing, though, thanks to a new generation of devices that don't just make your Wi-Fi more reliable. They look good doing it.

Eero. Luma. Starry. Orbi. These aren't household names, but they are household upgrades. Most surprising of all, they're routers that feel more at home in Architectural Digest than they do deep under

a desk. And they didn't get that way simply because networking engineers had a fashion epiphany. The reason these routers look so good is a byproduct of a fundamental shift in how routers work.

The Dead Bug Approach

To understand why routers suddenly look better, you need to start with why they're also performing better.

Think of the router you probably own. It's probably a chunky black box of some sort, maybe with an antenna or five sprouting from its black plastic carcass. This is the design language routers have settled on for multiple decades.

"We call that the 'dead bug' approach," says Joshua Terrell, product design engineer at Luma. "A lot of the design of traditional routers has been pushing more towards function over form. Placement was an afterthought."

Compounding a routers' design challenges is the fact that a whole lot of technology still needs to fit in these devices.

That's not for laziness, but for how routers have typically been deployed. You hook one up to your modem, and pray to the connectivity gods that its signal can reach the farthest corners of your home. That those modems tended to be stuck in offices or behind entertainment centers meant that routers generally weren't placed for optimal performance, but for the most part, they still got the job done. And since they were out of sight, they were free to look like a Sweded Blade Runner prop.

A fundamental shift in how we consume the Internet at home, though, has made that model inadequate for many. We use more than ever, but more importantly, we use it in more places than ever. A study this month from network-equipment provider Sandvine found that the average American household had over seven devices connected to the Internet on a given day. More than 25 percent of households had 10 or more connected devices under their roofs.

This is a lot of devices! And they're not all just refreshing Twitter.

"The types of streams are changing pretty quickly," says Netgear senior product manager Brandon McEntire, who helped oversee Orbi's development. "Recently it's been streaming Netflix, but it's changing even from that." Younger kids are streaming more YouTube than Netflix, says McEntire, adding to the network strain. Meanwhile, a new generation of cloud-leaning security cameras challenges the traditional router model on two fronts: They upload live video, meaning large chunks of traffic aren't exclusively heading downstream anymore, and they're placed on the periphery of a house, extending the range of where a house needs strong Wi-Fi.

Those are just two examples; you can probably think of a handful yourself. Maybe it's the Echo you put in the guest room, or the connected toaster you immediately and rightly regretted buying. A single, tucked away router often can't keep up anymore. But you know what can? Two routers. Or three. Or more.

You could just keep making that one router more and more powerful, but at a certain point that's wasted energy. You can also use Wi-Fi range extenders, which are often frustrating and bad. The far more efficient way to resurrect Wi-Fi dead spots is to use a mesh network.

That's what Eero, Orbi, and Luma are. (Starry works differently; each household device receives [a signal from a network of rooftop "Beams,"](#) which means it needs to be placed near a window). In a mesh network, multiple routers conspire together to deliver the strongest signal wherever it's needed, rather than all of your Wi-Fi originating from a single hub. It's a deceptively simple solution to a variety of nuisances.

"These new mesh network routers are seeking to address several key areas of concern for home networking infrastructure; namely performance, coverage, aesthetics, and security," says Brad Russell, and analyst with Parks Associates.

But here's the catch. (Well, other than the cost; these systems generally cost well into the hundreds of dollars). For a mesh network to be effective, at least one of the routers needs to sit out in the open in your home. And that's just not going to happen if it looks like a giant plasticine cockroach.

"The home environment is really personal. You might be OK with a fairly ugly box at multiple points in your office, but you wouldn't be OK with that in the home," says Sean Harris, head of marketing at Eero. "It's got to be something that blends in elegantly with the background."

But not too much. And not in the same way everyone else's does. A router that's destined for your living room or kitchen can't just look good; it has to fit in. Everywhere.

A Common Denominator

This new vanguard of attractive routers are maybe most appealing in how reserved they are. These are soft lines, clean colors, and unobtrusive builds. That's also, well, by design.

Take Netgear's Orbi. It looks like it could be a baby humidifier, a flattened vase, or the result of a very boring but proficient afternoon at the kiln. It's nice, but not toonice. This is, after all, still a router.

"For the majority of the time you don't want people to notice it too much. But you do want it be interesting enough that people will pick it up and buy it, or a friend will notice it," says Netgear's McEntire. "It's a pretty fine balance."

Luma and Eero wrestled with those same contradictions.

"If you want a really strong accent piece in a room in your house, you probably buy a piece of art, or have a really cool vase or something," says Harris. Luma's Terrell, meanwhile, stresses the importance of being "visually minimal but at the same time still appealing."

Compounding the design challenges is the fact that a whole lot of technology still needs to fit in these devices. All those antennas you remember from your dead bug didn't go away; they're just hiding under a sleek plastic sheath.

"We're bumping up against the limits of physics when you talk about the size of this thing," says Netgear's McEntire. "Antennas have to be spaced a certain distance apart for them to work well, and we're at the minimum limits of that."

Another problem facing these routers is heat. Namely, routers throw off a lot of it, meaning they need ample venting to help keep from frying components. Orbi opts to hide its vents, but Luma eventually opted to make them a focal point, by invoking (why not!) a legendary muscle car.

“We went through 20-plus different styles and designs of venting until finally settling on horizontal slats, which drew spiritual inspiration from the rear detailing of the iconic Ferrari Testarossa,” says Terrell.

Eero, meanwhile, had to overcome a related problem. Its units sit flat, making them awfully tempting to use as a coaster or to stack books atop. Those are both excellent ways to ruin your Wi-Fi signal. Rather than assume customers know that, though, Eero turned to design.

“We purposefully curved the top,” says Harris. “That gave us more space inside for the antenna architecture, and prevents people from putting anything on top of the device, so the signal’s not obstructed.”

Not everyone needs a mesh network. They’re expensive, and mostly pay off in homes that require coverage over many thousands of square feet. But even if you have no need for their Wi-Fi signal strength, at least be grateful that they’ve given our ugliest technology a serious makeover.

TT Clips August 30 2016

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Encryption

[Bloomberg Op-Ed] [Undermining encryption undermines our privacy and security](#)

Cyrus Rassool and Ilana Ullman

29 August 2016

<https://about.bgov.com/blog/undermining-encryption-undermines-privacy-security/>

What if the DNC email hack wasn't? That is, what if it wasn't a big deal? What if hackers hadn't been able to expose the credit card and social security numbers of donors and home addresses of some Democratic representatives, representing very real – and potentially dangerous – consequences for their personal privacy and safety? Had the DNC been using email and data encryption, the hacker would have also needed to access individual private keys to get to any message or file content. Encryption makes us all safer: improving our own digital security gives us a “herd immunity,” inoculating those in our networks with whom we communicate, work, and interact.

But encryption has been demonized and set up in a false dichotomy with security. It's been falsely identified as a party-line issue—a charge which many in the GOP who've [also had their emails hacked](#) may dispute. We have not done a good enough job of telling Americans how encryption keeps them safe, their data private and our networks secure.

An issue this complex and important that affects the most intimate corners of our lives deserves an honest discussion to help us reach a conclusion in our own best interests, but the American public is getting a message of fear, which promotes misunderstanding and doubt instead.

What do we mean? Over the past year, opponents of encryption have used terrorist attacks in the US and Europe to call for “[backdoors](#)” around encrypted communications. But in several of these instances, it was [later revealed](#) that terrorists were communicating in the clear – without encryption. But some policymakers have pressed for those backdoors, despite widespread agreement from security experts that creating backdoors will ultimately weaken encryption for everyone, since it's impossible to create an access point solely for law enforcement without making a system more vulnerable to potential hackers.

While nominally [supporting](#) the use of encryption, FBI Director James Comey has claimed, “there is simply no doubt that bad people can communicate with impunity in a world of universal strong encryption.” He, and others within the FBI, worry that terrorists are “[going dark](#)”; that the widespread availability of advanced encryption and other security technologies in everyday consumer products lead to an inability to track, monitor and stop criminals.

But the facts tell a different story. For the second year in a row, the number of times US [government wiretaps](#) encountered encryption decreased. A [February 2016 study](#) from Harvard University's Berkman Klein Center for Internet and Society also questions claims from government officials that intelligence-gathering communications channels are “going dark.” Their report details how the rise of connected sensors in machines and appliances and market forces and commercial interests will actually give law enforcement more opportunities to surveil potential targets, not less.

As incidents of cyber attacks continue to grow—or when people call for them, as Donald Trump brazenly invited Vladimir Putin to “[find](#)” and [publish](#) Hillary Clinton's missing State Department emails following the DNC hack—we must have the necessary tools, including encryption, to securely protect our data. Supporters of encryption therefore include not only [privacy advocates and computer science experts](#),

but also those working in the security sector, such as former NSA and CIA Director Michael Hayden, who [stated](#), “America is more secure — America is more safe — with unbreakable end-to-end encryption.” Hayden is right. Widespread adoption of strong encryption protects our data, privacy and online identities.

This November, US voters will elect a new president and a new Congress. It’s time to send leaders to Washington who are committed to making encryption more ubiquitous and user-friendly, who will consult with tech experts prior to drafting legislation and be champions for the nation’s security and privacy online. As a global leader, the US must set the tone on encryption. Right now, as lawmakers around the world weigh dangerous bills that would weaken encryption, we need to ensure that our citizens can depend on our government and business leaders to safeguard our information by encrypting them by default and ensuring that privacy settings are accessible, available and easy to understand. Until everyone moves forward on strong encryption, we’ll continue to see our networks (whether of the most powerful political parties or of the average user) vulnerable to outside attack.

Apple

[The Hill] EU rules against Apple in multi-billion dollar decision

Naomi Jagoda and Ali Breland

30 August 2016

<http://thehill.com/policy/finance/293758-european-commission-rules-against-apple-ireland-in-multi-billionaire-dollar>

The European Union (EU) on Tuesday determined that Ireland should recover up to €13 billion (\$14.5 billion) in unpaid taxes from Apple, plus interest, in one of the largest cases of European officials ruling that a multinational company received illegal tax benefits.

The European Commission (EC), the EU’s executive body, found that Ireland’s tax dealing with the tech giant constituted illegal “state aid” that gave Apple an advantage over other businesses.

“The Commission’s investigation concluded that Ireland granted illegal tax benefits to Apple, which enabled it to pay substantially less tax than other businesses over many years,” said Margrethe Vestager, the commissioner in charge of competition policy. “In fact, this selective treatment allowed Apple to pay an effective corporate tax rate of 1 per cent on its European profits in 2003 down to 0.005 per cent in 2014.”

The EC found that two Irish tax rulings gave Apple “substantially and artificially lowered the tax paid by Apple in Ireland since 1991,” according to a press release from the commission.

The tax treatment in Ireland allowed Apple to avoid paying taxes on almost all of its sales profits in the EU. Apple recorded its profits from European sales in Ireland rather than in the countries where the products were actually sold. As a result of the tax rulings from Ireland, most of the profits were attributed to “head offices” in Ireland that weren’t subject to tax in any country under Irish laws at the time.

According to the press release, under the terms of Ireland’s taxes on Apple, only around of €50 million of Apple Sales International’s profits were considered taxable in Ireland in 2011, leaving €15.95 billion untaxed.

The company only paid corporate taxes in Ireland of less than €10 million in 2011, resulting in an effective tax rate of 0.05% of its overall annual profits, the release said.

At the time of the initial probe over two years ago, European officials suggested that Ireland had granted the American tech company special tax arrangements in exchange for employment within the country.

Of Apple's 22,000 employees in Europe, 5,500 are based in Ireland, according to the company's own numbers.

Apple and Ireland have defended their actions.

The company criticized the decision in a statement, accusing the commission of attempting to, "rewrite Apple's history in Europe, ignore Ireland's tax laws and upend the international tax system in the process."

"The Commission's case is not about how much Apple pays in taxes, it's about which government collects the money. It will have a profound and harmful effect on investment and job creation in Europe," Apple wrote.

"Apple follows the law and pays all of the taxes we owe wherever we operate. We will appeal and we are confident the decision will be overturned," the company continued.

In the past several years, the EC has been investigating whether several companies have received illegal state aid from European countries.

In addition to Apple, the EC has looked at tax dealings concerning Starbucks, Fiat and Amazon. The commission found that arrangements involving Starbucks and Fiat constituted state aid, and these cases have been appealed to the EU general court. The commission hasn't made a final decision about whether an Amazon arrangement with Luxembourg is state aid.

The state aid cases have drawn criticism from the Obama administration as well as from lawmakers on both sides of the aisle. They have said that U.S. companies are being disproportionately targeted and that the EC is taking a new approach to state aid rules that is inconsistent with previous decisions and is unfairly being applied retroactively.

The U.S. has also said that because of domestic tax law, the ruling could cost U.S. taxpayers. Large U.S. companies, like Apple, are allowed to claim tax-credits in the U.S. for paying foreign taxes, in certain circumstances.

"The United States is committed to tax fairness," White House spokesman Josh Earnest said Monday in a White House news briefing. "We want to make sure the kinds of agreements we reach with other countries are not manipulated to allow companies to shirk responsibilities."

A bipartisan group of Senate Finance Committee members expressed concerns about the EC's investigation and have supported Treasury's efforts to urge the commission to reconsider its approach. They wrote in a letter to Treasury Secretary [Jack Lew](#) that "these investigations raise serious questions about our ability to rely on bilateral tax treaties negotiated with EU Member States."

In a white paper released last week, the Treasury Department said that the investigations could hurt U.S. businesses and the U.S. government.

“A substantial number of additional cases against U.S. companies may lead to a growing chilling effect on U.S.-EU cross-border investment,” Treasury said.

Treasury also criticized retroactive recovery policies, writing that they “would be inconsistent with EU legal principles” and that they “would undermine the G20’s efforts to improve tax certainty and set an undesirable precedent for tax authorities in other countries.”

“While we decline to comment on specific cases, Treasury is disappointed that the Commission is acting unilaterally and departing from the important progress the U.S., the EU, and the rest of the international community have made together to combat tax avoidance,” a Treasury spokesperson said Tuesday. “As we have said, we believe that retroactive tax assessments by the Commission are unfair, contrary to well-established legal principles, and call into question the tax rules of individual Member States.

“The Commission’s actions could threaten to undermine foreign investment, the business climate in Europe, and the important spirit of economic partnership between the U.S. and the EU,” the spokesperson added. “We will continue to monitor these cases as they progress, and we will continue to work with the Commission toward our shared objective of preventing the erosion of our corporate tax bases.”

The Information Technology Industry Council, a tech advocacy group whose members include Apple, issued a statement criticizing the commission’s decision, calling for more multilateral decision making.

“We are deeply concerned by the Commission’s departure from established channels of multilateral cooperation on tax policy in favor of a unilateral approach that, by imposing unforeseeable and retroactive penalties, risks chilling transatlantic commerce and investment and growth in the EU at the expense of U.S. taxpayers,” President and CEO Dean Garfield said, echoing Treasury’s sentiments.

“It is imperative for policymakers on both sides of the Atlantic to strive for multilateral solutions to the vexing questions raised by cross border taxation,” Garfield added.

--This report was updated at 8:00 a.m.

[\[WSJ\] Apple Ordered by EU to Repay \\$14.5 Billion in Irish Tax Breaks](#)

Natalia Drozdiak and Sam Schechner

30 August 2016

<http://www.wsj.com/articles/apple-received-14-5-billion-in-illegal-tax-benefits-from-ireland-1472551598?mod=LS1>

The European Union’s antitrust regulator demanded that Ireland recoup roughly €13 billion (\$14.5 billion) [in taxes](#) from [Apple](#) Inc. after ruling that a deal with Dublin allowed the company to avoid almost all corporate tax across the entire bloc for more than a decade—a move that could intensify a feud between the EU and the U.S. over [the bloc’s tax probes into American companies](#).

The tax payment is the highest ever demanded under the EU’s longstanding state-aid rules that forbid companies from gaining advantages over its competitors because of government help.

In a statement Tuesday, Apple said it would appeal the decision adding that it “follows the law and pays all of the taxes we owe wherever we operate.”

Irish Finance Minister Michael Noonan said “I disagree profoundly with the Commission’s decision,” adding that the country would appeal the decision in order “to defend the integrity of our tax system.”

The European Commission said the tax arrangements Ireland offered Apple in 1991 and 2007 allowed the company to pay around 1% to almost zero tax on its European profits for more than 10 years, between 2003 and 2014.

“The commission’s investigation concluded that Ireland granted illegal tax benefits to Apple, which enabled it to pay substantially less tax than other businesses over many years,” said European antitrust commissioner Margrethe Vestager.

Shares in Apple fell more than 2% in premarket trading in Europe shortly after the decision was announced.

The U.S. Treasury Department has sharply criticized the EU’s tax investigations, arguing that the bloc unfairly targets American companies and is inconsistent with international tax norms.

On Tuesday, a spokesperson said the Treasury Department was disappointed with the commission’s decision and reiterated that “retroactive tax assessments by the commission are unfair, contrary to well-established legal principles, and call into question the tax rules of individual Member States.”

The White House has previously accused the EU of angling to tax income the bloc doesn’t have a right to tax. Ireland needs to ensure Apple returns the money, regardless of which entity it comes from—including its offshore holding company that is used as a mechanism for deferring U.S. taxes.

[\[NY Times\] Apple Is Said to Owe Back Taxes to Irish Government](#)

Mark Scott and James Kanter

29 August 2016

<http://www.nytimes.com/2016/08/30/technology/apple-is-said-to-owe-back-taxes-to-irish-government.html>

The European Union’s competition authorities are poised to announce a major tax ruling against Apple’s tax dealings with the Irish government on Tuesday, a decision that will likely increase trans-Atlantic tension over how some of the world’s largest companies pay taxes on their global operations.

The ruling, expected to be announced early Tuesday in Brussels, will result in Apple having to pay back taxes to the Irish government, according to three people briefed on the decision who spoke on the condition of anonymity because they were not authorized to speak publicly. The amount is anticipated to be in the hundreds of millions of dollars, one of these people said.

The decision is set to further stoke tensions between American officials and their European counterparts, with Europe claiming the right to oversee tax policies for companies like Apple and Amazon, among others, that have used complicated tax structures in nations like Ireland and Luxembourg to reduce the amount of corporate tax they pay in other countries.

The Obama administration and Congress have strenuously fought to defend Apple, the company that made the iPod music player and iPhone global bywords for American prowess in technology. They have accused the European Commission of leading a campaign against American corporate success and suggested that it would be overstepping its authority by issuing a formal tax order. American officials have said reforms to corporate taxation first need [to be agreed to internationally](#).

“This will be framed by the U.S. as Europe overreaching,” said Edward Kleinbard, a professor at the University of Southern California’s Gould School of Law and a former chief of staff to the Congressional Joint Committee on Taxation. “That overreaction will make it a lot more difficult to police companies’ international tax structures.”

Apple, Irish authorities and European competition authorities declined to comment. The tax decision was earlier reported by RTE, the Irish broadcaster.

Margrethe Vestager, Europe’s top antitrust official, is expected to say on Tuesday that the Irish government gave Apple preferential treatment on its local tax arrangements. These deals, related to agreements from 1991 and 2007, gave Apple an unfair advantage over other companies, and broke Europe’s so-called state-aid rules that forbid any government from providing unfair assistance to certain companies over others, she is expected to say.

Ireland can appeal any judgment by suing in the Court of Justice of the European Union to stop any resulting penalty, and Apple could seek to support such an appeal. Such appeals are likely to take years.

For Apple, the potential tax clawback would be a blow to the company’s approximately 30 years of activity in Ireland, where it currently employs around 5,500 people, mostly in Cork, a city in the south of the country.

The tech giant has repeatedly denied that it received unfair tax treatment from Irish authorities, saying that it complies with all tax laws wherever it operates. While Apple has a large operation in Ireland, the company said its main corporate tax liabilities remain within the United States where it is based and conducts the majority of its research and development.

In an [interview last week](#) with The Washington Post, Timothy D. Cook, Apple’s chief executive, said that he hoped his company would get a fair hearing in Europe on the tax issue and that “if we don’t, then we would obviously appeal it.”

The European Commission has been seeking a greater say over tax issues for decades. Those efforts accelerated after the 2008 financial crisis amid complaints that prosperous corporations were enjoying tax breaks while citizens faced mounting tax demands and cuts to their public services.

Ms. Vestager has already ordered Luxembourg to claw back 30 million euros, or \$33 million, from Fiat, the Italian carmaker, and the Netherlands to recover a similar amount from Starbucks. Both Luxembourg and the Netherlands have appealed those decisions. She still is investigating similar cases in Luxembourg affecting Amazon and McDonald’s.

Last year, in another case, Ms. Vestager ordered France to recover €1.4 billion, or \$1.6 billion, from state-controlled Électricité de France for failing to pay enough corporation tax in 1997. At the time, E.D.F. said it would make the reimbursement but was considering an appeal to the Court of Justice of the European Union.

“Our aim is very simple,” Ms. Vestager said in an interview earlier this year. “Profits should be taxed where profits are made.”

The European Union’s investigation into the Irish treatment of Apple began under Ms. Vestager’s predecessor, Joaquín Almunia. It was prompted in part by a United States Senate investigation in 2013 that found that Apple, the world’s largest public company by market capitalization, sheltered tens of billions of dollars in profit from tax in offshore entities including in Ireland. The European Commission opened a formal investigation in June 2014 into whether the tax deals granted to Apple in Ireland amounted to illegal state support.

At the time Mr. Almunia indicated that austerity measures as a result of the European debt crisis made it even more important for large multinational corporations to [pay fair taxes](#) to cash-starved governments.

Ireland strongly objected to the investigation. The ruling is likely to be a hard pill to swallow for the country, which has spent decades championing its low corporate tax rate and other tax breaks to entice American companies to its shores.

The Irish government has said that it will appeal any tax decision announced by European officials, putting the country in the somewhat odd position of turning down potentially billions of dollars of extra revenue from Apple.

“The decision by the Irish government to fight this case is bizarre,” said James Stewart, a professor at Trinity College, Dublin. “The Irish government is opposed to any global tax harmonization because it will harm its ability to attract foreign direct investment.”

[BBC] Apple should repay Ireland 13bn euros, European Commission rules

30 August 2016

<http://www.bbc.com/news/business-37220799>

Ireland should recover up to €13bn (£11bn) from Apple in back taxes, the European Commission has ruled.

After a three-year investigation, it has concluded that the US firm's Irish tax benefits are illegal.

The Commission said Ireland enabled the company to pay substantially less than other businesses, in effect paying a corporate tax rate of no more than 1%.

Ireland and Apple both said they disagreed with the record penalty and would appeal against it.

"Member states cannot give tax benefits to selected companies - this is illegal under EU state aid rules," said Commissioner Margrethe Vestager.

"The Commission's investigation concluded that Ireland granted illegal tax benefits to Apple, which enabled it to pay substantially less tax than other businesses over many years," she added.

The standard rate of Irish corporate tax is 12.5%. The Commission's investigation concluded that Apple had effectively paid 1% tax on its European profits in 2003 and about 0.005% in 2014.

Ms Vestager said that the tax agreement reached between Ireland and Apple meant that the company's taxable profits "did not correspond to economic reality".

'Profound and harmful effect'

Apple said the decision would be harmful for jobs.

"The European Commission has launched an effort to rewrite Apple's history in Europe, ignore Ireland's tax laws and upend the international tax system in the process," [the company said in a statement](#).

"The Commission's case is not about how much Apple pays in taxes, it's about which government collects the money. It will have a profound and harmful effect on investment and job creation in Europe.

"Apple follows the law and pays all of the taxes we owe wherever we operate. We will appeal and we are confident the decision will be overturned."

Media caption Nobel Prize winner Joseph Stiglitz says the EU is telling big corporations: "We can get you"

The Irish government held a similar view.

"I disagree profoundly with the Commission," said Ireland's finance minister, Michael Noonan, in a statement.

"The decision leaves me with no choice but to seek cabinet approval to appeal. This is necessary to defend the integrity of our tax system; to provide tax certainty to business; and to challenge the encroachment of EU state aid rules into the sovereign member state competence of taxation."

The record tax bill should not be a problem for Apple, which made a net profit of \$53bn in the 2015 financial year.

'Undermine investment'

"Apple has been enjoying a river of free cash flow and while the ruling may not be too much short-term, investors will have to assess whether a higher tax bill will have any impact on profits after tax," said Neil Wilson, market analyst at ETX Capital.

The US Treasury, which said last week that the European Commission was in danger of becoming a "supranational tax authority", said the latest ruling could "undermine foreign investment, the business climate in Europe, and the important spirit of economic partnership between the US and the EU".

"We will continue to monitor these cases as they progress, and we will continue to work with the Commission toward our shared objective of preventing the erosion of our corporate tax bases," a US Treasury spokesman said.

Apple is not the only company that has been targeted for securing favourable tax deals in the European Union.

Last year, [the commission told the Netherlands](#) to recover as much as €30m (£25.6m) from Starbucks, while Luxembourg was ordered to claw back a similar amount from Fiat.

The current focus is on the size of the bill, but there are even larger issues at stake, including one fundamental question - who really runs the world, governments or giant corporations?

At present, it is difficult to tell. Individual governments appear impotent in their attempts to apply their tax laws to multinationals like Apple. They have systems designed to deal with the movement and sale of physical goods, systems that are useless when companies derive their profits from the sale of services and the exploitation of intellectual property.

In Apple's case, 90% of its foreign profits are legally channelled to Ireland, and then to subsidiaries which have no tax residence. At the same time, countries can scarcely afford not to co-operate when Apple comes calling; it has a stock market value of \$600bn, and the attraction of the jobs it can create and the extra inward investment its favours can bring are too much for most politicians to resist.

There is an echo here of the tycoons of the early 20th Century who bestrode America. Andrew Carnegie, Cornelius Vanderbilt and John Rockefeller were judged so powerful that they were almost above the law, something that successive US administrations sought to curb.

The European Commission's attempt to bring Apple to heel is on the surface about tax, but in the end about the power of the multinational and the power of the state. There is more to come; Margrethe Vestager, the Danish commissioner who is leading the charge against Apple, is warming up to take on Google.

Europe versus the giants of corporate America will be a battle royale, and one that will run and run.

[Bloomberg] [Apple Sends Invitations for September 7 Product Event](#)

Alex Webb 29 August 2016

<http://www.bloomberg.com/news/articles/2016-08-29/apple-sends-invitation-out-for-sept-7-event>

Apple Inc. invited journalists to an event in San Francisco on Sept. 7 where the world's most valuable public company is expected to roll out a series of product upgrades.

The invitation showed out-of-focus multicolored lights against a black background. The company is expected to introduce [next-generation versions](#) of the iPhone and Apple Watch at the event. The successors to the iPhone 6S and 6S Plus will include advanced photography capabilities and upgraded hardware with a design similar to last year's models, people familiar with the matter said earlier this month.

Apple is facing a revenue decline this year as customers upgrade their smartphones less regularly. The iPhone generates about two-thirds of Apple's sales, making a product refresh essential to help revive growth in the run-up to Christmas.

The spots of light on the invitation form the top portion of the Apple logo, with the message "See you on the 7th" below. The event will take place at San Francisco's Bill Graham Civic Auditorium at 10 a.m. Pacific Time. The Cupertino, California-based company often hints about new products in its invitations. Monday's invitation may refer to a larger version of the new iPhone that is expected to have a dual-lens camera system to improve photography.

"The real point to make is how little chance of a surprise there is," said Colin Gillis, an analyst at BGC Partners LP, adding that two white spots of light in the invitation were indicative of the dual lens, while the event's date hints at the likely iPhone 7 name. "The company doesn't seem to be able to generate surprises anymore."

The upgraded handset will also include a re-engineered home button that responds to pressure with a vibrating sensation rather than a true physical click and the removal of the headphone jack. The new Watch will likely integrate GPS-based location tracking.

Muni Broadband

[The Hill] FCC will not appeal ruling against municipal broadband move

David McCabe 29 August 2016

<http://thehill.com/policy/technology/293728-fcc-will-not-appeal-ruling-against-municipal-broadband-move>

The Federal Communications Commission will not appeal a ruling striking down its move to stop states from blocking the expansion of broadband service offered by local governments.

“The FCC will not seek further review of the Sixth Circuit's decision on municipal broadband after determining that doing so would not be the best use of Commission resources,” said Mark Wigfield, an agency spokesperson, in a statement that was **first published** by the New York Times.

Last year, the FCC voted to preempt state laws blocking the geographic expansion of broadband internet service offered by cities in North Carolina and Tennessee on the grounds that it was required to take steps to promote competition for the service.

The states filed a lawsuit against the action. Large, private internet service providers are also wary of the expansion of municipal broadband.

A three judge panel on the Sixth Circuit U.S. Court of Appeals **said** earlier this month that the commission hadn't provided a “a clear statement in the authorizing federal legislation” to justify its move. The FCC is opting not to ask the full court to re-hear the case or take its arguments to the Supreme Court.

With the FCC's announcement, the debate now shifts to the state level — where Wheeler has indicated he is willing to engage.

“Should states seek to repeal their anti-competitive broadband statutes, I will be happy to testify on behalf of better broadband and consumer choice,” he said in a statement after the ruling. “Should states seek to limit the right of people to act for better broadband, I will be happy to testify on behalf of consumer choice.”

Net Neutrality/Throttling

[The Hill] Court rules in AT&T's favor on data 'throttling'

Ali Breland 29 August 2016

<http://thehill.com/policy/technology/293726-court-rules-in-atts-favor-on-data-throttling>

AT&T won an early victory in its two-part battle with the Federal Trade Commission and Federal Communications Commission on Monday when a federal appeals court dismissed a case alleging that the company used deceptive practices regarding its “unlimited” data plan.

The FTC claims that AT&T was significantly slowing down data of customers who had unlimited plans — also referred to as “throttling.” The wireless carrier **reportedly didn't inform** customers of this practice.

The 9th Circuit Court of Appeals dismissed the FTC's case, siding with AT&T's argument that the FTC Act granted an exception for “common carriers.”

Though the court sided with AT&T's argument that it was exempt from FTC regulation, it did not back AT&T's other contention that throttling its customers was necessary to preserve its network.

“AT&T's throttling program is not actually tethered to real-time network congestion,” Judge Richard Clifton wrote in **the court's opinion**. “Instead, customers are subject to throttling even if AT&T's network is capable of carrying the customers' data.”

When asked for comment, an AT&T spokesperson told The Hill, “We're pleased with the decision.”

AT&T is still facing another legal battle over a similar issue with the FCC. That agency **intends to fine** the telecommunication company \$100 million for the practice of throttling data plans for “unlimited” users.

The company rejects the FCC's claims on the grounds that they had already identified AT&T's throttling practices as legitimate.

“We will vigorously dispute the FCC's assertions,” AT&T spokesman Michael Balmoris said. “The FCC has specifically identified this practice as a legitimate and reasonable way to manage network resources for the benefit of all customers and has known for years that all of the major carriers use it. We have been fully transparent with our customers, providing notice in multiple ways and going well beyond the FCC's disclosure requirements.”

According to the agency's own investigation, customers were not given sufficient notification on the throttling rules.

The FCC had previously asked the court to dismiss the FTC case, which it felt was in its jurisdiction. The court denied this.

G20

[Reuters] Exclusive: Six senators urge Obama to prioritize cyber crime at G20 summit

Jonathan Spicer

29 August 2016

<http://www.reuters.com/article/us-cyber-heist-g-idUSKCN1142A0>

Six U.S. senators have urged President Barack Obama to prioritize cyber crime at this weekend's Group of 20 summit in China, in the wake of the theft of \$81 million from Bangladesh's central bank, according to a letter obtained by Reuters.

In the letter sent to the White House ahead of the Sept. 4-5 summit, Sherrod Brown, a senior Democrat on the Senate Banking Committee, and five other Democratic senators say they want the U.S. president to press leaders from the world's 20 biggest economies to commit in joint communiques to a "coordinated strategy to combat cyber-crime at critical financial institutions."

The letter, dated Monday, suggests that concern among U.S. lawmakers is growing over the February incident in which hackers breached Bangladesh Bank's systems and used the SWIFT banking network to request nearly \$1 billion from an account held at the Federal Reserve Bank of New York.

Some of the dozens of orders were filled, with much of the lost \$81 million disappearing into Philippines casinos - prompting months of international finger-pointing, an ongoing investigation, and several requests from members of Congress for answers from the Fed and from SWIFT, the secure messaging service that banks use to transfer money around the world.

"Our financial institutions are connected in order to facilitate global commerce, but cyber criminals - whether independent or state-sponsored - imperil this international system in a way few threats have," the senators, headed by Gary Peters of Michigan, wrote in the letter to Obama.

"We strongly urge you to work with your counterparts and prioritize this discussion at the G20 leaders level in September," it said of the summit to be held in Hangzhou, China, adding that "executive leadership circles across the globe" needed to pay more attention to the risks.

Copies of the letter were also sent to Federal Reserve Chair Janet Yellen and U.S. Treasury Secretary Jack Lew.

The other senators signing the letter were Mark Warner and Martin Heinrich, both members of the Senate's Select Committee on Intelligence; Kirsten Gillibrand and Debbie Stabenow, the ranking Democrat on the Senate's Committee on Agriculture, Nutrition, and Forestry.

The White House expects G20 members at the summit "to affirm their commitment to cooperate to fight cyber crime and to enhance confidence and trust in the digital economy," a senior administration official said.

Asked generally about cyber security on Monday, White House spokesman Josh Earnest said at a press conference: "I would anticipate that this issue more generally will be on the agenda" when Obama meets Chinese President Xi Jinping, the G20 summit host, later this week.

At a November summit, the G20 pledged not to conduct economically motivated cyber espionage, an agreement intended to reduce the estimated hundreds of billions of dollars worth of commercial trade secrets that are stolen by foreign governments seeking to benefit industry in their own countries.

Since then, the Bangladesh Bank attack and others that have emerged are only some of the threats posed by cyber criminals, the senators wrote. World regulators should "erect more robust defenses and collaborative systems to prevent and mitigate the impact of successful attacks," the letter said, noting that steps already taken by SWIFT are not enough.

The Fed and other U.S. regulators said in a letter last week they were focused on cyber risks and controls at banks in the wake of the Bangladesh incident, though they offered few specifics.

Peters, a member of the Senate's Committee on Homeland Security and Governmental Affairs, told Reuters he is considering requesting a committee hearing on the heist.

"I am concerned about the response and what steps have been taken to make sure it doesn't happen again," he said in an interview. "You just need more collaboration and sharing of information... because often times all these entities aren't talking to each other."

Privacy Shield

[Venture Beat] [Google signs up for the E.U.-U.S. Privacy Shield framework](#)

Jordan Novet 29 August 2016

<http://venturebeat.com/2016/08/29/google-signs-up-for-the-e-u-u-s-privacy-shield-framework/>

Google is the latest company to seek compliance with the Privacy Shield Framework developed jointly by the U.S. Department of Commerce and the European Commission.

"We are committed to applying the protections of the Privacy Shield to personal data transferred between Europe and the United States," Caroline Atkinson, head of global public policy at Google, wrote in a [blog post](#).

Microsoft and Salesforce have previously gotten certified under the program, which has been in force [since July](#). The intent of the program is to ensure the privacy of users' data as it moves across the Atlantic, in line with European Union data protection law.

In effect the Privacy Shield is the replacement for the Safe Harbor Agreement, which was ruled invalid by the European Court of Justice last year.

To meet the standards of the Privacy Shield, companies must ensure that their privacy policies assert their commitment to the Privacy Shield, link out to the Privacy Shield website and a site for lodging complaints, and communicate users' rights to access their data, among other things. Following users' complaints, companies certified under the program must respond to users in 45 days. The program also has rules about what happens when data is shared with third parties.

Autonomous Vehicles

[NY Times] [Uber and Alphabet's Rivalry Heats Up as Director Chooses Sides](#)

Mike Isaac 29 August 2016

<http://www.nytimes.com/2016/08/30/technology/uber-and-alphabets-rivalry-heats-up-as-director-chooses-sides.html?ref=technology>

SAN FRANCISCO — The rift between Uber and [Alphabet](#) is growing.

David Drummond, a longtime executive at Alphabet and a director at Uber, recently stepped down from the ride-hailing company's board, Uber said on Monday. Mr. Drummond had served on Uber's board for the last three years.

The departure is a sign of the growing friction between Uber and Alphabet, which is the parent company of Google. While Google and Uber had started off as partners — Uber counts GV, Alphabet's investment arm, as an investor, and the ride-hailing company has long used Google's mapping technology — they have become increasingly competitive with each other. Uber is moving into self-driving vehicle technology, for example, an area Google has long been working on.

In a statement on Monday, Mr. Drummond was upfront about the rivalry. "I recently stepped down from Uber's board given the overlap between the two companies," he said in an emailed statement. He added that "Uber is a phenomenal company." Google declined to comment beyond Mr. Drummond's statement.

Travis Kalanick, Uber's chief executive, thanked Mr. Drummond in a statement and said he "looks forward to continued cooperation and partnership" with Alphabet.

Uber has no plans to replace Mr. Drummond on its board, which now has seven voting members.

Mr. Drummond, who leads corporate development and investment initiatives at Alphabet, goes back at least three years with Uber. He was instrumental in helping Uber in 2013 secure a \$258 million investment from GV, then Google's venture capital arm. GV is now Alphabet's venture capital arm after a restructuring of Google under a holding company structure last year.

In a sign of the increased rivalry, last week Uber announced it had [spent nearly \\$700 million to acquire Otto](#), a 90-person start-up staffed by former Google and Carnegie Mellon University engineers who are working exclusively on autonomous vehicle technology, an area in direct competition with Google's research. Anthony Levandowski, Otto's chief executive who will now lead Uber's self-driving car efforts, was a key member of Google's autonomous car team.

Uber has also been working to build its own mapping technology, an attempt to decrease the company's reliance on Google Maps.

Google has, in turn, dabbled in ride-sharing experiments, [including an early car-pooling test](#) using its navigation app, Waze. These efforts have caused consternation among executives at Uber, including Mr. Kalanick, who in a recent interview said Google's focus on the area gave him cause to "sweat" and work harder on his own company's efforts.

On Monday, [technology news site The Information also reported](#) that Mr. Drummond had been prohibited from attending some director meetings and from learning certain strategic company secrets given his role at Google.

[\[Tech Crunch\] Alphabet's David Drummond leaves Uber's board amid mounting competition](#)

Matthew Lynley

29 August 2016

<https://techcrunch.com/2016/08/29/alphabets-david-drummond-leaves-ubers-board-amid-mounting-competition/>

David Drummond, who joined Uber's board of directors in August 2013, stepped down several weeks ago, Uber has confirmed to TechCrunch. [The Wall Street Journal](#) first reported the news.

At first blush: no surprise whatsoever. Earlier this month, Uber CEO Travis Kalanick said the company's first fleet of self-driving cars [would begin running in Pittsburgh soon](#) (as soon as this month, even!). The fleet consists of about a hundred modified Volvo XC90s, co-piloted by one engineer who can take the wheel when necessary. In other words: a straightforward competitor for Alphabet's self-driving car.

[For the past year-plus](#), both Alphabet and Uber have been working on their own variations of self-driving cars. Alphabet's efforts have been considerably more public, but throughout both development processes Drummond has remained on Uber's board. Now it seems that the reality that the two companies are increasingly becoming direct competitors is setting in, and a change of plans is in order.

The Information earlier today reported that, [Drummond was left out of meetings at Uber](#). That's not surprising — Alphabet's efforts to build a self-driving car could be kneecapped by Uber's rollout of its own self-driving car fleet. In an Uber-centric future, car usage is largely an on-demand model, and a constantly cruising fleet of self-driving cars powered by Uber's technology removes a big potential opportunity for Alphabet.

Alphabet for years has been working on this kind of technology, though it's been focused on a much more radical, steering wheel-less cruiser. With Google specializing in software and machine learning, it seemed like the company was well on its way to becoming a standard for self-driving vehicles, but increasingly Alphabet is finding itself dealing with competition.

Related Articles

[HopSkipDrive wants to be the Uber for kids](#)[UberEATS couriers planning London "strike" over pay](#)[MIT spinout NuTonomy just beat Uber to launch the world's first self-driving taxi](#)[Uber offers retirement plans to drivers as legal battle continues](#)

In this sense, Uber is evolving beyond the simple ride-sharing application that GV [poured \\$258 million into in 2013](#) (a mind-boggling share of the firm's fund at the time). As it grows into its [\\$60 billion-plus valuation](#), Uber's sights have to be set higher over time — especially as a future where cars are no longer controlled by humans starts to become increasingly real. Uber has for some time been experimenting with additional business lines, like with its [UberEATS courier service](#), and it seems only natural that the company would want to find ways to bring in new lines of revenue and make its existing businesses much more efficient.

While there [have been plenty of setbacks](#), Tesla has aggressively pushed for this kind of a future in its vehicles, and it seems increasingly on its way to becoming the norm. This kind of experience also isn't even new for Alphabet. In 2009, Alphabet's Eric Schmidt stepped down from Apple's board as the two companies began ruthlessly fighting out over whether Google (at the time) stole ideas from the iPhone and began to increasingly eat away at the early smartphone-maker's lead.

It seems that GV's David Krane ([who took the reigns of the firm from Bill Maris earlier this month](#)) is still a board observer, though The Information [also reports that Krane is getting the cold shoulder](#). Again,

while GV is an independent investment arm, it's obviously linked to Alphabet proper and it would be strategically unsound to keep that information flowing freely if the two end up direct competitors.

Uber confirmed the departure to us in a statement from Drummond:

"I recently stepped down from Uber's board given the overlap between the two companies. Uber is a phenomenal company and it's been a privilege working with the team over the last two plus years. GV remains an enthusiastic investor and Google will continue to partner with Uber. I want to wish Travis all the best for the future."

And here's one from CEO Travis Kalanick:

"It's been a pleasure having David on the board. He's been a sage advisor and a great personal friend. I wish David and Alphabet the best, and look forward to continued cooperation and partnership."

Read between the lines as you will!

[PC World] [Uber, Alphabet autonomous car rivalry heats up](http://www.pcworld.com/article/3113930/car-tech/uber-alphabet-autonomous-car-rivalry-heats-up.html)

John Ribeiro

29 August 2016

<http://www.pcworld.com/article/3113930/car-tech/uber-alphabet-autonomous-car-rivalry-heats-up.html>

The race by companies to develop autonomous cars is making rivals out of old friends as is evident from the exit of Alphabet's senior executive David Drummond from the board of Uber Technologies.

Alphabet is an investor in Uber through its venture capital arm GV, and from all appearances will continue to stay so. But it had become increasingly evident that the ride-hailing company's efforts to build self-driving cars would put it in conflict with the aims of the Google Self-Driving Car Project, which has been one of the pioneers in the development of these autonomous vehicles.

On Monday, Alphabet said Drummond, its senior vice president for corporate development, had recently quit the board of Uber. GV will continue to be an investor in the ride-hailing company.

"I recently stepped down from Uber's board given the overlap between the two companies," Drummond said in a statement issued on Monday. "GV remains an enthusiastic investor and Google will continue to partner with Uber," Drummond added. He wished Uber CEO Travis Kalanick all the best for the future.

The development comes ahead of tests of self-driving cars carrying ride-hailing passengers, planned by Uber later this month [on the streets of Pittsburgh](#) in the U.S. A number of car and component makers are developing technology for self-driving cars that they are targeting at ride-hailing companies, and there have been rumors that Google may also target this market.

Ford said this month that it intends to have a high-volume, fully autonomous vehicle in commercial operation in a ride hailing or sharing service by 2021. General Motors has also invested US\$500 million in ride-hailing company Lyft in a deal that could see them jointly developing a network of on-demand autonomous cars. Earlier on Monday, The Information reported [that Uber had shut out Drummond](#) from attending board meetings, quoting three people briefed about the arrangement.

Google cars have self-driven over 1.5 million miles and are out on the streets of cities like Mountain View, California and Austin, Texas.

[Vox] We polled Americans about self-driving cars. Here's what they told us.

Timothy Lee

29 August 2016

<http://www.vox.com/2016/8/29/12647854/uber-self-driving-poll>

Self-driving cars are coming faster than anyone expected just a few years ago. And America, according to a [new Vox/Morning Consult poll](#), isn't really ready for that.

More Americans say they they're more worried about the prospect of self-driving cars than excited. They're afraid that the technology will take jobs away from taxi and truck drivers, and they're skeptical that the technology will save lives as supporters claim. Overall, just 32 percent believe that self-driving cars will improve the driving experience, compared to 48 percent who don't think so.

And for all the hype surrounding ride-hailing services like Uber and Lyft, the vast majority of Americans say they never use them. Most of those who don't use the services say it's easier to just drive their own cars.

The survey also [reveals a massive age gap](#) in attitudes about these emerging transportation technologies. Americans over 65 are way less likely to have used ride-hailing services, and they're particularly skeptical about the potential benefits of self-driving technology.

Millennials were the most positive about both ride-hailing services and self-driving cars — and they're even open to the idea of banning human-driven cars if self-driving vehicles prove to be safer.

The public is skeptical about the benefits of self-driving cars

Many experts, pundits, and elected officials are enthusiastic about the potential of cars that drive themselves. A big reason for this is safety: Car crashes [cost nearly 40,000 lives](#) per year, making it a [leading killer](#) of young people. And many of these accidents occur because a driver is tired, distracted, or intoxicated.

So if we can create cars that drive as well as the average alert, sober driver, it would save thousands of lives every year. And technologists hope to do even better than that, drastically reducing the annual death toll from car crashes.

But we're far from reaching that goal, and right now the public is skeptical we'll get there.

Only 35 percent of Americans agree that self-driving cars will "reduce accidents and auto-related fatalities" — 13 percent agree strongly, while another 13 percent say they "somewhat agree." On the other hand, 46 percent predict that self-driving cars will not reduce accidents and fatalities — with 23 percent holding that view strongly.

Experts disagree about how self-driving cars will affect traffic. Some predict that they'll improve traffic by allowing cars to use the roads more efficiently and enabling more carpooling. But others predict that if commuting becomes more pleasant, the roads will become even more crowded.

Most Americans predict that self-driving technology will make traffic problems worse, not better. Only 25 percent of respondents say that self-driving cars will reduce traffic, compared to 54 percent who say it won't (including 29 percent who felt strongly about the subject).

Finally, Americans are concerned about the economic consequences of self-driving technology. 53 percent of respondents predict that self-driving cars will take away jobs from professional taxi and truck drivers, compared to just 29 percent of Americans who say that won't happen.

So will self-driving cars improve the overall driving experience? Just 31 percent say it will, compared to 48 percent who say no. And most Americans don't expect to ride in a self-driving car any time soon. Fifty-three percent of respondents said they were not too likely or not at all likely to ride in a self-driving car in the next 10 years. An even larger 61 percent say they are unlikely to use an Uber-style self-driving car service if it becomes available in their area.

Most people never use a ride-hailing service

Self-driving cars are one technology that could disrupt the car industry over the next decade. Ride-hailing services like Uber and Lyft are another. Given how much attention Uber and Lyft get in national media publications like Vox, you might think these services have become ubiquitous in American life.

But that's wrong. We asked people, "on average, about how often do you use ride-sharing applications on your smartphone such as Uber and Lyft?" A whopping 78 percent of people say they never use a ride-hailing service. Another 9 percent use the service less than once a month. For comparison, 65 percent of respondents say they never use a taxi, and another 21 percent use a taxi less than once a month.

Of those who never use a ride-hailing service, 52 percent say that it's because it's easier to just drive the car they already have. Most of the rest either say that the service isn't available in their area — 15 percent — or that they aren't familiar with the service or don't know anyone who uses it — 12 percent. Respondents say that cost isn't a significant factor: Just 4 percent say they avoid using ride-hailing services because they're too expensive.

Older Americans are way more skeptical of new car technologies

Taken as a whole, the public is moderately skeptical of self-driving cars and most never use ride-hailing services. But when you break things down by age, the picture becomes more polarized, with older voters — unsurprisingly — much less interested in these new technologies.

A slight majority of adults under 30 are excited by the future of self-driving cars, compared to 40 percent who are worried. The attitudes of those over 65 are very different: just 19 percent say they're excited about self-driving cars, while 71 percent are worried.

Among those under 30, 47 percent predict that self-driving cars will save lives, while 40 percent are skeptical. Among those over 65, only 24 percent say self-driving cars will be life-saving, compared with 49 percent who disagree.

Those under 30 are about equally split on whether self-driving cars will reduce traffic problems, while those under 65 believe overwhelmingly — 58 percent to 14 percent — that they will make traffic problems worse.

Overall, 48 percent of those under 30 think self-driving cars will improve the driving experience, compared to just 21 percent of those over 65 who think that.

A massive 96 percent of those over 65 say they never use ride-hailing services like Uber and Lyft, and fewer than 1 percent use these services at least once a week. In contrast, only 55 percent of those under 30 say they never use Uber or Lyft, while 11 percent use ride-hailing services weekly.

If self-driving cars become widely available, we can expect to see the same pattern repeat itself. Forty-four percent of those under 30 say they'd be likely to use an Uber-like self-driving car service if it became available in their area, while just 13 percent of those over 65 expressed an interest in such a service.

Among those under 30, 42 percent said they were ready to give up their car if self-driving technology made ride-hailing as cheap as owning a car. Hardly any people over 65 were prepared to make that leap — just 9 percent say they're likely to go car-free, whereas 79 percent say they're unlikely to do so.

There were also differences — though less extreme ones — among other demographic groups. Unsurprisingly, people in urban areas were more ready to give up their cars than those in suburban and rural areas.

Men are more optimistic about self-driving cars than women, with 37 percent of men saying they'll improve the overall driving experience compared to 28 percent of women. Liberals are more optimistic about self-driving cars than conservatives. Black and Hispanic people were more optimistic than whites — though that may largely reflect the fact that whites are older, on average.

Millennials are open to banning human drivers

Over the next decade, there will be a big debate over whether — and how — to allow self-driving cars onto public roads. But if self-driving technology saves as many lives as its supporters hope, we could eventually have a different debate: whether to allow people to drive their own cars at all.

Obviously, this isn't an issue anyone needs to decide on this year — or even this decade — but we thought it would be interesting to see what people thought about it.

We asked people, "if self-driving cars are shown to be safer than cars driven by humans, would you support or oppose a ban on humans driving cars?"

30 percent of the population said they would support such a law, while 54 percent of the population opposed it. A slight plurality of those under 30 said they would favor a ban, 43 percent to 42 percent. In contrast, those over 65 were opposed by a wide margin, 58 percent to 22 percent.

Drones

[Bloomberg] Buffett's 167-Year-Old Railroad Tests Skies for the Drone Age

Thomas Black 29 August 2016

<http://www.bloomberg.com/news/articles/2016-08-29/buffett-s-167-year-old-railroad-tests-skies-for-the-drone-age>

Before some cutting-edge online retailer can use a drone to drop granola bars on your doorstep, a railroad born when Abe Lincoln was in Congress will first have to iron out the kinks.

BNSF Railway Co. is flying drones as far as 150 miles (240 kilometers) along the New Mexico desert to inspect tracks, helping the Federal Aviation Administration develop rules for operating unmanned aircraft beyond the pilot's line of sight. That's an essential step for expanding use to such commercial endeavors as deliveries by Amazon.com Inc. and other companies.

"We had to invent a lot of what we're doing from scratch," said [Todd Graetz](#), head of the drone team at Fort Worth, Texas-based BNSF, which traces its roots back to the Aurora Branch Railroad's founding in 1849 and is currently controlled by billionaire Warren Buffett. "It sets the stage for a number of other users."

The "Holy Grail" is flying drones beyond what ground-based operators can see, said John Walker, co-founder of the Padina Group Inc. aerospace consulting firm. The potential uses -- from track inspections, to spotting criminals on the lam, to organ deliveries for hospitals -- will rival what happened a century ago, when airplanes became indispensable tools instead of stunt machines at county fairs, he said.

"It's been barnstorming," said Walker, a former FAA program director. "Now we're getting into what is the commercial market."

Missed Deadline

The FAA is eager to expand rules for long-distance drone flights, said Earl Lawrence, the agency's director of the office of Unmanned Aircraft Systems Integration. The agency missed a congressional mandate to allow full integration of drones into U.S. airspace by last year, citing safety concerns.

Until recently, the FAA had allowed commercial drone flights only under a cumbersome, case-by-case application process. On Monday, the agency began permitting daytime flights within line of sight, no higher than 400 feet (120 meters), no faster than 100 miles per hour (160 kilometers per hour) and, generally, not above people. Those interim rules set a framework eventually to allow night flights, operations over populated areas and service beyond line of sight. The agency expects to introduce those rules next year, Lawrence said.

"How do you eat the elephant? One bite at a time," he said. "We're taking it in bites. We're going from the less complex to the more complex."

For more coverage of FAA rules on drone safety, [click here](#).

Industry's Help

The agency has enlisted assistance from BNSF and other companies to tackle the challenges in an airspace crowded with the most private planes in the world.

"The FAA itself can't really move this forward on its own. It needs industry," said Joanna Simon, an associate at Morrison & Foerster. The San Francisco-based law firm's clients include Facebook Inc., which wants to use drones to provide internet service.

BNSF, owned by Buffett's Berkshire Hathaway Inc., is particularly suited for the task. The railroad operates 32,500 miles of track crisscrossing sparsely populated areas along a well-defined right of way, which eases planning. Communications towers that are part of a safety system for trains can be used to help guide drones.

Bad Track

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The railroad also has a compelling business case. The Latitude HQ-40 drone that Graetz supervises has a six-foot wingspan and is equipped with cameras that when paired with special software can potentially detect track anomalies more quickly, possibly preventing derailments. The flights, from just outside of Playas, New Mexico, lay the groundwork for drone inspections of other fixed infrastructure, such as pipelines and power lines.

“The more we fly, the more imagery we collect, the more we run it through the analytics, the better things get,” Graetz said.

Another company, [PrecisionHawk Inc.](#), is working with partners to use satellite data to build three-dimensional maps so drones by themselves can avoid objects such as grain silos and tall trees, says Tyler Collins, the director of business development. PrecisionHawk has developed drones and software to monitor the health of crop fields.

“One of the most exciting things is that the FAA is fully invested in figuring out how to do this,” he said.

Testing Abroad

Companies including Google Inc. and Amazon, which has received permission to test flights beyond line of sight in the U.K., have pushed the FAA to move more quickly. Domino’s Pizza Enterprises Ltd. last week said it teamed up with drone operator Flirtey to deliver a pizza in New Zealand and plans to test the service there later this year.

“We work with regulators and policy makers in many countries and will continue to do so,” Kristen Kish, a spokeswoman for Amazon, said by e-mail. “We look forward to using drones to safely deliver parcels in 30 minutes to customers around the world.”

The risks of flying autonomous planes long distance are substantial. The drones must be able to detect other aircraft and objects, such as crop dusters or hot-air balloons, and then take action to avoid them. Operators also have to determine how drones can land safely if they lose communications with people on the ground.

BNSF isn’t ready to reveal how it plans to overcome these challenges, said Graetz, an airplane pilot. The company and its partners are working on the final proposal to the FAA for full operation beyond line of sight, he says. Today, some of the railroad’s methods are low tech, such as e-mails, phone calls and visits to small airports along the rail route to warn people of drone flights.

“There’s the process of good old shoe leather to get to know the airport managers and spreading the news about what we’re doing,” he said.

[\[Tech Crunch\] In a first, FAA allows PrecisionHawk to fly drones where pilots can’t see them](#)

Lora Kolodny

29 August 2016

<https://techcrunch.com/2016/08/29/in-a-first-faa-allows-precisionhawk-to-fly-drones-where-pilots-cant-see-them/>

The Federal Aviation Administration has given permission to a drone tech startup called [PrecisionHawk](#) to fly its unmanned aerial vehicles beyond the visual line of sight (BVLOS) in U.S. airspace.

The exemption represents a first in the country, and comes on the same day that the FAA implemented its [Part 107 rules](#) governing the way that businesses can use small drones, up to 55 pounds, in their operations.

PrecisionHawk, based in North Carolina, makes fixed-wing drones for use in agriculture, and cloud-based software called DataMapper to help businesses save and analyze the aerial images and information they collect using drones.

[Verizon Ventures](#), an investment arm of TechCrunch's parent company Verizon Communications Inc., is a stakeholder in PrecisionHawk. The company has raised \$29 million in [venture funding to date](#) according to [CrunchBase](#).

PrecisionHawk's Lancaster drones compete with the likes of so-called agridrones from [Kespry](#), [Parrot](#), [GIS UAV Ltd.](#) and others.

The company's DataMapper product competes with an increasing number of map-tech and data analytics platforms catering to drone users, including [DroneDeploy](#) and [3DR's Site Scan](#).

PrecisionHawk EVP Thomas Haun said, "In agriculture, now that we have an exemption to fly beyond the visual line of sight, we can fly an entire farm, not just one field, efficiently."

The exemption does not mean PrecisionHawk can fly outside of other rules outlined in the FAA's newly implemented [Part 107](#) regulation, Haun noted. The company will still have to yield to other aircraft, avoid flying over people, fly only during daylight hours and the like.

Instead of giving drone operators a first person view with video cameras, PrecisionHawk uses what it calls a low altitude traffic and airspace safety system (LATAS) to help drone operators automatically avoid air traffic or any other obstacles during flight. That system is powered, in part, by air traffic data from [Harris](#).

The Part 107.31 waiver for PrecisionHawk was the first "VLOS" waiver the FAA granted. The administration issued 76 total waivers on the day that Part 107 went into effect, most of which applied to operators flying at night.

[NPR] [FAA Expects 600,000 Commercial Drones In The Air Within A Year](#)

Alina Selyukh 29 August 2016

<http://www.npr.org/sections/thetwo-way/2016/08/29/491818988/faa-expects-600-000-commercial-drones-in-the-air-within-a-year>

We are in "one of the most dramatic periods of change in the history of transportation," says Transportation Secretary Anthony Foxx.

He was talking about all of it: the self-driving cars, the smart-city movement, the maritime innovations. But the staggering prediction of the day goes to the drone industry:

The Federal Aviation Administration expects some 600,000 drones to be used commercially within a year.

For context, the FAA says that 20,000 drones are currently registered for commercial use. What's expected to produce a 30-fold increase in a matter of months is a [new rule](#) that went into effect Monday and makes it easier to become a commercial drone operator.

"The FAA forecasts there could be as many as 600,000 unmanned aircraft used commercially during the first year after this rule is in place," FAA Administrator Michael Huerta said in a press conference.

"Drones are helping to create a whole new means of realizing the American dream," he added later.

Broadly, the new rules change the process of becoming a commercial drone pilot: Instead of having to acquire a traditional pilot's license and getting a special case-by-case permission from the regulators, drone operators now need to pass a new certification test and abide by various flying restrictions (and, well, be older than 16).

Huerta says more than 3,000 people preregistered to take the certification test Monday — the first day of the new regime.

The rest of the drone safety rules still apply: No flights beyond line-of-sight, over people, at night, above 400 feet in the air or faster than 100 miles an hour. Drones also can't be heavier than 55 pounds, and all unmanned aircraft [have to be registered](#). (Some locations, [such as Washington, D.C.](#), prohibit drones altogether.)

Businesses, however, may get [special waivers](#) to skip some of the restrictions if they can prove they can do so safely. Huerta said Monday that the FAA has approved almost 80 waiver applications; the vast majority sought permission to operate at night. CNN was one applicant that received permission to fly over people, Huerta said.

So far, the top uses of commercial drones have included aerial photography, real estate, various inspections, agriculture and filmmaking, according to [an analysis](#) by the Association for Unmanned Vehicle Systems International, the industry trade group. Foxx and Huerta also cited firefighting, search and rescue, conservation and academic research as potential beneficiaries.

The drone association expects the industry will create more than 100,000 jobs and generate more than \$82 billion for the economy in the first 10 years of being integrated into the national airspace.

"If the federal government continues to embrace drone technology policy that balances safety and innovation, by 2025 our country will reach one million drone flights per day," Douglas Johnson, vice president for technology policy at the Consumer Technology Association, said in a statement.

The FAA is also working on new rules that eventually will allow drone flights over people and beyond line of sight. Huerta said the FAA expects to propose rules on flights over people by the end of 2016. The agency will also be issuing new privacy guidance to local and state government, he said, and will include privacy education in the pilot certification process.

Big Data

[Bioscience Technology] Harnessing Big Data to Support Precision Medicine

Ralf Huss

29 August 2016

<http://www.biosciencetechnology.com/news/2016/08/harnessing-big-data-support-precision-medicine>

During his 2015 State of the Union address, President Obama announced his [Precision Medicine Initiative](#) (PMI) - a research effort designed to develop tailor-made treatments based on an individual's genetics and strain of disease. This campaign coincides with the government's [Cancer Moonshot plan](#), which will work to "accelerate research efforts and break down barriers" as the industry collaborates to develop innovative, personalized cancer treatments using data insights.

One year after Obama's PMI announcement, one crucial concept was touched on at the [White House Precision Medicine Initiative \(PMI\) Summit](#): *Big Data*. Specifically, how the collecting and deciphering of Big Data is the skeleton key that that will unlock the development of personalized medicine. However, this idea goes hand in hand with some important questions: *How can you comb through vast amounts of data to reach relevant insights that can be applied to the creation of revolutionary and effective treatments? Where do we even start looking?* To address these issues, let's take a step back and examine how Big Data is currently being used to draw conclusions in the oncology clinical research stage, the processes used to scale down and interpret massive amounts of information, and how to translate statistical findings into real-world settings.

Current state of Big Data in oncology clinical research

The process of genomics, the study of DNA sequencing, is not comprehensive enough on its own to thoroughly understand cancer behaviors and identify vital biomarkers that help determine what types of treatments patients will respond to. Predictive diagnostics is where Big Data comes into play – coupling it with other forms of diagnostic testing (i.e., MRIs, blood tests, tissue imaging) to obtain a holistic picture of patient outcomes. If you look at large populations within clinical trial studies, you can make these assumptive correlations about what treatments will be effective based on certain genetic factors. Big Data analysis in precision medicine requires a sizeable study of patients so that researchers can understand what effects are occurring across a controlled population.

It is difficult to accurately draw these same conclusions from smaller sample sizes. Looking at smaller populations leaves more room for error and deviation. A popular misconception about Big Data is that scientists just like a lot of information. That is not the case – it is about statistical correlation and the more data you have, the stronger the parallel is.

On a business level, oncology field stakeholders are starting to look at hospitals and research facilities across the country that are administering innovative, specialized treatments that were developed from Big Data analysis. They are then rewarding these facilities that are producing effective patient outcomes.

Big Data scale-down processes

When researchers first begin to look at correlations discovered within clinical trial populations, it is difficult to determine what the most important pieces are, and without a condensing process, they end up pulling and analyzing an abundance of information. From a storage and data manipulation standpoint alone, it is ineffective and daunting to deal with millions of repeating cells in Excel. Data reduction is a

key process that allows researchers to scale down information (i.e., genome sequences, tissue DNA, etc.) into comprehensible patterns and formats in order to diagnose and develop personalized treatments for patients. It helps narrow down and identify what factors are most vital for achieving desired outcomes.

For instance, in a clinical trial of 1,000 people, you could easily receive 40 terabytes of data. [For context](#) on how massive that is, a terabyte is two to the 40th power, or approximately a trillion bytes. From there, researchers might create a heat map to identify trends and commonalities. They may also implement the Random Forest technique, which looks at correlations between predictive factors, like biomarkers, and pinpoints what pieces of the data are most relevant and forecasting. Random Forest is another method that reduces the data size and makes the information easier to store and manage. Once the most valuable factors are classified, clinicians can then begin a statistical analysis to determine overall population results and trends, such as prognosis and survival rate. Clinicians may then be able to say, “If a patient has biomarker A and are given therapy B, they are likely to survive longer than if given therapy C.” This is the dream goal of harnessing Big Data to support personalized medicine. It all starts with identifying predictive information and then plotting those points towards the status of the patient’s disease.

Translating findings into the real world

Oncologists are in the field of crunching through findings and making predictions, but at the end of the day, they are not statisticians. When oncologists need to make decisions, they do not just want to look at a data table. They need to be able to see how predictive markers play out in a clinical setting. The real question for them is around deciding how to physically use the data that pertains to their patients. In the clinical trial phase, this is not as much of an issue because there are many trusted parties involved in the decision-making. However, when transported into a real-world hospital setting, doctors need to get their patients on the right drug, and fast. They need to be trained to make these data-driven decisions on their feet.

Unfortunately, in medical school, physicians-in-training do not receive a lot of education on bioinformatics and data analysis. Therefore, if researchers demonstrate a statistical correlation to a doctor, they may not have a strong basis for understanding it, nor do they want to spend time examining it. In order for lab-generated successes to translate to the hospital, the industry needs to reevaluate the required education for oncologists in this era of Big Data-based innovation.

Conclusion

Big Data gets its name for a reason; information sets are so vast and complex that even with reduction techniques, it can be overwhelming for practitioners and researchers to feel they have a handle on the figures at their fingertips. While it is possible to interpret Big Data without scaling it down, it is highly complex and significantly increases the odds of inaccuracies. At the end of the day, patterns and trends need to be identified, which can only be effectively accomplished via data reduction techniques. We are living in the information age so it is imperative that we embrace the technologies and insights that can help us decode the intricacies of cancer. Federal plans like the Precision Medicine Initiative and Cancer Moonshot are huge strides in the right direction for reaping the greatest benefits of Big Data – strapping it down to develop individualized treatments as we continue to see the “one size fits all” method be ineffective.

Cybersecurity

[NY Times] [Harry Reid Cites Evidence of Russian Tampering in U.S. Vote, and Seeks F.B.I. Inquiry](#)

David Sanger

29 August 2016

<http://www.nytimes.com/2016/08/30/us/politics/harry-reid-russia-tampering-election-fbi.html?ref=technology>

The Senate minority leader, [Harry Reid](#) of Nevada, asked the [F.B.I.](#) on Monday to investigate evidence suggesting that Russia may try to manipulate voting results in November.

In a letter to the F.B.I. director, James B. Comey Jr., Mr. Reid wrote that the threat of Russian interference “is more extensive than is widely known and may include the intent to falsify official election results.” Recent classified briefings from senior intelligence officials, Mr. Reid said in an interview, have left him fearful that President Vladimir V. Putin’s “goal is tampering with this election.”

News reports on Monday said the F.B.I. warned state election officials several weeks ago that foreign hackers had exported voter registration data from computer systems in at least one state, and had pierced the systems of a second one.

The bureau did not name the states, but [Yahoo News](#), which first reported the confidential F.B.I. warning, said they were Arizona and Illinois. Matt Roberts, a spokesman for Arizona’s secretary of state, said the F.B.I. had told state officials that Russians were behind the Arizona attack.

After the F.B.I. warning, Arizona took its voter registration database offline from June 28 to July 8 to allow for a forensic exam of its systems, Mr. Roberts said.

The F.B.I., in its notice to states, said the voter information had been “exfiltrated,” which means that it was shipped out of the state systems to another computer. But it does not mean that the data itself was tampered with.

It is unclear whether the hackers intended to affect the election or pursued the data for other purposes, like gaining personal identifying information about voters. The F.B.I. warning referred to “targeting activity” against state boards of elections, but did not discuss the intent of the hackers.

“That incident was only a small part of what disturbed me,” Mr. Reid said on Monday.

In his letter to the F.B.I., he offered no specifics about how Russian hackers could manipulate election data, an effort made harder by the varying vote-tallying procedures in each state.

But the prospect of election tampering has been discussed since the revelation that two Russian intelligence agencies, the F.S.B. and the G.R.U., were believed to be responsible for the [hacking of the networks of the Democratic National Committee](#).

Emails published by a hacker who called himself [Guccifer 2.0](#) — believed to be an alias for Russian hackers linked to the intelligence agencies — revealed that the committee had denigrated the campaign of Senator Bernie Sanders of Vermont.

The disclosures led to the resignation of Representative Debbie Wasserman Schultz of Florida as the committee’s chairwoman.

Mr. Reid's accusation that Russia is seeking not only to influence the election with propaganda but also to tamper with the vote counting goes significantly beyond anything the Obama administration has said in public.

While intelligence agencies have told the White House that they have "high confidence" that Russian intelligence services were behind the hacking of the Democratic committee, the administration has not leveled any accusations against Mr. Putin's government. Asked about that in the interview, Mr. Reid said he was free to say things the president was not.

But Mr. Reid argued that the connections between some of Donald J. Trump's former and current advisers and the Russian leadership should, by itself, prompt an investigation. He referred indirectly in his letter to a speech given in Russia by one Trump adviser, [Carter Page](#), a consultant and investor in the energy giant Gazprom, who criticized American sanctions policy toward Russia.

"Trump and his people keep saying the election is [rigged](#)," Mr. Reid said. "Why is he saying that? Because people are telling him the election can be messed with." Mr. Trump's advisers say they are concerned that unnamed elites could rig the election for his opponent, Hillary Clinton.

Mr. Reid argued that if Russia concentrated on "less than six" swing states, it could alter results and undermine confidence in the electoral system. That would pose challenges, given that most states have paper backups, but he noted that hackers could keep people from voting by tampering with the rolls of eligible voters.

[\[WSJ\] FBI Warns of Cyberattacks on Voter Records](#)

Damian Paletta and Robert McMillan

29 August 2016

<http://www.wsj.com/articles/fbi-warns-of-cyberattacks-on-voter-records-1472505735>

WASHINGTON—After a Russian hacker gained access to login credentials used by Arizona state election officials, the Federal Bureau of Investigation is warning state officials about the growing threat of hackers penetrating their computer networks.

[The alert](#), which also came after an attempted computer breach at the Illinois voter registration system, raised fears of interference in the November elections by criminal groups and even foreign governments.

In June, Arizona officials had to take certain systems offline "due to what the FBI characterized as a credible threat to our voter registration system," said Arizona Secretary of State spokesman [Matt Roberts](#) in an email. This happened after one of two credentials needed to access the voter registration system was obtained by a hacker, Mr. Roberts said.

"We got word from the FBI that a credential was leaked by a Russian hacker," he said. "The hacker apparently was a known entity to law enforcement."

Arizona officials found no evidence of compromised data or malicious software on the voter registration system, Mr. Roberts said.

Illinois election officials in July disclosed they were the targets of a cyberattack. The FBI's Aug. 18 alert didn't name Illinois as a victim of the attacks it cited, but did say that in one state's case "the majority of

the data exfiltration occurred in mid-July.” Data exfiltration is the unauthorized transfer of data from a computer.

This happened shortly after cybersecurity experts believe Russian hackers took records from several Democratic Party organizations.

The July attack knocked the Illinois voter registration system offline for more than a week, but it targeted the state’s voter database, not the state’s voting tabulation system, said Ken Menzel, general counsel for the Illinois State Board of Elections. “If you’re trying to goof [election] results, the state voter database isn’t the way to do that,” he said.

The Illinois voter database has been online for about a decade, he said. “That entire time it’s been under constant attack,” he said. “This is just the first time that anyone’s aware of that anyone’s actually managed to get in.”

The August 18 FBI “flash” alert said recent cyberattacks had targeted two separate state election boards. The FBI alert was [reported earlier by Yahoo](#) News.

Mr. Menzel believes Illinois and Arizona are the states referenced in the alert.

The incidents mark the latest episodes in what U.S. officials fear is becoming a pattern of cyberattacks by hackers seeking to infiltrate and possibly influence the coming elections.

Democrats and some cybersecurity experts have accused Russian intelligence agencies of being behind the recent attacks on several Democratic Party organizations, but Russian officials have denied any involvement.

What makes some of these attacks different from past intrusions is that much of the stolen information has been leaked by entities such as WikiLeaks and a hacker or group of hackers going by the name Guccifer 2.0.

The events prompted Senate Minority Leader [Harry Reid](#) (D., Nev.) to write a letter to FBI Director James Comey on Monday, calling on investigators to expeditiously make public anything they uncover.

He alleged in the letter that the Russians could be attempting to help Republican [Donald Trump](#) win the presidential election, a theory advanced by some other Democrats. But so far, no White House or U.S. intelligence officials have backed this theory.

“The prospect of a hostile government actively seeking to undermine our free and fair elections represents one of the gravest threats to our democracy since the Cold War and it is critical for the Federal Bureau of Investigation to use every resource available to investigate this matter thoroughly and in a timely fashion,” Mr. Reid wrote.

The FBI alert shows the agency views the rising number of attempted breaches as a growing problem. It lists specific indicators left by the hackers, including Internet Protocol addresses and hacking tools.

“The FBI is requesting that states contact their Board of Elections and determine if any similar activity to their logs, both inbound and outbound, has been detected,” the alert said. “Attempts should not be made to touch or ping the IP addresses directly.”

An FBI spokeswoman wouldn't comment on the alert. "In furtherance of public-private partnerships, the FBI routinely advises its partners of various cyberthreat indicators observed during the course of our investigations," she said.

The impact of the breaches is unclear, but computer security experts and U.S. officials have expressed concerns that they could reflect a broad, if haphazard, attempt to influence the vote.

"It shows a deliberate effort to influence or get involved in elections here in the U.S., which should be problematic for us on many levels," said Amit Yoran, president of RSA, a cybersecurity firm.

Mr. Yoran said it is unclear if state officials are obligated to notify voters whose information might have been compromised, as credit card companies and other companies do when customer information is stolen.

The FBI alert was characterized as TLP (or Traffic Light Protocol) Amber, meaning the alert itself is to remain relatively closely held and not circulated publicly. TLP Red is considered the most secretive information-sharing category, while alerts designated TLP green or white generally can be broadly shared.

The hacking tools described in the FBI alert aren't considered particularly sophisticated, but they are often used by national governments or their proxies because they can be very effective. They include "Structured Query Language injections"—a way of tricking back-end databases into running unauthorized commands—among other things.

On Aug. 15, Homeland Security Secretary Jeh Johnson held a conference call with state election officials to talk about security standards and how to prevent cyberattacks from affecting the voting process.

The Department of Homeland Security is also creating a "Voting Infrastructure Cybersecurity Action Campaign" to raise awareness about specific risks.

[The Hill] [China invites foreign firms to cybersecurity bill proceedings](http://thehill.com/policy/cybersecurity/293668-china-invites-foreign-firms-to-cybersecurity-bill-proceedings)

Joe Uchill

29 August 2016

<http://thehill.com/policy/cybersecurity/293668-china-invites-foreign-firms-to-cybersecurity-bill-proceedings>

China is inviting foreign tech companies to take part in deliberations over cybersecurity rules, [according to The Wall Street Journal](#) — a marked shift in policy.

China is under fire from international companies worried that the laws, which are ostensibly designed to prevent cyber espionage, might shut them out of the Chinese market.

Rules currently under consideration would mandate that companies hold data in Chinese servers — cutting off a global market for cloud storage — and explain in depth how products work.

The Wall Street Journal reported that China's Technical Committee 260, in charge of the rule, has invited outside companies to join deliberations. Cisco and Microsoft confirmed to the Journal that they had accepted invitations.

It is unclear how active a role foreign companies will be granted during the proceedings.

[CNN] Officials: Hackers breach election systems in Illinois, Arizona

Wesley Bruer and Evan Perez

30 August 2016

<http://www.cnn.com/2016/08/29/politics/hackers-breach-illinois-arizona-election-systems/>

Washington (CNN) Hackers have breached databases for election systems in Illinois and Arizona, according to state election and law enforcement officials.

In Illinois, hackers accessed a database for the Illinois Board of Elections, compromising up to 200,000 personal voter records according to Ken Menzel, General Counsel for the board.

The FBI is investigating the hack, which initially occurred in late June and was discovered in July. [It was first reported by Yahoo](#). Officials with the Board of Elections are "highly confident they (the hackers) weren't able to change anything, although the investigation is still going on" according to Menzel.

Investigators believe the hackers are likely based overseas, according to a law enforcement official.

The Illinois database included voters' names, addresses, sex and birthdays in addition to other information. Some of the records include either last four digits of a voter's social security number or drivers' license numbers. The database is comprised of records for 15 million individuals and is 10 years old. Not all outdated information has been purged, according to Menzel, so some of those records likely include information for deceased voters or those who have subsequently moved.

According to Matthew Roberts, Director of Communications for the Arizona Secretary of State, in late May, Arizona officials took the statewide voting registration system offline after the FBI alerted the Arizona Department of Administration that there was a credible cyber threat to the voter registration system.

When they took the system offline to review any vulnerabilities, they discovered that a county election official's username and password had been posted online publicly. It's believed that a worker may have inadvertently downloaded a virus which exposed the username and password. In this instance, the username and password information posted would only give individuals access to a localized, county version of the voting registration system, and not the entire state-wide system.

Roberts says there is no evidence that any data within the system was compromised and there was no evidence of malware present in the database.

The breaches are causing concern among election officials because of the voter personal information that could have been stolen, not because of any fear that an election could be stolen, law enforcement officials say.

States have a variety of systems -- some better than others -- but the voting machines and tabulating systems are generally not connected to the internet, which would be the vulnerability hackers would use to compromise the electoral system.

The Department of Homeland Security is unaware of any specific credible threat to the electoral systems, according to a law enforcement official.

Election databases are attractive targets to hackers because they contain personal information that can be cobbled together with other data to help criminals steal money.

DHS has offered to help states increase security of their systems, but states have rebuffed federal help and largely believe their systems are secure. [DHS Secretary Jeh Johnson held a conference call recently to discuss whether DHS should declare electoral systems as critical infrastructure](#), which triggers more involvement from the federal government. States have resisted those moves.

In a statement, FBI spokesperson Jillian Stickels said, "While we cannot comment on specific alerts, what I can say is that in furtherance of public-private partnerships, the FBI routinely advises private industry of various cyber threat indicators observed during the course of our investigations. This data is provided in order to help systems administrators guard against the actions of persistent cyber criminals."

Illinois officials say it's been a challenge to identify everyone whose records were compromised as they have to sort through the 109 jurisdictions that may have been affected. According to Menzel, they are working with the FBI and other law enforcement agencies to figure out who was responsible.

Menzel says the board is not concerned about the integrity of the voting system and does not expect the breach to impact the upcoming general election.

Illinois voting machines are not connected to the internet in any way, according to Menzel. Most voters in Illinois use an optical scan ballot but some jurisdictions do have touch screen machines to comply with Americans with Disabilities Act regulations. In some large counties, such as Cook County, at the end of the voting day, early unofficial voting results are reported back and sent via cell phone signal but they have encryption protection. Arizona largely uses paper ballots and also has touch screen machines.

[\[Wired\] Hack Brief: As FBI Warns Election Sites Got Hacked, All Eyes Are on Russia](#)

Andy Greenberg

29 August 2016

<https://www.wired.com/2016/08/hack-brief-fbi-warns-election-sites-got-hacked-eyes-russia/>

IN ANY OTHER year, hackers breaking into a couple of state government websites through common web vulnerabilities would hardly raise a blip on the cybersecurity community's radar. But in this strange and digitally fraught election season, the breach of two state board of election websites not only merits an FBI warning—it might just rise to the level of an international incident.

On Monday, an [FBI alert surfaced](#) warning state boards of election to take precautions against hackers after two election board websites were breached in recent months. According to [Yahoo News](#), those breaches likely targeted Arizona and Illinois board of election sites, both of which admitted earlier this summer that they'd been hacked. Cybersecurity researchers are already speculating that the attacks link to Russia, pointing to the string of recent, likely Russian attacks that have hit the Democratic National Committee and the Clinton campaign.

"Someone is trying to hack these databases, and they succeeded in exfiltrating data, which is significant in itself," says Thomas Rid, a cybersecurity-focused professor in the War Studies department at King's College of London and author of *Rise of the Machines*. "In the context of all the other attempts to interfere with this election, it's a big deal."

The Hack

In its warning sent to state-level election boards, the FBI described an attack on at least one of those two election websites as using a technique called [SQL injection](#). It's a common trick, which works by entering code into an entry field on a website that's only meant to receive data inputs, triggering commands on the site's backend and sometimes giving the attacker unintended access to the site's server. In this case, it seems to have allowed the hackers to steal 200,000 voter records from the Illinois board of elections, and to cause the Illinois board to close registration for ten days.

You can't patch this psychological vulnerability. CYBERSECURITY EXPERT THOMAS RID

The use of that common SQL injection vulnerability hardly signals the involvement of sophisticated state-sponsored hackers, much less specifically Russian ones. But the security firm ThreatConnect, which has been investigating IP addresses that the FBI said were associated with the attacks, has found a few still-murky clues that point in Russia's direction. ThreatConnect found that one of the IP addresses named by the FBI mapped in 2015 to Rubro.biz, a Russian-language website it describes as a cybercriminal black market. (However, WIRED found that the IP address now points to a website appearing to be associated with the Turkish AKP political party. This, too, could be a red-herring, as neither WIRED nor ThreatConnect has yet confirmed the legitimacy of that apparently Turkish website.) And the VPN used by the attackers appears to have been King Servers, the firm says, a service with a Russian language website.

"There are elements to suggest there are Russian fingerprints on this," says Rich Barger, ThreatConnect's director of threat intelligence. But he cautions that the firm's research is "very nascent. We're still working on it."

Who's Affected?

Neither the Illinois nor Arizona board of elections immediately responded to WIRED's request for comment. But if foreign hackers are indeed involved in the attack—still a major "if"—the 200,000 voter records reportedly breached in the attacks may represent the least of the American electoral system's worries. After all, US voter registration records have been [practically public](#) for years, often sold to data brokers who resell it to political campaigns and marketers. More serious is the notion, [first raised by the public revelation of the Democratic National Committee hack in July](#), that a foreign power like Russia might be trying to influence or disrupt American politics.

How Serious is This?

We knew this could happen. Security researchers have warned for years that American voting systems are [disturbingly vulnerable to digital attacks](#). The breaches of state board of election sites represent yet another reminder that elements of U.S. elections aren't ready to face determined hackers. But attacking voter registration systems, or even paralyzing registration for weeks as in Illinois' case, may not represent a practical threat to American elections so much as a psychological one, says King's College's Thomas Rid. After all, even deleted voter records can be accounted for with provisional ballots, as in recent [primary messes in California and New York](#). But a foreign government using digital attacks to inject doubt in the election's results could help destabilize American politics well after November.

MORE STORIES

“The thing that I’m worried about is not the technical disruption of the election itself. That’s still extremely unlikely,” says Rid. “The pattern we see is to call things into question, to sow doubt, to create uncertainty. This could be another way to create uncertainty in the minds of a lot of people...You can’t patch this psychological vulnerability.”

And in an election year when the Republican candidate has [repeatedly called the race rigged](#), that kind of psychological damage is more serious than any one hack.

[\[The Hill\] Report: DNC hackers hit DC think tanks](#)

Joe Uchill

29 August 2016

<http://thehill.com/policy/cybersecurity/293710-report-dnc-hackers-hit-dc-think-tanks>

Hackers who struck the Democratic National Committee (DNC) appear to have attempted a similar attack against prominent Washington think tanks last week, [Defense One](#) reported.

Cybersecurity firm CrowdStrike says the hackers targeted fewer than five organizations, including the Center for Strategic and International Studies (CSIS), and 10 total staffers.

“It’s like a badge of honor — any respectable think tank has been hacked. The Russians just don’t get the idea of independent institutions, so they are looking for secret instructions from Obama,” James Andrew Lewis, CSIS senior vice president and program director told Defense One.

When it investigated the breach at the DNC, CrowdStrike identified the attackers as two prolific Russian groups: one nicknamed Cozy Bear and another nicknamed Fancy Bear. Fancy Bear would later be credited with hacking the Democratic Congressional Campaign Committee.

Cozy Bear has shown a pattern of using email-based tactics, which occurred in this case and in the group's suspected attacks on Joint Chiefs of Staff, White House, and entities as far away as Europe and Brazil.

FireEye, the company which first uncovered Cozy Bear — or as it first named the group, APT 29 — described it as a tough adversary.

"APT29 is among the most capable groups that we track. While other APT groups try to cover their tracks to thwart investigators, APT29 stands out. They show discipline and consistency in reducing or eliminating forensic evidence, as well as adaptability in monitoring and circumventing network defenders’ remediation efforts," it [wrote](#).

WhatsApp

[\[The Hill\] Privacy groups file complaint over WhatsApp data sharing](#)

David McCabe

29 August 2016

<http://thehill.com/policy/technology/293708-privacy-groups-file-complaint-over-whatsapp-data-sharing>

Two privacy groups on Monday filed a federal complaint over WhatsApp’s decision to share consumer data with parent company Facebook.

WhatsApp [announced last week](#) that it was planning to provide information about its users for Facebook's targeted advertising unless users choose to opt out. In a complaint filed Monday with the Federal Trade Commission, the Electronic Privacy Information Center (EPIC) and the Center for Digital Democracy that the change betrays previous promises Facebook has made on privacy.

"When Facebook acquired WhatsApp, WhatsApp made a commitment to its users, to the Federal Trade Commission, and to privacy authorities around the world not to disclose user data to Facebook," said EPIC President Marc Rotenberg in a statement. "Now they have broken that commitment."

Specifically, the complaint invokes the FTC's jurisdiction to police unfair and deceptive practices, as well as a 2012 agreement between Facebook and the agency that the company would take certain steps to protect user privacy.

Central to their case is a long history of WhatsApp making privacy a core part of its brand. The company now makes end-to-end encryption the default setting for its users, for example, and over the years has said that it is not interested in leveraging its customers' info.

The messaging platform reached a billion users this year. Facebook bought it in 2014 for \$19 billion.

"We look forward to answering any questions regulators or other stakeholders have about this update," said a WhatsApp spokesperson in a statement. "We've made our terms and privacy policy easily accessible, provided an overview of the key updates, and empowered people to make decisions that are right for them, including offering a control for existing users over how their data can be used."

A spokesperson for the FTC declined to comment beyond confirming that the agency had received the complaint.

[\[Bloomberg\] Facebook's WhatsApp Privacy Changes Raise EU, U.S. Concerns](#)

David McLaughlin and Stephanie Bodoni

29 August 2016

<http://www.bloomberg.com/news/articles/2016-08-29/whatsapp-privacy-changes-raise-eu-concern-over-user-data-control>

Facebook Inc. is coming under scrutiny in the U.S. and Europe for revisions to privacy policies for the free messaging service WhatsApp, which promised users those practices wouldn't change when it was sold to the social networking company two years ago.

Last week, Facebook [said](#) it would start using data from the messaging app to allow advertisers to better target those users on Facebook and Instagram, in addition to allowing businesses to send messages to WhatsApp users directly. The policy shift may help WhatsApp generate revenue, but also could irk users drawn to its strong stance on privacy.

The U.S. Federal Trade Commission is reviewing a joint complaint from two consumer privacy groups filed Monday claiming that Facebook's move violates federal law banning unfair and deceptive practices, a person familiar with the matter said. Earlier Monday, European Union regulators [indicated](#) that European users need to remain in charge of their personal data.

The Electronic Privacy Information Center and the Center for Digital Democracy said the policy changes violate an agency [directive](#) following Facebook's acquisition of WhatsApp that the company must get

opt-in consent from consumers. Instead, under Facebook's new policy, the onus is on users to opt out of the data transfer, they said. The FTC declined to comment on the complaint.

FTC Settlement

Facebook is obliged to ask users for their permission to make any changes to its privacy practices under a 2011 [settlement](#) with the FTC, in which the agency accused Facebook of deceiving consumers by telling them they could keep their information private and then allowing it to be shared and made public. The agency has the power to levy fines if it finds Facebook violated that agreement.

"WhatsApp made a commitment to its users, to the Federal Trade Commission, and to privacy authorities around the world not to disclose user data to Facebook," Marc Rotenberg, president of EPIC, said in a statement. "Now they have broken that commitment."

After the sale to Facebook was announced in 2014, WhatsApp Chief Executive Officer and co-founder Jan Koum repeatedly said nothing would change with the company's privacy practices.

"If partnering with Facebook meant that we had to change our values, we wouldn't have done it," Koum wrote in a blog post at the time.

Making Money

WhatsApp's changes are the first steps by Facebook toward making money from the platform since the social network paid \$22 billion for the app. From the start, the transaction raised European regulators' concerns about the collection of data from people's contacts. A Dutch probe was closed last year after WhatsApp addressed concerns.

"Privacy-policy changes are followed with extreme vigilance" by EU and national data-protection regulators, the Article 29 Working Party, made up of the EU's 28 privacy chiefs, said in a statement on Monday. "What's key is that the individual keeps control over his data when these are combined by the big Internet players."

'Easily Accessible'

WhatsApp said in a statement on Monday that it "complies with applicable laws" and that it has made its "privacy policy easily accessible, provided an overview of the key updates, and empowered people to make decisions that are right for them, including offering a control for existing users over how their data can be used."

WhatsApp said in a [blog post](#) announcing the changes on Aug. 25 that its users' "encrypted messages stay private and no one else can read them. Not WhatsApp, not Facebook, nor anyone else" and that they "won't post or share your WhatsApp number with others, including on Facebook, and we still won't sell, share, or give your phone number to advertisers."

The changes will connect users' phone numbers with Facebook's systems and allow it to "offer better friend suggestions and show you more relevant ads if you have an account with them," according to the blog post. The new policy will also allow businesses to send messages to users, including appointment reminders, delivery and shipping notifications and marketing pitches.

European Reaction

In other European reaction, the Italian data-protection authority said the changes raise concerns for “the protection of the data of millions of citizens and numerous users of WhatsApp.” The U.K. Information Commissioner said in an Aug. 26 statement that its role is to “pull back the curtain on things like this, ensuring that companies are being transparent with the public about how their personal data is being shared.”

[WSJ] European Regulators Scrutinize WhatsApp Data-Sharing Plan With Facebook

Sam Schechner and Yoree Koh 29 August 2016

<http://www.wsj.com/articles/european-regulators-scrutinize-whatsapp-data-sharing-plan-with-facebook-1472506175>

European privacy regulators are investigating messaging service WhatsApp’s [plan to share user information](#) including phone numbers with its parent, [Facebook](#) Inc., adding to pressure on both sides of the Atlantic over the social media firm’s privacy practices.

A European Union body representing the bloc’s 28 national data-protection authorities said Monday that its members were following “with great vigilance” changes to WhatsApp’s privacy policy last week. The new policy disclosed the plan to share data with Facebook, while giving only existing WhatsApp users the ability to opt out of part of the data-sharing, setting off complaints from privacy activists in the U.S. and Europe.

“What’s at stake is individual control of one’s data when they are combined by internet giants,” the group, called the Article 29 Working Party, said in an emailed statement.

Britain’s privacy regulator last week that it was also planning to look into the issue, saying that some users “may be concerned by the lack of control.”

Consumer privacy advocates in the U.S. on Monday filed a complaint with the Federal Trade Commission, alleging that the change represents an about-face on WhatsApp’s previous promise to consumers that “nothing would change” when the social network acquired the messaging startup in 2014.

The Electronic Privacy Information Center and the Center for Digital Democracy complaint filed with the FTC charges that the proposed changes to use WhatsApp user data for “marketing practices” constitutes “unfair and deceptive trade practices.”

WhatsApp said it “complies with applicable laws,” adding that “we look forward to answering any questions regulators or other stakeholders have about this update.”

The pushback from European regulators opens a new front in Facebook’s privacy battles. Germany’s Federal Cartel Office [earlier this year](#) said it is investigating whether Facebook Inc. abuses its dominance as a social network to harvest personal information. [France’s privacy watchdog](#) has threatened to fine Facebook Inc. if it doesn’t change how it handles data about its users.

Facebook has said it complies with European privacy laws and has won appeals of privacy cases against it in Belgium and Brussels in recent months as well.

Last week's change in WhatsApp's privacy policy struck a chord because the service has long touted its privacy credentials.

Under the new WhatsApp privacy policy, existing users have 30 days to agree to the new sharing, but can as part of that process opt out of letting Facebook use the data for marketing purposes. The complaint alleges that that requirement goes against a 2012 FTC consent order that demands the company use an "opt-in" process when changing its privacy policy.

WhatsApp disputed the characterization, saying that it both asks for content from all users, and offers "industry leading choice to existing users over how their data is used."

Competition

[SF Gate] Are US antitrust regulators giving Silicon Valley's 'free' apps a free pass?

John Newman 29 August 2016

<http://www.sfgate.com/news/article/Are-US-antitrust-regulators-giving-Silicon-9191927.php>

Judging by the political winds, Silicon Valley seems headed for a showdown with antitrust regulators.

For the first time since 1988, the [Democratic Party](#)'s platform includes stronger antitrust enforcement, while leading liberals have singled out Google, Apple and Facebook for holding too much market power.

Republicans considered (but ultimately rejected) inserting stronger antitrust language in their party platform, and standard-bearer [Donald Trump](#) has a famously frosty relationship with Silicon Valley, favoring heavier taxation and forcing Apple to shift manufacturing to the U.S.

Those expecting a showdown, however, may be disappointed. That's because antitrust regulators and U.S. judges tend to believe that products that don't cost a dime are beyond their purview. And that's how most of Silicon Valley's products are marketed these days. Facebook's slogan reassures: "It's free and always will be." Google claims: "One free account gets you into everything Google." And Apple has an entire section of its [App Store](#) devoted to "free apps."

Drawing on my experiences as a former [Department of Justice](#) antitrust attorney, I've argued that U.S. antitrust laws are in fact broad enough to include these products – which are hardly "free." Unfortunately, however, as my analysis of the history of enforcement in these markets shows, the trend in the U.S. has been away from antitrust oversight.

We live in an increasingly "free" world.

Ours is a world where vast libraries of information and content are available at the click of a button or tap of a screen – and all of it is (seemingly) free. Google search, Twitter, Instagram, Pokémon Go: all free.

If these products are freely available, what room is there for antitrust, a body of law often understood as focused on protecting consumers from artificially high monopoly prices?

Prominent judge (and antitrust legend) [Robert Bork](#), for example, contended that search engines cannot be liable under antitrust laws because they are "free to consumers."

U.S. antitrust enforcers appear, for the most part, to agree with Bork. Since the early days of the internet, “free” digital products have largely escaped scrutiny.

The first antitrust case targeting free digital products was also the most famous. At the outset of the 1990s Microsoft trial, the Department of Justice initially pursued a predatory pricing theory: Microsoft, it alleged, “set a zero price for its browser for the purpose of depriving Netscape of revenue and protecting [Microsoft’s] operating system monopoly.”

In other words, the DOJ at first argued that offering a product for free doesn’t excuse a company from antitrust liability. But the government subsequently dropped this theory on appeal. It is unclear why it did so, though a 1993 [Supreme Court](#) ruling had made any predatory pricing lawsuit virtually impossible to win. Perhaps the added difficulty of convincing an appellate judge that “free” was illegal simply caused the government to focus on more core aspects of the appeal.

In any case, ever since then the courts have continued to be skeptical of that type of argument.

One of the earliest antitrust lawsuits against Google was brought by a private company that alleged Google was exploiting its free online search service in an anti-competitive manner. The complaint was dismissed in 2007 by a court reasoning that antitrust law does not “concern itself with competition in the provision of free services.”

In 2008, the [Federal Trade Commission](#) allowed Google to acquire online advertising giant DoubleClick. Only one of the five commissioners voted to block the merger, pointing out that the acquisition would give Google access to a wealth of user data that could tip the market for search advertising (closely related to the market for free online search) further in favor of Google.

Four years later, the agency unanimously approved Facebook’s acquisition of free photo-sharing network Instagram, though many industry observers concluded that Facebook was paying a massive premium to stave off competition from its upstart rival.

And the next year, the agency voted (again unanimously) to close its investigation into Google’s conduct in the free online search market, despite a leaked staff report identifying harm to consumers caused by the search giant.

All in all, “free” products seem to warrant a free pass from U.S. antitrust laws. But not so in other jurisdictions.

Russia’s [Federal Antitrust Service](#) in August issued a US\$6.8 million fine against Google for abusing its market position with Android by favoring its own digital services over those of rivals.

Earlier this summer, the [European Union](#) issued its third statement of objection to Google, meaning Google could face up to three antitrust charges relating to its free search service, free smartphone operating system and its search-advertising platform. And Germany’s antitrust regulator is currently investigating Facebook’s privacy practices.

Why have international enforcement agencies responded so differently than those in the U.S.? Are they just unfairly targeting successful U.S. firms, as some (including Treasury Secretary [Jacob Lew](#)) claim? Or do they see something that we’ve missed?

U.S. antitrust law is uniquely devoted to a strain of economics often called “price theory.” Beginning in the 1970s, price theory came to dominate antitrust law and scholarship.

Price theory (no surprise) focuses on prices. Supposedly, price theory uses price as a synecdoche to represent all aspects of competition. But in fact, businesses compete not just on price but also on quality, innovation, branding and other product attributes.

Yet U.S. antitrust regulators and courts have traditionally focused heavily on price competition. When products are “free” (or, more accurately, “zero-price”), they simply slip under the antitrust radar.

Such, I would argue, was the case in the broadcast radio industry, which has long offered a service “free” to listeners.

In 1996, Congress passed the Telecommunications Act, which removed a longstanding limit on how many stations a single entity can own. A frenzy of mergers and acquisitions followed.

U.S. antitrust enforcement agencies screened these transactions for possible harm to competition but only looked for higher prices to advertisers, neglecting to analyze potential harm to listeners. Most of the mergers were cleared without objection. The resulting lack of competition in many regions means that radio listeners now pay more – by listening to more ads – in exchange for the product they want.

That result should come as no surprise. Listeners may not pay for broadcast radio with money, but they do pay with attention. At its core, this is a prototypical market exchange, as contract law has long recognized.

In fact, the very idea of for-profit businesses giving consumers products for free ought to seem odd.

When it comes to the marketplace, as Milton Friedman famously quipped, “There is no free lunch.” The internet did not destroy firms’ profit motive. It also did not eliminate the cost of making products: Try recreating Google’s “Street View” feature without funding for a global fleet of cars, cameras and drivers, not to mention banks of servers for processing and data storage.

Companies like Google, though innovative, are not in the business of giving away their products for free – and they are surely not immune from the temptation to stifle competition.

“Free” isn’t really free. Consumers pay for “free” products with attention to ads and with personal information. Each time you log on or run a search, you pay with your time (that fraction of a second your eye spends darting over to the “Lose belly fat with this one weird trick!” ad) or information (letting Google know that you are thinking about buying a new sofa or suffer from anxiety disorder). These are commercial exchanges, even if consumers – and consumer protection laws – often fail to recognize them as such.

Antitrust laws are meant to safeguard marketplace competition, but doing so effectively requires protecting all markets, not just those with obvious prices.

This is why I believe U.S. enforcement agencies and courts ought to follow the lead set by their international peers and withdraw the free pass enjoyed by businesses supplying “free” products.

[NY Times] Mylan Tries Again to Quell Pricing Outrage by Offering Generic EpiPen

Andrew Pollack 29 August 2016

http://www.nytimes.com/2016/08/30/business/mylan-generic-epipen.html?_r=0

In its latest move to quell [outrage over its price increases](#), the maker of the EpiPen has resorted to an unusual tactic — introducing a generic version of its own product.

The company, [Mylan](#), said on Monday that the generic EpiPen would be identical to the existing product, which is used to treat severe allergic reactions. But it will have a wholesale list price of \$300 for a pack of two, half the price of the brand-name EpiPen.

The raging debate over EpiPen pricing has offered a surprisingly wide window into the complicated world of prescription drug pricing, in which powerful drug companies, pharmacy benefit managers, insurers and federal health programs all play major roles. However, the system remains opaque.

Last week, the company announced steps to increase the financial assistance for the branded EpiPen, for both commercially insured and uninsured patients. Those measures, however, did not stem the public furor, in part because the company kept the list price the same. So now, the company will essentially sell the same product under two names at two price points, in competition with each other.

The new move did not mollify critics, either. Some noted that even at \$300, the generic would still be triple the price of the EpiPen in 2007, when Mylan acquired the product and began steadily raising its price. The increases have accelerated in recent years. Even the generic, expected to be available in several weeks, should provide a nice profit to Mylan because its manufacturing costs are believed to be far less than \$300.

Several consumer advocacy groups, unhappy with Mylan's handling of the drug's pricing, said that on Tuesday they would deliver petitions signed by over 600,000 people to the company's American corporate headquarters in Canonsburg, Pa. In addition, the House Committee on Oversight and Government Reform said that it had started an investigation and had asked the company for information about the product.

Robert Weissman, president of the consumer group Public Citizen, said Mylan should just cut the price across the board.

"The weirdness of a generic drug company offering a generic version of its own branded but off-patent product is a signal that something is wrong," he said in a statement. "In short, today's announcement is just one more convoluted mechanism to avoid plain talk, admit to price gouging and just cut the price of EpiPen."

While brand-name drug companies sometimes start selling so-called authorized generic versions of their own products, it is usually to undercut an outside generic competitor. In this case, Mylan faces no immediate generic threat.

So why is it acting? And why did it not announce the move last week with the other measures?

The company suggested in its news release that its action required an agreement from its manufacturing partner, Pfizer. It also has said that merely reducing the list price of the drug would not necessarily lower the prices for patients, because the out-of-pocket costs are set by pharmacy benefit managers and insurers. The generic should mean savings for insurers and federal health programs like [Medicare](#) and [Medicaid](#), in addition to some patients.

"Because of the complexity and opaqueness of today's branded pharmaceutical supply chain and the increased shifting of costs to patients as a result of high-deductible health plans, we determined that

bypassing the brand system in this case and offering an additional alternative was the best option,” Heather Bresch, chief executive of Mylan, [said in a statement](#).

Mylan has repeatedly pointed to high-deductible health plans, which leave patients with more out-of-pocket costs, as the main reason patients are suddenly noticing higher prices for EpiPens.

Heather Bresch, chief executive of Mylan, discusses the controversy surrounding the recent 400-percent increase in her company’s life-saving allergy injector.

Adam J. Fein, president of Pembroke Consulting, who studies the drug distribution industry, said that if Mylan had simply lowered the price it would have risked angering all parties in the distribution network, including pharmacy benefit managers, wholesalers and pharmacies, which take a piece of the total amount spent on the drug.

Introducing a generic “is a way to do it without making enemies with a bunch of Fortune 25 companies who control your fate,” he said.

Still, by selling both a generic and a branded version of the drug, one Mylan product is now battling another for sales.

Ronny Gal, an analyst at Sanford C. Bernstein & Company, estimated in a note on Monday that Mylan’s overall revenue per epinephrine auto-injector prescription would be reduced by around 25 percent, to about \$280, because of the introduction of the generic.

A couple of factors are expected to limit that revenue decline. The term EpiPen is so familiar that many doctors write prescriptions for it by name, rather than for a generic epinephrine auto-injector. While pharmacists in many states will be able to substitute the generic version, some are almost sure to sell the branded version instead, leaving Mylan with higher revenue.

In addition, Mr. Fein said, insurers might have negotiated deals with Mylan that make the brand-name version less expensive for them than the generic. “It’s going to depend on your particular insurance plan, and the kind of deal they have negotiated,” he said.

Consumers might also have incentives to use the brand-name drug in some cases because most of them would have no co-payments if they use a savings card being offered by Mylan. They might face a co-payment, albeit a relatively small one, for the generic product.

Despite the lower revenue from releasing the generic, Mr. Gal said the move could be good for Mylan shareholders by easing the downward pressure on the company’s stock. After falling more than 10 percent last week, Mylan shares were up slightly on Monday.

It is not uncommon for brand-name companies to introduce a generic version of their own product — known as an authorized generic, in part to try to retain some sales once generic competition arrives. But the generic industry and some other critics say the practice undermines the economics of the generic business and ultimately can lead to higher costs for consumers and insurers.

A [study](#) by the Federal Trade Commission several years ago found that some generic manufacturers agreed to delay the introduction of their generic product by years if the brand-name company promised not to introduce an authorized generic.

Mylan settled litigation with Teva in 2012 allowing Teva to introduce a generic EpiPen in 2015. It is not known if part of that agreement was for Mylan to withhold any authorized generic. If not, then Mylan might have been planning to introduce this authorized generic when Teva introduced its own product. But Teva disclosed earlier this year that its application had been rejected by the Food and Drug Administration.

Still, it might be only a matter of time before Mylan faces new generic or nongeneric competition. Other companies, sensing opportunities, are looking at developing less expensive products that, like EpiPen, provide a rapid injection of epinephrine to counter anaphylaxis that can occur from a bee sting, peanut allergy or other cause.

And [pressure](#) is mounting on the F.D.A. to be more accommodating in allowing alternatives on the market.

Epinephrine, the drug, is already generic. The challenge has been developing an easy-to-use auto-injector that can reliably deliver the right amount of drug when used by the patient or caregiver under emergency circumstances. Sanofi removed a nongeneric competitor to EpiPen, called Auvi-Q, from the market last year because of dosing problems.

Artificial Intelligence

[The Verge] [Mark Zuckerberg built an AI that controls his house, and he'll demo it next month](#)

Chris Welch

29 August 2016

<http://www.theverge.com/2016/8/29/12691608/mark-zuckerberg-artificial-intelligence-smart-house-demo>

Facebook CEO Mark Zuckerberg is aiming to demonstrate the artificial intelligence project he's been laboring on in his spare time in September. Zuckerberg shared his plans during a live [Facebook town hall Q&A session](#) from Rome today. "I hope to have a demo, hopefully next month," he said when asked about the side project. The screenshot above was taken as Zuckerberg was discussing his AI system; clearly he's happy and excited about the upcoming public debut.

Back in January, the Facebook chief revealed that as part of his annual "personal challenge," he wanted to [build an AI capable of controlling his home](#) (things like temperature, lighting, etc.) and assisting with his professional work. At the time, Zuckerberg likened it to Jarvis from Iron Man. And it sounds like he's making progress.

"I got it to this point where now I can control the lights, I can control the gates, I can control the temperature — much to the chagrin of my wife, who now cannot control the temperature because it is programmed to only listen to my voice," Zuckerberg said. "I'll give her access once I'm done," he joked. "So it's getting there. And it's starting to be able to do some pretty fun things, and I'm looking forward to being able to show it to the world." That all sounds pretty par for the course compared to many products in today's smart home, however, such as Amazon's Echo or Samsung SmartThings. We'll need to wait for next month's "short demo" to see if there's anything more to Zuckerberg's approach.

"It's awesome because I get to interact with all these Facebook engineers who are doing all this awesome AI work in speech recognition, in face recognition... I programmed it so now, when I walk up

to my gate, I don't have to put in a code or something like that to get in, or put in a key," Zuckerberg told the Rome audience. "It just sees my face and it lets me in. So that is pretty fun. There's some state of the art AI in there. It's been awesome to get a chance to work with our engineers at Facebook and really see on a day to day experience what they're doing and how far advanced the work is that they're doing. It's been a really cool experience so far, and I'm looking forward to showing it off next month."

Zuckerberg has previously said that he expects artificial intelligence to begin outperforming human beings [within a decade](#). "The basic human senses like seeing, hearing, language, core things that we do, I think it's possible to get to the point in the next five to 10 years where we have computer systems that are better than people at each of those things," he said in April.

[NPR] [A Robot That Harms: When Machines Make Life Or Death Decisions](#)

Laura Sydell

29 August 2016

<http://www.npr.org/sections/alltechconsidered/2016/08/29/490775247/a-robot-that-hurts-confronts-future-when-machines-make-life-death-decisions>

Isaac Asimov inspired roboticists with his science fiction and especially his robot laws. The first one says:

A robot may not injure a human being or, through inaction, allow a human being to come to harm.

Artist and roboticist [Alexander Reben](#) has designed a robot that purposefully defies that law.

"It hurts a person and it injures them," Reben says. His robot pricks fingers, hurting "in the most minimal way possible," he says.

When a person places a finger in the slot on the left, the robot uses an algorithm — unpredictable even to its creator — to decide whether to prick the finger with the pin on the end of its arm.

Alexander Reben

And the robot's actions are unpredictable — but not random. "It makes a decision in a way that [I] as the creator cannot predict," Reben says. "When you put yourself near this robot, it will decide whether or not to hurt and injure you."

Though it may seem like a slightly silly experiment, Reben is making a serious point: He's trying to provoke discussion about a future where robots have the power to make choices about human life.

Reben's robot is not very elaborate. It's just a robotic arm on a platform, smaller than a human limb and shaped a bit like the arm on one of those excavators they use in construction — but instead of a shovel, the end has a pin. (And in case you were wondering, each needle is sterilized.)

"You put your hand near the robot and it senses you," Reben explains. "Then it goes through an algorithm to decide whether or not it's going to put the needle through your finger."

I put my finger beneath the arm. The waiting is the hardest part, as it swings past me several times. Then I feel a tiny sting when it finally decides to prick me.

Reben created this robot because the world is getting closer to a time when robots will make choices about when to harm a human being. Take self-driving cars. Ford Motors [recently said](#) it planned to mass produce autonomous cars within five years. This could mean that a self-driving vehicle may soon need to decide whether to crash the car into a tree and risk hurting the driver or hit a group of pedestrians.

"The answer might be that 'Well, these machines are going to make decisions so much better than us and it's not going to be a problem,' " Reben says. "They're going to be so much more ethical than a human could ever be."

But, he wonders, what about the people who get into those cars? "If you get into a car do you have the choice to not be ethical?"

And people want to have that choice. [A recent poll by the MIT Media Lab](#) found that half of the participants said they would be likely to buy a driverless car that put the highest protection on passenger safety. But only 19 percent said they'd buy a car programmed to save the most lives.

Asimov's fiction itself ponders a lot of the gray areas of his laws. There are a [total of four](#) — the fourth one was added later as the zeroth law:

0. A Robot may not harm humanity or by inaction allow humanity to come to harm.
1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.

In Asimov's stories, the laws are often challenged by the emotional complexities of human behavior. In a screenplay derived from [his famous](#) *I, Robot*, the protagonist is a detective who doesn't like robots because one had saved him in a car crash, but let the girl beside him die based on a statistical determination that she was less likely to survive.

Still, Asimov's laws are often cited by scientists in the field as a kind of inspiration and talking point as we move toward a world of increasingly sophisticated machines.

"The ability to even program these laws into a fictional robot is very difficult," Reben says, "and what they actually mean when you really try to analyze them is quite gray. It's a quite fuzzy area."

Reben says the point of making his robot was to create urgency — to put something in the world now, before machines have those powers in self-driving cars.

"If you see a video of a robot making someone bleed," he says, "all of a sudden it taps into this viral nature of things and now you really have to confront it."

Net Neutrality

[Government Technology] [How Does Net Neutrality Fare in the 2016 Presidential Election?](#)

Vera Bergengruen

29 August 2016

<http://www.govtech.com/policy/How-Does-Net-Neutrality-Fare-in-the-2016-Presidential-Election.html>

(TNS) -- When the Federal Communications Commission voted to approve net neutrality rules last year, many people saw it as a done deal. Supporters cheered the decision as a victory for the free and open

internet, where the deep pockets of big companies couldn't buy faster web speeds over struggling startups.

Since then, the issue has largely faded from the spotlight and has rarely come up on the presidential campaign trail. But internet policy experts say the FCC decision was far from the end of the story — and with just over 10 weeks until the election, time is running out for voters to ask the candidates to clarify their positions.

“There are a number of unresolved issues surrounding net neutrality that are still going to be hot topics to be resolved by the next administration,” said Doug Brake, a telecom policy analyst at the nonprofit Information Technology and Innovation Foundation.

RELATED

[Will Net Neutrality Be Short-Lived? FCC Chairman Backs Strong Net Neutrality Rules](#)
[Net Neutrality Meets Muni Broadband](#)

Net neutrality rules, also known as “open internet,” prohibit internet service providers from favoring certain high-traffic websites, like Netflix and Amazon, by giving them greater bandwidth at the expense of smaller start-up companies. Advocates argue that it ensures an even playing field. An open internet also means banning fast lanes, which would allow ISPs like Verizon and AT&T to pay extra to ensure smoother, speedier streaming for their users.

Internet companies have vowed to continue the fight against the regulation, pursuing it all the way to the Supreme Court if need be. This June, a divided panel of the U.S. Court of Appeals for the District of Columbia Circuit rejected challenges to the net neutrality rules. The next president's administration, and the FCC, will face the colossal task of catching up to technology that evolves beyond its ability to regulate it.

CLINTON WOULD FOLLOW IN OBAMA'S FOOTSTEPS ON INTERNET POLICY

Hillary Clinton's campaign website says she “strongly supports the FCC decision under the Obama administration to adopt strong network neutrality rules.”

While she would be following in the Obama administration's footsteps, Clinton has her own decadelong record of supporting net neutrality. While serving as a New York senator, she co-sponsored the Internet Freedom Preservation Act, which sought to amend the 1934 Communications Act to ensure net neutrality.

“The internet as we know it does not discriminate among its users,” she said in 2006. “It does not decide who can enter its marketplace and it does not pick which views can be heard and which ones silenced.”

Ten years later, adopting tech sector-friendly policies is proving to be a smart fundraising strategy for the Democratic nominee. This week she wrapped up a fundraising tour that included several Silicon Valley hotspots. One of the events was hosted by Apple CEO Tim Cook, with tickets selling for \$2,700 to \$50,000.

Clinton has also worked broadband issues into her infrastructure platform.

“By 2020, I want 100 percent of American households to have access to quality, affordable high-speed internet, no matter where they live,” Clinton told supporters at a dinner in New Hampshire last November.

TRUMP — NO POLICY YET, EXCEPT FOR A TWEET

The Republican nominee’s position is unclear, but it’s a reasonable assumption that he will line up with his party’s opposition to net neutrality, which is seen as needless government regulation.

In fact, the only public acknowledgment of the issue from Donald Trump is a 2014 tweet weighing in on net neutrality when it dominated the headlines.

“Obama’s attack on the internet is another top down power grab. Net neutrality is the Fairness Doctrine. Will target the conservative media,” he tweeted. He was referring to the 1940s law requiring newscasters to report the news in a balanced manner, which was repealed in 1987. It’s unclear what it has to do with net neutrality; open internet rules don’t give the FCC the power to interfere with any political content, conservative or otherwise.

The Trump campaign did not respond to a request for comment.

His running mate, Indiana Gov. Mike Pence, co-sponsored the Internet Freedom Act in 2011, which sought to kill net neutrality by prohibiting the FCC “from further regulating the internet.”

The positions of Trump’s opponents for the Republican nomination shed a bit more light on the party’s opposition to open internet regulation.

Texas Sen. Ted Cruz famously called net neutrality “Obamacare for the internet.” Florida Sen. Marco Rubio said regulation of the internet was illogical.

“While the FCC plan supposedly seeks to prevent ISPs from playing favorites, it does so by giving that power to another entity: government,” Rubio wrote in an opinion piece for Politico in March. “The answer to correcting injustice in an economy is to increase consumer power, not government power.”

The details of internet policy aside, there are other reasons the sector might not support Trump.

“The tech community is full of immigrants who started their companies here, so many of them were founded by immigrants,” said Marvin Ammori, a First Amendment lawyer well-known for his work on net neutrality issues who’s general counsel for Hyperloop One, a tech company backed by Elon Musk that’s working on an ultra-fast transit system. “So if you’re anti-immigrant you’re not going to be popular in (Silicon) Valley. If you’re anti-gay you’re not going to be popular in the Valley. ... So it does put Republicans at a disadvantage even if they’re progressive on some tech issues.”

HOW MUCH DOES IT MATTER TO THE INTERNET’S FUTURE WHO BECOMES PRESIDENT?

“The president does matter,” Ammori said, pointing out that the president’s party gets to pick three of the five FCC commissioners, as well as appoint the solicitor general, who would defend the regulations in front of the Supreme Court — or not.

“This (net neutrality) was a 3-2 vote. If you get another Republican in there they could undermine everything the Obama administration has done,” he said.

Despite the FCC decision, some ISPs are finding loopholes to go around net neutrality rules. For example, they might set monthly data limits for users but exempt certain apps or websites. This is known as “zero rating,” and some internet advocates argue it gives certain content preferential treatment.

“These policies will have to evolve and change, and as carriers try to introduce new services and ‘innovative pricing models,’ what ends up happening is you always have to make sure it remains an even playing field,” Ammori said.

One of the clearest examples is T-Mobile’s unlimited streaming service “Binge On.” While it might seem like a good thing for consumers, some internet policy experts worry that while it’s technically legal, its model infringes on net neutrality. Users are allowed to stream video without it counting toward their monthly data cap — but only as long as they stream from a select group of content providers. Smaller, less established video services that aren’t Netflix or HBO Go might never get to consumers, and that could stifle innovation for online startups.

“Right now the FCC is somewhat quiet on this, since within the net neutrality order itself this is allowed, so the FCC is reviewing them on a case-by-case basis,” said Brake of the Information Technology and Innovation Foundation.

The use of zero rating practices by internet service providers will likely become a big tech issue for the next administration.

“Binge On undermines the core vision of net neutrality,” Barbara van Schewick, the director of the Stanford Center for Internet and Society, wrote in a report on the T-Mobile service. “Internet service providers that connect us to the internet should not act as gatekeepers that pick winners and losers online by favoring some applications over others.”

[\[WSJ\] Appeals Court Tosses Data Speed Case Brought Against AT&T](#)

Brent Kendall and Thomas Gryta

29 August 2016

http://www.wsj.com/articles/appeals-court-tosses-data-speed-case-brought-against-at-t-1472500064?mod=WSJ_TechWSJD_moreTopStories

A federal appeals court threw out a government lawsuit against [AT&T](#) Inc. that alleged the company misled wireless subscribers by selling them unlimited [data plans](#) and then quietly slowing down service if they consumed high amounts of data.

Monday’s ruling, from the San Francisco-based Ninth U.S. Circuit Court of Appeals, is a blow to the Federal Trade Commission, which [filed the suit in 2014](#) seeking potential refunds for consumers.

Although the FTC has broad authority to police unfair and deceptive commercial practices, it doesn’t have authority over “common carrier” phone services such as the landline services traditionally offered by AT&T. The commission had said it could pursue the company, however, because it involved data services, but the appeals court rejected that argument.

The commission argued AT&T didn’t do enough to tell customers that data speeds on their smartphones would be slowed considerably once they reached certain usage amounts each billing cycle.

Over a three-year period, AT&T throttled data speeds that affected 3.5 million customers, the FTC alleged. AT&T during the litigation said it had implemented reasonable network management practices

that slowed speeds only to the very heaviest users whose data consumption harmed the company's network.

The ruling means government enforcement actions targeting an alleged lack of company transparency over internet data speeds would have to be brought by a different agency, the Federal Communications Commission.

The FCC brought a similar case against AT&T, announcing plans last year to fine the company \$100 million on the grounds that the company didn't adequately inform consumers about its program for slowing data speeds in certain circumstances. The company is contesting the case in proceedings before the FCC.

AT&T said it was pleased with Monday's decision, while the FTC said it was disappointed and considering its options.

The ruling further solidifies the FTC's diminishing authority in the telecommunications space. The consumer protection agency already was facing reduced enforcement powers thanks to open-Internet rules the FCC put in place last year. Those rules imposed common-carrier obligations on broadband services, including wireless.

After years of selling unlimited data plans as customers adopted smartphones, AT&T stopped selling them to new subscribers in 2010. It began offering them again earlier this year to customers who also subscribe to one of its pay-television services, DirecTV, or U-verse.

Like other carriers, the company puts limits on its unlimited plans. Customers who use more than 22 gigabytes of data per line in a billing cycle may see slower speeds when the network is congested, according to posted plan details.

[The Hill] Court rules in AT&T's favor on data 'throttling'

Ali Breland 29 August 2016

<http://thehill.com/policy/technology/293726-court-rules-in-atts-favor-on-data-throttling>

AT&T won an early victory in its two-part battle with the Federal Trade Commission and Federal Communications Commission on Monday when a federal appeals court dismissed a case alleging that the company used deceptive practices regarding its "unlimited" data plan.

The FTC claims that AT&T was significantly slowing down data of customers who had unlimited plans — also referred to as "throttling." The wireless carrier [reportedly didn't inform](#) customers of this practice.

The 9th Circuit Court of Appeals dismissed the FTC's case, siding with AT&T's argument that the FTC Act granted an exception for "common carriers."

Though the court sided with AT&T's argument that it was exempt from FTC regulation, it did not back AT&T's other contention that throttling its customers was necessary to preserve its network.

"AT&T's throttling program is not actually tethered to real-time network congestion," Judge Richard Clifton wrote in [the court's opinion](#). "Instead, customers are subject to throttling even if AT&T's network is capable of carrying the customers' data."

When asked for comment, an AT&T spokesperson told The Hill, "We're pleased with the decision."

AT&T is still facing another legal battle over a similar issue with the FCC. That agency [intends to fine](#) the telecommunication company \$100 million for the practice of throttling data plans for "unlimited" users.

The company rejects the FCC's claims on the grounds that they had already identified AT&T's throttling practices as legitimate.

"We will vigorously dispute the FCC's assertions," AT&T spokesman Michael Balmoris said. "The FCC has specifically identified this practice as a legitimate and reasonable way to manage network resources for the benefit of all customers and has known for years that all of the major carriers use it. We have been fully transparent with our customers, providing notice in multiple ways and going well beyond the FCC's disclosure requirements."

According to the agency's own investigation, customers were not given sufficient notification on the throttling rules.

The FCC had previously asked the court to dismiss the FTC case, which it felt was in its jurisdiction. The court denied this.

[The Verge] [Honest question: what does T-Mobile think data actually is?](#)

Nilay Patel 29 August 2016

<http://www.theverge.com/2016/8/29/12692702/tmobile-one-data-plan-net-neutrality>

Here are two lines from [T-Mobile's latest "Uncarrier" missive](#), in which the company proclaims that it has "listened to customers" and is [changing its new T-Mobile One plans](#) less than two weeks after announcing them.

The first line:

Everyone gets unlimited talk, unlimited text and unlimited high-speed 4G LTE smartphone data on the fastest LTE network in America.

The second line:

With T-Mobile ONE, even video is unlimited at standard definition so you can stream all you want.

At this point it appears that T-Mobile is operating with definitions of "unlimited" and "data" that are only tangentially related to reality. For example, most people understand the word "unlimited" to mean "[without any limits or restrictions](#)," but T-Mobile's definition clearly means "without any limits except for a hard restriction on HD video that can only be lifted for \$3 a day or \$25 a month."*

IT APPEARS THAT T-MOBILE'S DEFINITION OF "DATA" IS ONLY TANGENTIALLY RELATED TO REALITY

And "data" traditionally refers broadly to "information that is stored or produced by a computer," but T-Mobile thinks video is not data, but rather... something else? Trying to decide if T-Mobile thinks an app is "video" or "data" is not a logical exercise — it's so perplexing that I was forced to make lists:

THINGS T-MOBILE THINKS ARE DATA

- GIFs, which are short, silent video clips
- Snapchat, which is full of video
- Instagram, which is full of video
- iMessage, which people use to send video
- WhatsApp, which people use to send video
- Facebook Messenger, which people use to send video
- FaceTime, which makes video calls
- Skype, which makes video calls
- Hangouts, which makes video calls

THINGS T-MOBILE THINKS ARE VIDEO

- Netflix
- YouTube
- Vevo
- Vimeo
- Tidal
- Apple Music
- Spotify
- All of the other services on [this list of T-Mobile's partners](#)

I asked T-Mobile for the company's definition of "data" and a spokesperson said "that's not something I could give you," but suggested that the company was on "the right side of history," and that the goal was to make "unlimited sustainable for the mass market."

That's an admirable goal! But let's not dance around the fundamentals of the situation. Net neutrality is the law of the land, and T-Mobile has aggressively pushed the boundaries of net neutrality by manipulating the traffic on its network.

Up until now, its services like BingeOn and Music Freedom have been somewhat traditional zero-rating schemes — you bought a fixed amount of data, and T-Mobile would excuse specific kinds of data from your cap, thereby delivering extra value for the dollar. It's why [the FCC has been somewhat ambivalent about BingeOn when pressed](#): ultimately, consumers were getting more for their money, and they could opt-out and get exactly what they paid for if they chose. (Most didn't: T-Mobile says 98 percent of customers left BingeOn untouched.)

T-MOBILE ONE SEEMS LIKE A PRETTY CUT-AND-DRY VIOLATION OF NET NEUTRALITY

But with T-Mobile One, the basic structure has completely changed — the company told me it doesn't consider the new plan to be zero-rating at all. Now, T-Mobile sells a degraded "unlimited" data service

that aggressively limits whatever services it considers "video," and requires additional fees for data that constitutes HD video. That seems like a pretty cut-and-dried violation of basic net neutrality principles!

It's also a challenge for T-Mobile's marketing department, which has been rolling out Uncarrier features as surprise value-adds for customers, but now faces a world in which the basic plan offers degraded internet and the real thing costs extra. That's why the company responded so swiftly to customer confusion — it's trying to manage the reaction.

T-MOBILE'S BASIC PLAN OFFERS DEGRADED INTERNET AND THE REAL THING COSTS EXTRA

The first step here is for T-Mobile to offer a concise, fixed definition of what it thinks "data" is. Until the company can at least do that, the games T-Mobile's playing with the internet aren't any better than the games AT&T and Verizon have been playing for years.

**T-Mobile will also limit your unlimited data by "deprioritizing" you if you use over 26GB of data, which the company insists is not "throttling," because words no longer have any meaning in 2016.*

Cloud

[WSJ] Private Clouds a 'Big Priority' for Dell

Rachel King 29 August 2016

http://www.wsj.com/articles/private-clouds-a-big-priority-for-dell-1472510010?mod=WSJ_TechWSJD_NeedToKnow

LAS VEGAS—Dell Inc. hopes its pending [\\$60 billion acquisition](#) of [EMC](#) Corp. will make the combined company a favored supplier in the rapidly growing market for cloud computing, where companies tap software programs via the internet.

Dell Chief Executive [Michael Dell](#) appeared Monday at the annual conference of EMC's VMware unit, underscoring the deal's importance for Dell's future. He is betting that companies will use Dell's equipment to build "private clouds," where their employees access software programs through the internet. "A big priority for us is making private clouds easy," Mr. Dell told the VMworld conference Monday.

The strategy faces challenges, because prices for computing hardware are tumbling, and many potential customers are turning to outside providers such as [Amazon.com](#) Inc.'s Web Services unit or Google Inc., which mostly sources its own data center equipment.

Cloud computing is changing the economics for technology suppliers, said David Vellante, chief analyst at research firm Wikibon. Prices have been declining for a decade. "Now it's accelerating and everybody is scrambling," he said.

Dell is expected to complete its acquisition of EMC in coming weeks, after it wins regulatory approval from China. The combined company will be the leading vendor by revenue in the world-wide \$29 billion market supplying hardware to cloud-computing providers. In 2015, Dell and EMC combined garnered 18.2% of the highly fragmented market, according to market watcher International Data Corp. That market is characterized by low-margin hardware.

Beyond hardware, the combined company will need to knit together a diverse group of software offerings from Dell and EMC units including VMware, Pivotal and Virtustream. Pivotal offers services to

help software developers create cloud applications; its customers include [Ford Motor Co.](#) and [General Electric Co.](#) With Virtustream, Dell will get services that help run traditional corporate software programs from vendors such as SAP SE on newer cloud infrastructures.

VMware's software allows a single computer to run multiple operating systems simultaneously. It is used by 99% of the Fortune 500, offering Dell additional inroads into the data centers run by large customers.

VMware also unveiled new software and services that make it easier for customers to run, manage and secure their applications across different clouds. The company also extended a partnership with [IBM](#), through which more than 500 customers, including [Marriott International Inc.](#), use VMware software and services to manage their operations in IBM's cloud.

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Such cross-vendor collaborations have proved difficult because of the diversity of technologies, said Wikibon's Mr. Vellante. Amazon Web Services offers a contained, integrated experience that works for software developers without needing to patch technologies together.

5G

[PC World] [As 5G heads for IoT, 4G is far from done](#)

Stephen Lawson

29 August 2016

<http://www.pcworld.com/article/3113669/mobile/as-5g-heads-for-iot-4g-is-far-from-done.html>

The iPhone 7 expected to debut on Sept. 7 may offer a glimpse into the future of smartphones, but it won't have 5G. And even though the next generation of cellular is due to launch in 2020, high-end handsets may be LTE-only for years to come.

A new IHS Markit survey of mobile operators says they see 5G as a tool for industry more than for smartphone users. But consumers probably won't have to worry about getting stuck in the slow lane, because LTE is still getting faster.

Increasingly, it looks like 5G will handle things 4G can't handle while LTE continues to do the job it was designed for, based on the research company's latest findings.

Most of the service providers surveyed – 79 percent – said the internet of things will be the top use case for 5G. More are coming around to this way of thinking, too. Last year, 55 percent called IoT the main application.

The advancement they're counting on the most -- and the hardest to achieve -- is ultra-low latency, or very short delays between when a bit is sent and when a device receives it, IHS said. That's important for things like robots, self-driving cars, and cellular-driven virtual reality. The [goal is to reach 1 millisecond](#), quicker than LTE can achieve.

Features like low latency are expected to require a new radio access technology that will have to be defined in 5G. LTE might continue to handle mobile broadband for things like phones and tablets.

According to the survey, 75 percent of the carriers think 5G should coexist with 4G instead of replacing it.

Meanwhile, 4G is still improving. On Monday, Verizon Wireless rolled out a feature it says can improve peak LTE speeds by 50 percent. The feature, [Verizon LTE Advanced](#), ties together two or three wireless channels for a fatter pipe to a phone or other device. Two bands can provide download speeds up to 225Mbps (bits per second) and three can deliver as much as 300Mbps. Typical download speeds should remain 5Mbps to 12Mbps, Verizon says.

Verizon LTE Advanced is available at no extra charge in 461 markets around the U.S. and works on 39 devices already in use on the carrier's network, the company said. Those include the current iPhone models and Samsung's flagship Android phones, the Galaxy S6 and S7.

Business/Market

[Bloomberg] U.S. Stock-Index Futures Are Little Changed While Apple Falls

Justin Villamil

30 August 2016

<http://www.bloomberg.com/news/articles/2016-08-30/u-s-stock-index-futures-are-little-changed-while-apple-falls>

U.S. index futures were little changed, after the biggest equity jump in three weeks, as investors awaited jobs data due this week for further clues on the path of Federal Reserve policy.

Apple Inc. lost 1.8 percent in early New York trading after being ordered to repay a record 13 billion euros (\$14.5 billion) plus interest as the European Commission said Ireland [illegally slashed](#) the iPhone maker's tax bill. Hershey Co. tumbled 11 percent as Mondelez International Inc. walked away from takeover discussions after its \$23 billion bid was rejected by the chocolate maker. Mondelez gained 3.2 percent.

S&P 500 Index futures expiring in September fell less than 0.1 percent to 2,178.5 at 7:30 a.m. in New York, after the gauge halted its longest losing streak since June. Contracts on the Dow Jones Industrial Average slipped 1 point to 18,488, while those on the Nasdaq 100 Index dropped 0.2 percent.

"It will be up a bit, down a bit until we get nonfarm payrolls on Friday," said Daniel Murray, head of research at EFG Asset Management in London. "The market will very much look to nonfarm payrolls for guidance to strength in the economy and Fed actions. But the trend looks quite strong, and if you try to triangulate various labor market indicators, everything is pointing to continued robustness in the U.S. labor market."

An increase in consumer spending on Monday added to the bullish case on the economy after the positive assessment by Fed Chair Janet Yellen on Friday. Vice Chairman Stanley Fischer said in a Bloomberg Television interview with Tom Keene on Monday that incoming economic data will [determine](#) the trajectory of interest-rate increases.

Investors are now turning their focus to the monthly employment data, with a private report due on Wednesday and the Labor Department figures on Friday. Traders have pushed forward their bets for a rise in borrowing costs, though December remains the first month with a more than 50 percent chance of a move. Consumer confidence data will be released later today.

The S&P 500, up 0.3 percent this month, has lost momentum after reaching a fresh record on Aug. 15 as speculation increased over the timing of the next Fed rate increase. Traders are now pricing in a 36 percent chance the central bank will move in September, up from 18 percent at the start of the month. At the same time, an index tracking economic results shows figures have been beating forecasts in recent weeks.

Among other stocks moving in premarket trading, United Continental Holdings Inc. climbed 3.3 percent after [hiring](#) Scott Kirby from American Airlines Group Inc. to oversee day-to-day functions as the company's new president.

[Bloomberg] Investors Bullish on Growth Buy Stocks From ABB to Samsung

Sofia Horta E Costa

29 August 2016

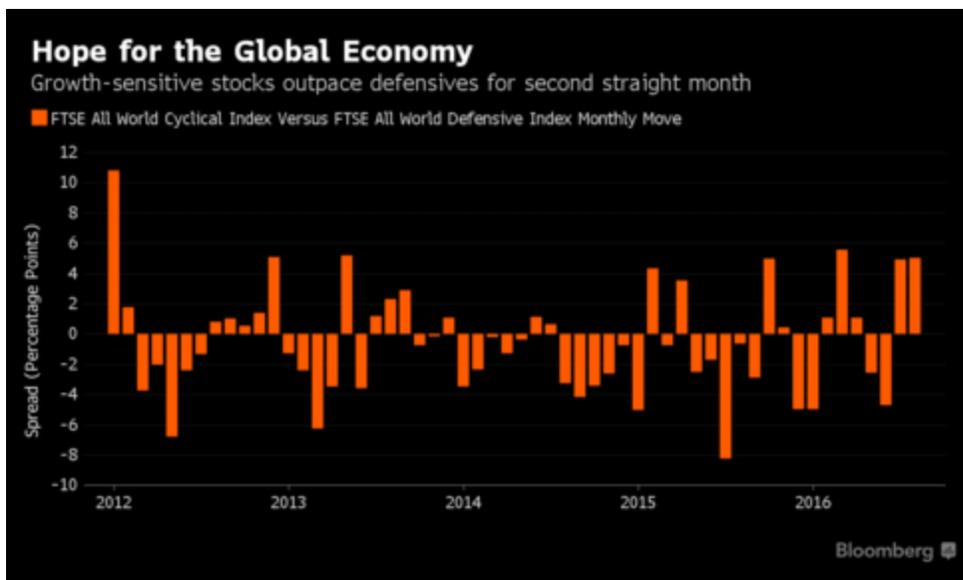
<http://www.bloomberg.com/news/articles/2016-08-29/traders-turning-bullish-on-growth-buy-stocks-from-abb-to-samsung>

Global equity traders are no longer [panicking](#) about the world's slowest growth rate in seven years.

They're warming up to shares of companies that are most sensitive to the economic cycle -- miners, technological and industrial firms -- while turning away from utilities and consumer staples. The FTSE All World Cyclical Index is on track for its best two-month showing since 2012 relative to the FTSE All World Defensive Index, with members including Japan's Toyota Motor Corp., Korea's Samsung Electronics Co. and Switzerland's ABB Ltd. soaring more than 12 percent.

While stocks have been ripe for a rotation for most of 2016, investors worldwide have been unwinding bets for a grimmer growth outlook in recent weeks amid better-than-expected economic and earnings reports and central-bank assurances of supportive policy in the wake of the U.K.'s secession vote. While bears doubt that the cyclical recovery will last, bulls are eyeing the turnaround as the beginning of the end for the three-year dominance of [defensive](#) stocks.

"The world looks like a brighter, more comfortable place," said Andrew Cole, who manages 450 million pounds (\$589 million) as senior investment manager at Pictet Asset Management in London. He's bought shares of miners, technology companies and U.K. homebuilders since March. "Suddenly earnings are improving, and with the economy looking better, there's a desire to get a bit more cyclical. Positioning was just uber defensive."



Economic data worldwide have beaten forecasts since the beginning of July, with Citigroup Inc.'s surprise index reaching its highest since February 2014 this month. American employers in July hired an unexpectedly [large number](#) of workers and new-home [sales](#) jumped to an almost nine-year high. Federal Reserve Chair Janet Yellen said Friday the U.S. economy is approaching the central bank's goals for employment and price stability. Traders have since forward bets for future rate increases.

In Europe, an index tracking European services and manufacturing [showed](#) the fastest expansion in seven months, while industrial production in India, China and Mexico continued to grow. Economists forecast global growth of 3.2 percent next year, versus 2.9 percent in 2016.

Also lending credence to the argument that expectations were too bearish is the latest reporting season -- U.S. companies exceeded profit estimates by the most since 2014, while almost two-third of European firms beat projections, BNP Paribas Investment Partners' multi-asset team wrote in an Aug. 23 note. In Japan, earnings surpassed forecasts after two quarters of falling short, data compiled by Bloomberg show. Globally, analysts' upgrades to earnings estimates are outnumbering downgrades for the first time since 2014, according to a Citigroup index.

The FTSE All World Cyclical Index has jumped 9.5 percent since the end of June, versus a drop of 0.7 percent for a similar gauge tracking shares considered less reliant on the economy. On an annual basis, the economically sensitive gauge is poised for its first outperformance since 2012. Samsung, oil-services giant Schlumberger Ltd. and power-grid maker ABB have jumped 16 percent or more in 2016. Defensives such as Johnson & Johnson, Coca-Cola Co. and Nestle SA are all down from their all-time highs reached earlier in the year.

Not everyone is convinced the reversal will continue. Skeptics include strategists at HSBC Holdings Plc, who predict the cyclical rally won't last because it's "running on fumes," according to an Aug. 21 note. The recovery "appears to be built more on hope than any underlying improvement in fundamentals," strategists led by Ben Laidler wrote.

Some investors are holding on to growth-sensitive stocks, betting they will pay off in the longer term. As central banks around the world delve deeper into their tool kits for ways to [protect](#) the global economic

recovery, governments will soon be able to follow with increased spending and lower taxes, says Pierre Mouton, a fund manager at Notz, Stucki & Cie. in Geneva.

“We expect central banks will push for more fiscal stimulus that will ultimately lead to better investment and increased spending,” said Mouton, who helps oversee about \$8.5 billion. His firm favors global energy stocks and construction companies in Europe. “That’s all good news for growth. There are a few fundamental reasons for cyclical to outperform.”

[Bloomberg] Google and Amazon Vie for Big Inroad Into Wall Street Data Trove

Benjamin Bain and Elizabeth Dexheimer

30 August 2016

<http://www.bloomberg.com/news/articles/2016-08-30/google-and-amazon-vie-for-big-inroad-into-wall-street-data-trove>

rying to understand what causes flash crashes is no longer just for financial regulators and Wall Street. It’s a big deal in Silicon Valley too.

Since billions of dollars were erased from U.S. stocks in May 2010, the U.S. Securities and Exchange Commission has been trying to create a massive repository that would track stock and options trading from exchanges and broker-dealers on a daily basis. That way regulators could quickly go back and find clues to what caused a market interruption. The lack of progress was highlighted last August when the Dow Jones Industrial Average dropped 1,100 points in the first few minutes of trading, sending regulators [scrambling](#) once again to figure out what went wrong.

Technology giants like Google parent Alphabet Inc. and Amazon.com Inc. are jumping at the chance to help build the storage for the exchanges via their cloud services. That’s intensified resistance by Wall Street, since the new database, known as the Consolidated Audit Trail, or CAT, could include personal information such as names and addresses from more than 100 million customer accounts. Brokers and banks are worried about everything from data breaches to technology firms making one of their biggest inroads yet into the financial world.

“This is a huge opportunity for Amazon and Google,” said Jo Ann Barefoot, a senior fellow at Harvard University who studies fintech and a former official at the Office of the Comptroller of the Currency. “Their involvement in this project I do think is a threat to the incumbents. If big tech firms can win more trust in Washington, that’s one of the biggest challenges facing banks.”

Big Data

Data is playing an increasingly important role in the financial services industry as services such as lending and managing money become more reliant on analyzing market trends. The big data market for financial services is expected to increase to \$53.4 billion in 2017 from \$32.1 billion in 2015, according to a report by PricewaterhouseCoopers.

Right now if the SEC wants trading information it can take days. That’s because it often has to cobble it together from different systems run by the exchanges and Wall Street-funded overseer, the Financial Industry Regulatory Authority. Under the CAT system, regulators would be able to see data from the previous day’s orders by noon the following day.

That information could be stored in a cloud, where it would be encrypted and the SEC would be able to access it remotely, rather than on in-house servers. Amazon and Google's cloud businesses already keep data for other companies, including rivals, without providing the tech firms with access to it. The agency declined to comment on the teams bidding to run CAT.

"We think CAT will certainly facilitate our ability to do our job," Steve Luparello, the SEC's director of the division of trading and markets, said in an interview. "As the August event of 2015 pointed out, we have access to all the data we need, but it's labor-intensive and time-consuming to aggregate all that data and begin that analysis."

Luparello said the SEC expects the initial phase of CAT, which will include stock and options data collected from the exchanges and Finra, but not order information from broker-dealers, will be operational by the end of next year.

'Treasure Trove'

Lobbying by industry trade groups has mounted, with the Securities Industry and Financial Markets Association, which represents the biggest broker-dealers, complaining about potential costs for its members in a [July letter](#) to the SEC. The agency has estimated that CAT implementation costs for exchanges and broker-dealers could be about \$2.4 billion, while the firms' expenses for maintaining the records would be about the same at \$1.7 billion.

The Investment Company Institute, whose members include some of the biggest asset managers, also sent a letter last month, outlining its security concerns. "This treasure trove of order and execution information has tremendous commercial value, and we are gravely concerned that cyber criminals and others will seek to access and use it for their personal gain to the detriment of funds and their shareholders," David Blass, general counsel at ICI, wrote in the letter.

Amazon is working with Finra in its bid to build CAT, after the regulator migrated 90 percent of its data, such as brokerage transaction records, to Amazon's cloud services. Financial technology firm Fidelity National Information Services Inc. has partnered with Google to vie for the contract. Winning would help expand the technology firms' cloud computing, one of their fastest growing businesses. Building CAT could cost as much as \$92 million initially and then \$93 million annually for maintenance, according to estimates published in April.

Last month, Amazon said that in the second quarter its cloud-computing division delivered operating income of \$718 million -- 56 percent of the company's total, while accounting for only 9.5 percent of revenue. Meanwhile, Alphabet beat analyst estimates last quarter in part due to gains in its cloud-computing business.

No Peeking

Amazon and Google's potential role in CAT has also stoked fears about what the technology giants' broader, long-term goals may be in financial services. Some worry that any insight into what could be the world's largest repository of securities transactions will provide ways for either company to profit beyond cloud services.

Still, the business opportunity for Amazon and Google to provide cloud-computing services is so big that it makes little sense for the companies to risk alienating clients by peeking at their data. Neither company has said it has plans to get involved in the trading business. It's also specified in the CAT

proposal that whoever wins the bid must ensure the security and confidentiality of the data, and agree to use it only for appropriate surveillance and regulatory activities. Spokesmen for the firms declined to comment on their involvement to build CAT.

Werner Vogels, chief technology officer at Amazon, said at an event earlier this month that lower costs and greater security were two of the primary reasons customers shift data from their own servers to Amazon's.

Finra Recusal

Your cheat sheet on life, in one weekly email.

The SEC is expected to weigh in on the CAT plan in November and the winner will be chosen by January by the exchanges. Since Finra is one of the finalists, it's recused itself from the selection process. The third contender is led by Thesys Technologies, a financial technology firm. Given the technology overhaul required, and controversy over security and costs, the project could be years away from completion.

Finra's move to the cloud cut costs, while also bolstering data security and surveillance capabilities, according to Steve Randich, the regulator's chief information officer. Firms, banks, broker-dealers and other regulators have asked for information on how Finra outsourced its data storage, he said.

"There is resistance, but it is fading," said Randich. "You could measure the sentiment change by the week."

[WSJ] India Payment Firm Paytm Raises \$300 Million

Newley Purnell 29 August 2016

http://www.wsj.com/articles/india-payment-firm-paytm-raises-300-million-1472480227?mod=WSJ_TechWSJD_NeedToKnow

NEW DELHI—Indian online payment and e-commerce firm Paytm is raising \$300 million from a group of investors led by Taiwanese chip-design company [MediaTek](#) Inc., according to a person familiar with the situation.

The investment values the Noida, India-based company at \$5 billion, up from an earlier valuation of about \$2.5 billion, the person said. MediaTek's contribution amounted to \$60 million, according to the person.

In a country where users are increasingly coming online via low-cost smartphones, Paytm provides a popular mobile app that can be used to pay for services like rides from Uber Technologies Inc. and utility bill payments.

Paytm uses its payment service to help direct traffic to its other businesses, like e-commerce. The company says it provides some 135 million mobile wallets in India, where few consumers have credit cards and many prefer to pay in cash.

The new injection comes after Chinese e-commerce giant [Alibaba Group Holding](#) Ltd.'s and its financial-services affiliate Zhejiang Ant Small & Micro Financial Services Group [last year invested more than \\$500 million](#) for a 40% stake in One97 Communications.

MediaTek couldn't immediately be reached for comment.

The funding comes as venture capital investments have been slowing in India amid talk of a bubble in Silicon Valley and concerns over global economic conditions.

Investors in the first quarter of 2015 pumped \$891 million into Indian tech startups, according to Hong Kong-based AVCJ Research. That number fell 17% to \$736 million for the first quarter of this year.

Miscellaneous

[WSJ] Facebook to Allow Users to Trigger 'Safety Check' Feature

Georgia Wells 29 August 2016

http://www.wsj.com/articles/facebook-to-allow-users-to-trigger-safety-check-feature-1472502618?mod=WSJ_TechWSJD_NeedToKnow

[Facebook](#) Inc. said Monday that it is planning for communities to be able to trigger its “safety check” function instead of the social media giant having sole control over it during a disaster, reinforcing its stance that it is merely a platform.

Facebook has faced criticism that it applies the “safety check”—which lets users in a designated area mark themselves as “safe” on their Facebook profiles—unevenly, favoring some countries over others. Facebook employees have used the tool after recent terrorist attacks in Europe and Pakistan, and last week following [the earthquake in Italy](#).

The change shifts the sensitive decision of which incidents merit the safety check from Facebook's responsibility. “The next thing we need to do is so communities can trigger safety check themselves when there is a disaster,” Mr. Zuckerberg said Monday during a town hall question-and-answer session during a visit to Italy. During his visit, Mr. Zuckerberg also met with Pope Francis and Prime Minister Matteo Renzi.

In June, Facebook began testing a feature that allows people to both initiate and share crises on Facebook. A Facebook spokeswoman said the company hopes it will empower people to signal whether or not safety check would be useful in their community in a crisis.

The move is part of an effort to distance Facebook from recent controversies about what appears on the social media site.

Last week, Facebook said it would [rely on algorithms instead of humans for its “trending” feature](#), following allegations that human intervention led to political bias on the feed earlier this year.

In July, Facebook [took down and then reinstated live video footage](#) following a police shooting in Minnesota.

“We are a technology company, not a media company,” Mr. Zuckerberg said at the meeting, which was streamed live on his Facebook page Monday. “We build tools, we do not produce any of the content.”

Mr. Zuckerberg said he also envisions a safety check for suicide prevention, that would allow the community to intervene if someone posts they are thinking of killing themselves.

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For the broad “safety check” feature, Facebook has faced questions for its decisions about which disasters are serious enough to warrant its use.

Last November, Facebook [activated the feature following terrorist attacks in Paris](#), but not after suicide bombings in Beirut. A Facebook executive at the time acknowledged the criticism, and said Facebook would refine when it turns on the feature, which it introduced in October 2014.

Until the Paris attack, Facebook had only used “safety check” for natural disasters.

[\[NY Times\] When Technology Sets Off a Populist Revolt](#)

Anand Giridharadas

29 August 2016

<http://www.nytimes.com/2016/08/30/us/vinod-khosla-silicon-valley-disruption.html?ref=technology>

MENLO PARK, Calif. — To spend time in Silicon Valley in a year of political upheaval is, on one level, soothing. It is pleasant to hear talk of wearables, walled gardens and disruptive beverages in between updates about mass deportation.

But there is another conversation happening in the valley today. Its premise is that, when it comes to populist revolt, we may have seen nothing yet.

The idea is: If you think globalization, immigration, trade and demographic change have contributed to displacement and political anger, wait until robots take away millions and millions of jobs, including those requiring the use of a well-trained brain.

Some believe it will be glorious to live in this “disruptive” future; others believe it will pose devastating social and political challenges that dwarf anything being discussed in this election.

And then there are those, like Vinod Khosla, who ardently believe both things.

Mr. Khosla, a billionaire venture capitalist and a Silicon Valley celebrity, is gung-ho on disruption and an investor in start-ups that are building technology to take away people’s jobs.

“If you’re doing anything disruptive, you’re disrupting somebody, and somebody’s getting hurt,” [he said at a conference](#) last year. “Revolutions are hard on people. People get killed. People get hurt.”

And yet Mr. Khosla is part of a cohort of Silicon Valley types who have begun to sound warnings about the very future they are invested in.

“It seems likely that the top 10 to 20 percent of any profession — be they computer programmers, civil engineers, musicians, athletes or artists — will continue to do well,” he told me. “What happens to the bottom 20 percent or even 80 percent, if that is the delineation? Will the bottom 80 percent be able to compete effectively against computer systems that are superior to human intelligence?”

Others in Silicon Valley, most notably the venture capitalist Marc Andreessen, have dismissed this concern as Luddism, assuring people that new jobs always replace the ones that vanish.

Photo

And it is hardly surprising for stalwarts of an industry to claim it won't harm anyone. What is more notable is what sometimes is called "argument against interest" — people criticizing a thing from which they stand to benefit.

Mr. Khosla looks at the technologies he and others are investing in and sees massive displacement down the road. He thinks of it as both an entertainment problem (how would we occupy the minds of all those jobless people?) and a political problem (how do we keep those people from revolting?).

"I worry a lot about how do you keep humans motivated to live," he said.

In the world Mr. Khosla envisions, technology will continue to widen inequality by amplifying the productivity of some hypertalented people — 100xers, they are sometimes called in Silicon Valley — even as it beaches many others.

The only answer, he believes, is massive economic redistribution via something like a guaranteed minimum income. The idea has been gaining ground.

"Does capitalism need to be reinvented for modern technology? I'm absolutely convinced it does," he said.

In primordial capitalism, he said, the challenge was efficiency — how to juice as much as possible from scarce resources. In a coming world of abundance, he added, the problem will be political: how to create the conditions in which a minority of hyperproductive people can do their work.

And then he said, "Capitalism is interesting, because capitalism as a system is by permission of democracy, right?"

My eyes drifted over to a wall of glass to my right and, beyond it, a lovely garden. "Otherwise, there'll be people coming in through the windows all the time?" I asked.

"Imagine 10 times as many people were unemployed today than are," Mr. Khosla said.

To be plain, Mr. Khosla and others of like mind in the valley are not radicals. They are speaking of a new social contract, in which an undisrupted few assume new obligations to the disrupted many, in order to be freed to go back to their disruptive works.

"To put it crudely, it's bribing the population to be well-enough-off," Mr. Khosla said. "Otherwise, they'll work for changing the system."

[Bloomberg] [Uber, Careem Halt Abu Dhabi Cars Amid Driver-Arrest Reports](http://www.bloomberg.com/news/articles/2016-08-30/uber-careem-halt-abu-dhabi-services-amid-driver-arrest-reports)

Zainab Fattah, Deena Kamel and Nour Al Ali

30 August 2016

<http://www.bloomberg.com/news/articles/2016-08-30/uber-careem-halt-abu-dhabi-services-amid-driver-arrest-reports>

Uber Technologies Inc. and its Middle East competitor Careem Networks suspended services in the capital of the United Arab Emirates for a fourth day, amid reports that police have arrested drivers and impounded cars.

“At this point we will not resume services in Abu Dhabi until we have further clarity on the matter and reassurances that partners will not be at risk,” Uber said in an e-mailed statement today. Both companies described the suspension as temporary and Uber said none of its drivers were arrested.

Police arrested 50 drivers working in limousine companies and impounded 70 cars, Abu Dhabi-based The National reported late Sunday. Mohamed Al Qamzi, general manager of TransAD, the city’s taxi regulator, said the companies had on occasion contravened regulations by offering trips at a lower price than licensed limousines, the newspaper reported.

A spokesman for the Abu Dhabi government’s Executive Council wasn’t able to comment.

Uber, founded in 2009, has faced [opposition](#) in almost every country it entered. Taxi drivers in Paris clashed with police during a protest against it earlier this year, while governments in Spain, Thailand and elsewhere have at one time or another banned the service which allows users to summon taxis from their phones. In Saudi Arabia, some municipal and business-lobby leaders have [said](#) such services are illegal or, at least, need closer oversight.

The controversy hasn’t dented the companies’ ability to raise billions of dollars in venture capital funding. Saudi Arabia’s Public Investment Fund this year invested \$3.5 billion in San Francisco-based Uber. Dubai-based Careem last year received a \$60 million investment from Abraaj Capital Ltd. and others to help it expand in the Middle East, North Africa and South Asia. Careem, founded in 2012, operates in about 30 cities.

TT Clips August 31 2016

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Obama Technology

[The Hill] Obama to host tech conference in Pittsburgh

David McCabe August 30, 2016

<http://thehill.com/policy/technology/293787-obama-to-host-tech-and-science-conference>

The White House will host a conference on innovation in October, it announced Tuesday, as President Obama moves to cement his legacy on tech issues.

The gathering, called the White House Frontiers Conference, will focus on a wide portfolio, from personal medicine to artificial intelligence.

Programs at the event will be divided into categories like Personal Frontiers, including innovations in healthcare, as well as broader categories focusing on local, national, global and even interplanetary advances.

“The conference will focus on building U.S. capacity in science, technology, and innovation, and the new technologies, challenges and goals that will continue to shape the 21st century and beyond,” John P. Holdren, the director of the Office of Science and Technology Policy, and U.S. Chief Technology Officer Megan Smith said [in a blog post](#).

The event is being hosted with the University of Pittsburgh and Carnegie Mellon University, the latter of which is known for its computer science program.

Obama will also “guest-edit” Wired Magazine’s November issue as a tie-in to the conference.

“We want to wrestle with the idea of how today’s technology can influence political leadership,” said Wired editor-in-chief Scott Dadich [in a post](#) announcing the collaboration. “And who better to help us explore these ideas than President Obama?”

Obama will be traveling to Pennsylvania for the conference at a time when he is focused on establishing his legacy. He has made technology policy — and better utilizing tech in government — a core part of his tenure, and the White House indicated it viewed the conference as a part of that effort.

“Over the past 8 years, President Obama has committed his Administration to reinvigorating and broadening participation in the American scientific enterprise through a strong commitment to basic and applied research, innovation, modernization, and education,” Holdren and Smith wrote.

“As part of delivering on this commitment, we look forward to celebrating progress to date and convening an inspiring cross-sector, action-oriented discussion about the path forward at the White House Frontiers Conference in October.”

While in office, Obama has built links between Silicon Valley and the White House by establishing the United States Digital Service, a new way to engineers to work on projects for the federal government.

And he has weighed in on contentious tech policy issues, including the debates over net neutrality and how to modernize the market for television set-top boxes.

Though the White House did not disclose any other details of the president's trip, the event will put the president in a crucial presidential swing state — and one that is key to Democrats' hopes of taking back the Senate — less than a month before election day.

[\[EE Times\] Obama Polishes High Tech Legacy](#)

Rick Merritt August 30, 2016

http://www.eetimes.com/author.asp?section_id=36&doc_id=1330377

We've got ObamaCare. This October its ObamaCon, an event in Pittsburgh that is the latest high tech initiative from the White House.

The White House Frontiers Conference announced today is something of a swan song and a coda for the Obama Administration’s long string of technology efforts.

The one-day event is organized around topics that will hearken back to the President’s work in areas from climate change to revitalizing NASA, manufacturing and brain initiatives and improving STEM education. Obama will even serve as guest editor on an issue of Wired related to the event.

As its name suggests, organizers say the conference also will point forward to “building U.S. capacity in science, technology, and innovation, and the new technologies, challenges and goals that will continue to shape the 21st century and beyond.”

The Frontiers conference can shine a light on many areas that need investment and innovation. It also can act a rallying point for a very savvy politician.

“The event will put the president in a crucial presidential swing state — and one that is key to Democrats' hopes of taking back the Senate — less than a month before election day,” wrote The Hill.

The article posted today also quotes Obama ruminating on his post-Presidential future. “The conversations I have with Silicon Valley and with venture capital pull together my interests in science and organization in a way I find really satisfying,” Obama said.

To allay doubts about Obama’s record in high tech, the Administration posted a list of his 100 top achievements. It’s an impressive record that includes:

- Creating the posts of U.S. Chief Technology Officer, Chief Information Officer, and Chief Data Scientist
- Appointing five Nobel Laureates in science and 28 other members of the National Academies of Sciences, Engineering, and Medicine and hiring more than 450 engineers, designers, data scientists, and product managers in more than 25 agencies
- Spending \$18.3 billion in R&D as part of the Recovery Act of February 2009, the largest annual increase in R&D funding in America’s history
- Adding or improving more than 114,000 miles of broadband infrastructure under the Recovery Act
- Opening up since May 2013 more than 180,000 Federal data sets on Data.gov
- Creating CitizenScience.gov, a crowdsourcing vehicle for research agencies to work with citizen scientists
- Initiating more than 700 challenges worth more than \$220 million on Challenge.gov to address problems ranging from Ebola to blocking illegal robocalls
- Setting up efforts such as the U.S. Global Change Research Program, the National Nanotechnology Initiative and the Federal Cybersecurity Research and Development Program
- Launching a national network of nine manufacturing institutes, supported by more than \$600 million in Federal investment and \$1.2 billion in matching funds
- Creating the National Robotics Initiative that has raised more than \$150 million
- Launching the BRAIN Initiative to develop neuro-technologies that has raised \$1.5 billion in public and private funds
- And hosting six White House Science Fairs, two White House Astronomy Nights, and an Hour of Code at the White House

A quick scan of the EE Times archives reminds me of some of Obama’s accomplishments that resonate here in Silicon Valley. For example, Obama launched the Global Entrepreneurship Summit and attended in June its latest forum at Stanford where he interviewed a panel of young startup CEOs including Facebook’s Mark Zuckerberg.

Under his Administration, Silicon Valley won a bid for a \$165 million research facility for flexible electronics. The Department of Defense convinced tech executives from companies including Google

and Apple to join a new organization to streamline government sourcing in high tech. And San Jose got its own patent office last fall, saving engineers millions of frequent flier miles to Washington D.C.

It hasn't all been fair sailing for the last eight years. Only recently the U.S. withdrew a case against Apple for refusing to decrypt iPhones in a terrorism case that drew the Attorney General to speak at a major security conference here.

The IEEE criticized Obama for failing to go far enough with a 2014 action on high tech hiring of immigrants. The high tech industry is still split over an FCC action geared to reshape industry practice around set-top boxes. And only recently has the Valley recovered from a black eye after a government-supported solar venture went belly up here.

All in all, I'd say despite a few earthquakes, Silicon Valley and Washington D.C. grew considerably closer in the last eight years. The most daunting of all the frontiers ahead is the fall election and the prospects of a less tech-savvy president.

— Rick Merritt, Silicon Valley Bureau Chief, EE Times

China Technology Restrictions

[South China Morning Post] Why a rising China needs to raise its internet shutters

Ker Gibbs August 31, 2016

<http://www.scmp.com/comment/insight-opinion/article/2011158/why-rising-china-needs-raise-its-internet-shutters>

China's hosting of the G20 summit allows it to help set the agenda for global financial cooperation over the next year or two. China is also demonstrating leadership in other areas. On climate change, its commitment to clean energy shows foresight that many Western nations would do well to emulate. But, as China's economy continues to develop, the government's internet doctrine puts it at odds with many of its G20 counterparts.

Over the course of history, trade has flourished on the back of a free flow of information. It allows sellers and buyers to make informed decisions, financiers to better comprehend risk. Today, it helps scientists learn from the failures and successes of peers elsewhere. Basic research in the UK leads to a drug made in the US that saves lives in China – it's a modern but already proven path. Yet just as China transitions from a manufacturing-led economy to one centred on information and innovation, the government is shuttering China from the rest of the world.

Last year, 81 per cent of respondents to AmCham's China Business Report survey said internet restrictions make it difficult to do business in China. And whether it is "secure and controllable" technology, data localisation or internet blocking, those barriers are multiplying. China's isolation will have consequences, not just for foreign businesses, but for Chinese ones as well.

Take China's ambition for Shanghai to be a world-class financial centre by 2020. A cursory glance at other global financial centres – London, Tokyo and New York – throws up a number of qualities, including rule of law and regulatory transparency. What they also share is unrestricted access to information. Whether it is a trader's ability to access Bloomberg or Reuters or a CEO's to read the Wall

Street Journal, these news sources are a click away in London or New York. Not so in Shanghai. In China's universities, scientists are handicapped by their inability to access world-class research. Yet having access to databases or the latest available research may be crucial to their own endeavours to create the next life-saving cancer drug.

Many large foreign companies in China utilise trunk lines that bypass the "Great Firewall". But, in an innovation-led economy, it is often the research done in universities or by cash-strapped small start-ups that leads to clinical or industrial breakthroughs. These are the very same advances that are patented and commercialised, and then translate into thousands of jobs, as the US innovation experience clearly shows.

Among Beijing's most recent policy proclamations is "Manufacturing 2025", a state-led drive to push China up the manufacturing value chain to create the kinds of products at which countries such as America and Germany excel. Part of this push includes buying best-in-class foreign expertise, as the acquisition of the German robot manufacturer Kuka illustrates.

But the Chinese government evidently hopes that some of this type of innovation will occur domestically. For that to take place, and for China to reach its development goals, the government needs to reassess its approach to information.

We recently released a report on the internet which explains why requirements for use of "secure and controllable" technologies, data localisation and internet blocking are bad for China, and recommends specific policy changes. Our reasoning was based on several factors, including the belief that forcing foreign companies to buy domestically manufactured hardware does little to improve security. We also believe that China's data localisation requirements will force international companies to adopt standards that hinder efficiency, which seems at odds with the government's aims to innovate. One suggestion we made was for the government to unblock internet access in Shanghai's Free Trade Zone so it can measure its benefits in a controlled environment before doing so for the rest of the country.

These changes, if adopted, are consistent with China's economic development goals and will lead to a more prosperous economy. Information isolation benefits few. It certainly doesn't benefit foreign companies operating in China, but more important, it will stand in the way of China's own progress towards its development goals.

Ker Gibbs is chairman of the board

Encryption

[The Daily Dot] FBI Director: 'There is no such thing as absolute privacy in America'

Patrick Howell O'Neill August 30, 2016

<http://www.dailydot.com/layer8/comey-crypto-war-business-model/>

Welcome back, hope you had a great summer, let's get right back to our regularly scheduled cyber programming: A global war over encryption.

FBI Director James Comey, who has spent the last six months itching to get back into a public debate over the spread of encryption and mandated special backdoor government access to data, took to a

spotlighted stage on Tuesday to pointedly criticize tech companies who offer default strong encryption on devices, saying he was preparing for the argument to extend into 2017 and beyond.

The encryption debate stormed onto center stage last year when the FBI tried to compel Apple to decrypt an iPhone of one of the San Bernardino terrorists. The debate has recently shrunk from public view as the 2016 election approaches, but it promises to return in full force after the votes are counted.

"I can't resist talking about encryption and going dark," he said Tuesday morning to the 2016 Symantec Government Symposium.

"Going dark"—Comey's phrase for data rendered inaccessible due to encryption—is not a technical problem, he argued on Tuesday, but a business model problem: Tech companies are choosing a path of encryption for marketing, not security, he claimed.

Since Edward Snowden's 2013 leak of documents detailing NSA mass surveillance, Comey warned his work is becoming increasingly difficult.

Although he did name-check Snowden early in his talk, Comey conspicuously omitted the political shockwave over surveillance that the NSA contractor's whistleblowing produced.

Instead, Comey referred to the "the agreement" between security and privacy "at the core" of the ideals of the United States, but he made no explicit mention of the global debate over American spying that was such a forceful catalyst for this debate and the subsequent spread of encryption.

That's a continuous and glaring omission, but it fits neatly with Comey's past positions on civil liberties. In 2006, with the Patriot Act at the center of the American political conversation, Comey dismissed the critics then as well:

On Tuesday, the head of the FBI focused instead on making the case that American tech companies pushing default encryption—Apple's decision to encrypt iPhones by default has attracted the most attention—have lied by omission in their public statements on encryption. He pointed specifically to a May 2016 letter from Silicon Valley firms to President Barack Obama, which Comey said listed the benefits but ignored the "costs of widespread, ubiquitous encryption."

"Either they don't see the costs, or they're not being fair minded about the costs," Comey said. "And that's a bit depressing."

Encryption is the process of encoding data so that only authorized users can access it. This can protect data from hackers, spies, surveillance, criminals, police, and the FBI—even when they have a court order. Encryption protects everything from credit card transactions online to private communications.

The debate so far has focused on a few key points, including government overreach eroding privacy and the risk that encryption backdoors would undermine security for anyone who uses it.

Comey argued that mandating special access backdoors into encrypted data would not necessarily weaken encryption and overall cybersecurity. A large and vocal pack of technologists disagree with the director.

"If there is a 'golden key' or 'backdoor', then it can be leaked or stolen, and then [that] puts everyone at risk because the key or backdoor is not device/user specific but works for everyone," Khalil Sehnaoui, a Middle East-based cybersecurity specialist and founder of Krypton Security, told the Daily Dot after

Comey's speech. "Even if it was user or device specific it would still mean that there is a weakness in the encryption/security of the data."

Robert Graham, CEO at Errata Security, echoed Sehnaoui's assessment last year. "The FBI makes this proposal to look like they're looking for a simple law to add a simple feature," he said. "But when you look into it, what they're really asking for is dramatic, it's a huge thing. They'd need to outlaw certain kinds of code. Possessing crypto code would become illegal."

"You can't build a backdoor that only the good guys can walk through," cryptographer and author Bruce Schneier has argued. "Encryption protects against cybercriminals, industrial competitors, the Chinese secret police, and the FBI. You're either vulnerable to eavesdropping by any of them, or you're secure from eavesdropping from all of them."

Other experts offered another view.

"It's not possible to make a Going Dark solution that has zero risk," Matt Tait, CEO of Capital Alpha Security, said told the Daily Dot, "but Comey is right that the technical risks are largely overstated by the privacy community and the risks of going dark are not borne by the technology companies, who are locally minimizing risk to themselves, rather than globally minimizing risk to the public."

Tait continued:

"Not only is the risk of theft lower than the privacy community makes it out to be, but the impact if it were to occur can also be minimized, so that golden key loss wouldn't imply mass loss of data.

"From the privacy community, the objection to golden keys is unambiguously ideological, not technically motivated. That's why we hear lots of 'it can't be done' and 'it's not secure' rather than 'here's a solution but these are the risks.'"

Comey pleaded for an "adult conversation" that avoided the "intensity of emotion" that characterized earlier debates around encryption. He laid out his arguments for an audience of cybersecurity professionals in Washington, D.C.:

"The challenge we face is that the advent of default, ubiquitous strong encryption is making more and more of the room we are charged to investigate dark.

"There was always a corner of the room that was dark. Sophisticated actors could always get access either for devices or for live comms to encryption.

"What has happened in the three years I've been Director [of the FBI], post-Snowden, is that that dark corner of the room, especially through default encryption, especially through default encryption on devices, that shadow is spreading through more and more of the room."

The debate over encryption is unambiguously returning, though it likely won't dominate the headlines until the Hillary Clinton–Donald Trump marquee matchup is through.

In Europe, however, the encryption debate is already rising in temperature after French and German officials called for new legislation on the technology. That debate is set to begin in early September and, as in the U.S. and elsewhere, will stretch into the new year and beyond.

[\[The Hill\] FBI director looks to 2017 for 'adult' encryption debate](#)

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Joe Uchill

30 August 2016

<http://thehill.com/policy/cybersecurity/293786-comey-targets-2017-for-less-emotional-adult-conversation-on-encryption>

FBI Director James Comey is welcoming the brief lull in the encryption debate, hoping that it will reemerge next year as a less passionate, more fact-based “adult conversation.”

Comey seemed willing to accept the result of a sober conversation during comments Tuesday at the 2016 Symantec Government Symposium in Washington. But he appeared incredulous it would result in anything but requiring tech companies to provide law enforcement a technological means to access currently irretrievable encrypted data with a warrant.

“At the end of the day, if the American people say ‘You know what, we’re okay with that part of the room being dark, we’re okay with, to use one example, with the FBI in the first 10 months of this year getting 5,000 devices from state and local law enforcement and in 650 of those not being able to open those devices,’” he said, without finishing the hypothetical.

“That’s criminals not caught, that’s evidence not found, that’s sentences far shorter for pedophiles and others because judges can’t see the true scope of their activity. We should not drift to a place that a wide swath of America is off limits to judicial authority.”

Many tech companies and researchers have rejected the idea of providing the government with an access point to encrypted information as unworkably unsecure.

Comey said those who support “strong” encryption and those who support adding “backdoors” to encryption algorithms — both names he takes exception to — should take the rest of the year to gather information to hold a more sober debate in 2017.

Pushing the debate to next year would place it at the start of a new administration likely to be more sympathetic to Comey’s argument.

Both the Democratic and Republican platforms call for a compromise between tech companies and activists and the government to allow some form of access to all data with a warrant. Republican nominee [Donald Trump](#) once called for a boycott of Apple for not assisting the FBI in decrypting information on a cellphone, while Democratic rival [Hillary Clinton](#) suggested a “Manhattan-like project” dedicated to forming a solution.

The problem, say nearly all experts, is that there may be no compromise that maintains the same level of security. Hackers can take advantage of any gateway intended for the FBI — a problem that recently came to fruition when National Security Agency source code containing secret agency methods to bypass security hardware leaked online, leaving thousands vulnerable.

Comey said he was not deterred by naysayers. He described the problem as less technological and more ideological, saying tech companies' ideology should not be the determining factor in American policy.

"The FBI's role has never been to tell people how to live. Our role is simply to say those tools you were counting on us to use to find people in criminal cases, in national security cases, they are less and less effective every day because of this change. But it's also not the job of tech companies, as wonderful as they are, as great as their product is, to tell the American public how to live," he said.

Drones

[The Hill] [FAA changes mean rights are in jeopardy from police drones](#)

Tyler Grant August 30, 2016

<http://thehill.com/blogs/congress-blog/technology/293858-faa-changes-mean-rights-are-in-jeopardy-from-police-drones>

It's a bird! It's a plane! No, it's a drone. On Monday, the Federal Aviation Administration implemented new rules for commercial operators of drones, and soon, Americans may be telling their neighbors about the police drone that circled their house last night.

The old FAA rules required commercial drone operators to possess a pilot's license as well as special case-by-case permission from FAA regulators. The new rules require only a certification test. Other drone safety rules have stayed the same: operators are not be allowed to fly over people, above 400 feet, beyond their line of sight, or faster than 55 miles per hour. The relaxation of the pilot qualifications lowers the barrier to entry for commercial drones allowing more aviators to enter the market.

As drones become more commonplace, there are disturbing privacy implications for everyday Americans. The growing militarization of the police is a tangible trend, and drones enhance this tendency. In addition, drones raise concerns about tracking people and warrantless searches of private homes.

The law currently governing this technology stems from a 2001 case where the Supreme Court held that the government cannot use a device that is not in general public use to explore details of a private home that would previously have been unknowable without physical intrusion. This type of surveillance, including thermal imaging and drug sniffing dogs, constitutes an illegal search under the Fourth Amendment and requires a judge to authorize a search warrant.

Although the Court believed this technology was a bridge too far since it was not commonplace, the Court has shifted its understanding of what constitutes a search based on norms for the times. For example, the Supreme Court has made dramatic swings in what constitutes privacy in email communication as well as adapted governing constitutional law on technology the police can use to observe the public.

When the new rules of the FAA went into effect Monday, the regulatory body anticipated that over 600,000 new drones will take to the sky within the year. This dramatic change in commercial use of drones reflects the rising popularity of private, amateur use of unmanned aircraft. Analysts estimate that DJI, a company that sells the popular Phantom drones, sells over 30,000 drones per month. These drones shoot video in 4K and take high-resolution photographs, making them a dream come true for photographers. This also means that over a million drones could be in the sky in the future.

While the FAA has specified particular flight rules, courts have not clarified whether police use of drones for searches of property or homes without a warrant is an appropriate use of technology. Following the logic of precedent, if a device is in the general public use, police may use the technology as any other consumer would.

As police access more technology from decreasing military operations overseas, the implications are severe. Access to and use of the “Gorgon Stare” drone, for example, would allow the police to record entire cities of visual information. On the one hand, catching suspects would be much easier, but on the other, constant, recorded surveillance is an alarming privacy cost to pay for freedom.

Another drone legal gray area relates to what technology particular drones can be equipped to carry. In 2015, North Dakota’s state legislature authorized police drones to carry “non-lethal” weapons. Other states have taken some preventative measures to mitigate the dangers of police use of drones as well. The measures are not enough, however, and will be constantly adapting to changes in technology and the use by the civilian public. Police drones, for example, stocked with thermal technology could be considered a device in the public use despite the fact that the Court previously found that thermal technology alone was not widely available to the public.

Police flying a drone over private property and peering into homes at 400 feet without a warrant strikes an uncomfortable balance between safety and privacy that Americans should not be prepared to accept. The law is reactive typically. Courts redress violations of freedoms by the government after they have happened, and legislators often fail to draft affirmative laws until they respond to the wishes of a public whose privacy has already been violated. The potential for abuse does not permit delay.

Commonplace use of drones by the police will lead to exploitation. These abuses may also contribute safety, but our society cannot be willing to sacrifice liberty for temporary security. Rather, citizens must demand constitutional limits on police departments' resources in order to preserve freedom.

Tyler Grant is a graduate of University of Virginia School of Law and Washington and Lee University.

Student Privacy

[Business Solutions] [New York State Education Department Appoints First Privacy Officer To Secure Student Data](#)

Christine Kern August 30, 2016

<http://www.bsminfo.com/doc/new-york-state-education-department-appoints-first-privacy-student-data-0001>

The New York State Education Department has appointed its first Privacy Officer charged with the task of protecting confidential student information. Temitope Akinyemi has been chosen for the role by State Education Department Commissioner MaryEllen Elia, according to Staten Island Advance.

Formerly, Akinyemi was a privacy officer and attorney from the state's Office of Information Technology Services. In her new role, Akinyemi will be tasked with creating policies and procedures to safeguard the confidential data of students, parents, and educators as well as implementing and overseeing their statewide adoption.

Earlier this year, California passed a law limiting the use of student data for advertising purposes, as Business Solutions Magazine reported. The legislation highlights the dangers of making student data available, and underscores the importance of protecting confidential information in education. Currently, more than 20 states have some sort of student data privacy law on the books.

President Obama also called for legislation covering student privacy last year. The Student Data Privacy Act would prohibit technology firms from profiting from information collected in schools via technology tools like tablets, internet-connected software, or online services.

President Obama said, "If we're going to be connected, then we need to be protected. As Americans, we shouldn't have to forfeit our basic privacy when we go online to do our business. Each of us as individuals have a sphere of privacy around us that should not be breached, whether by our government, but also by commercial interests."

New York State is serious about protecting information. Elia said, “It is imperative that confidential data shared by parents, educators, and students is kept just that — confidential.” And Board of Regents Chancellor Betty Rosa agreed, stating, “It is of the utmost importance that parents know that their child’s information is safe.”

“Now that the CPO is appointed, Ms. Akinyemi should immediately begin to reach out to parents through public hearings to gain their input so that their children's privacy and safety can be secured,” said Leonie Haimson, co-chair of the national Parent Coalition for Student Privacy and executive director of the nonprofit Class Size Matters. “Parents have already waited too long for this to occur.”

Georgia is another state that has responded to demands for tighter data security in its schools. Lawmakers in Georgia passed the Student Data, Privacy, Accessibility and Transparency Act in 2015 to safeguard confidential information, and the State Department of Education added the chief privacy officer role to the position of technology management director, currently held by Levette Williams, according to the Atlanta Journal-Constitution. Obama Cyber

Consumer Protection Privacy

[Broadcasting Cable] Court Decision Raises Edge Provider Regulation Issues

John Eggerton

August 30, 2016

<http://www.broadcastingcable.com/news/washington/court-decision-raises-edge-provider-regulation-issues/159173>

A new federal court ruling leaves some doubt as to who can enforce consumer protections on search engines and other edge providers and perhaps other parts of the economy as well.

A panel of the U.S. Court of Appeals for the Ninth Circuit ruled this week that the Federal Trade Commission was precluded from using its consumer protection authority to sue AT&T for not telling customers of its grandfathered mobile broadband "unlimited" data plans that their data use was being throttled once it reached a certain threshold.

The FCC is pursuing a similar complaint against AT&T, which is not affected by the ruling. But the decision could have wider implications for consumer protection and privacy regs.

The court ruled that the FTC could not enforce consumer protections—including against unfair and deceptive practices on the privacy front—on any of the activities of a common carrier, including its noncommon carrier businesses.

That could conceivably immunize the non-common carrier holdings of broadband common carriers like AT&T and Verizon—or Google Fiber—from Federal Trade Commission consumer protection regs, and, if those holdings were edge providers, the FCC could not regulate them either, at least under the current interpretation of FCC chairman Tom Wheeler, who says the FCC lacks authority to regulate the edge.

The FCC had no comment on the ruling, saying its attorneys were still vetting the decision at press time.

“We are disappointed with the ruling and are considering our options for moving forward,” the FTC said in a statement.

“The Ninth Circuit Appeals Court decision has blasted a big deregulatory hole in between the jurisdictions of the FCC and the FTC, which could prompt a lot of unintended consequences in the space,” said Scott Cleland, chairman of NetCompetition, an eforum backed by broadband companies. “Essentially what the FTC and FCC long assumed to be true about the reach of the FTC’s legal authority and jurisdiction is now not true. Market forces could rush to fill this new vacuum in the law.”

Data Breach

[The Guardian] Dropbox hack leads to dumping of 68m user passwords on the internet

Samuel Gibbs

August 31, 2016

<https://www.theguardian.com/technology/2016/aug/31/dropbox-hack-passwords-68m-data-breach>

Popular cloud storage firm Dropbox has been hacked, with over 68m users’ email addresses and passwords dumped on to the internet.

The attack took place during 2012. At the time Dropbox reported a collection of user’s email addresses had been stolen. It did not report that passwords had been stolen as well.

The dump of passwords came to light when the database was picked up by security notification service Leakbase, which sent it to Motherboard.

The independent security researcher and operator of the Have I been pwned? data leak database, Troy Hunt, verified the data discovering both his account details and that of his wife.

Hunt said: “There is no doubt whatsoever that the data breach contains legitimate Dropbox passwords, you simply can’t fabricate this sort of thing.”

Dropbox sent out notifications last week to all users who had not changed their passwords since 2012. The company had around 100m customers at the time, meaning the data dump represents over two-thirds of its user accounts. At the time Dropbox practiced good user data security practice, encrypting the passwords and appears to have been in the process of upgrading the encryption from the SHA1 standard to a more secure standard called bcrypt.

Half the passwords were still encrypted with SHA1 at the time of the theft.

“The bcrypt hashing algorithm protecting [the passwords] is very resilient to cracking and frankly, all but the worst possible password choices are going to remain secure even with the breach now out in the public,” said Hunt. “Definitely still change your password if you’re in any doubt whatsoever and make sure you enable Dropbox’s two-step verification while you’re there if it’s not on already.”

The original breach appears to be the result of the reuse of a password a Dropbox employee had previously used on LinkedIn, the professional social network that suffered a breach that revealed the password and allowed the hackers to enter Dropbox’s corporate network. From there they gained access to the user database with passwords that were encrypted and “salted” – the latter a practice of adding a random string of characters during encryption to make it even harder to decrypt.

Dropbox reset a number of users' passwords at the time, but the company has not said precisely how many.

The hack highlights the need for tight security, both at the user end – the use of strong passwords, two-step authentication and no reuse of passwords – and for the companies storing user data. Even with solid encryption practices for securing users' passwords, Dropbox fell foul of password reuse and entry into its company network.

Leading security experts recommend the use of a password manager to secure the scores of unique and complex passwords needed to properly secure the various login details needed for daily life. But recent attacks on companies including browser maker Opera, which stores and syncs user passwords, and password manager OneLogin, have exposed the dangers of using the tool.

Picking the right password manager is just as crucial and using one in the first place.

Autonomous Vehicles

[NY Times] How Driverless Cars May Interact With People

John Markoff

30 August 2016

<http://www.nytimes.com/2016/08/31/technology/how-driverless-cars-may-interact-with-people.html?ref=technology>

SAN FRANCISCO — There are plenty of unanswered questions about how self-driving cars would function in the real world, like understanding local driving customs and handing controls back to a human in an emergency.

Now a start-up called Drive.ai, based in Mountain View, Calif., is trying to address how an autonomous car would communicate with other drivers and pedestrians. The company is emphasizing what is known in the artificial intelligence field as “human-machine interaction” as a key to confusing road situations.

How does a robot, for example, tell everyone what it plans to do in intersections when human drivers and people in crosswalks go through an informal ballet to decide who will go first and who will yield?

“Most people’s first interaction with self-driving cars will not be as a rider, but more likely as a pedestrian crossing the street,” said Carol Reiley, the co-founder and president of Drive.ai. “I think it is so important for everyone to trust this type of technology.”

The start-up gained some attention earlier this year when it received a license from the State of California to test driverless cars on the road. But Tuesday was the first time its executives outlined, at least in broad terms, what they planned to do. They would not discuss the company’s investors.

The Drive.ai cars won’t speak with pedestrians and bicyclists. But they will try to communicate with visual displays that go beyond today’s turn signals, perhaps with bannerlike text and easily identifiable sounds, company officials said.

The company, populated by graduate students and researchers from the Stanford Artificial Intelligence Laboratory, is entering a crowded field in the race to self-driving vehicles. There are about 20 self-driving car [projects in Silicon Valley](#) and more than four dozen around the country.

Unlike many of the efforts, however, Drive.ai will not attempt to build cars. Instead, it plans to retrofit commercial fleets for tasks like parcel delivery and taxi services.

The company is leaning on a technology called deep learning, a machine-learning technique that has gained wide popularity among Silicon Valley firms. It is used for a variety of tasks, like understanding human speech and improving the ability to recognize objects in computer vision systems.

An Israeli firm, Mobileye, is the dominant supplier of vision technology to the automotive industry, but Silicon Valley companies like Nvidia are also starting to compete for that business.

The self-driving cars of the future will need to be transparent about what their intentions are, how they make decisions and what they see, said Ms. Reiley, who is a roboticist with a background in designing underwater robotics and medical systems. They will need to communicate clearly both with the world around them as well as with their passengers.

“There’s the left brain in which a lot of discussion has taken place, what algorithms and what sensors, the logical side,” she said. “A lot of the discussion around self-driving cars has no human component, which is really weird because this is the first time a robotic system is going out in the world and interacting with people.”

[Wired] [The Plan to Make Self-Driving Cars Speak Human](https://www.wired.com/2016/08/driveai-autonomous-self-driving-cars/)

Alex Davies

August 30, 2016

<https://www.wired.com/2016/08/driveai-autonomous-self-driving-cars/>

TODAY’S CARS ARE expressive—to a point. Sure they’ve got turn signals, brake lights, high beams, and horns—all of which are effective at conveying specific information, but none of which is much good for subtle communication. That’s OK; cars have humans for that. Humans can make eye contact with fellow drivers, wave at pedestrians, glower at cyclists, and otherwise shout and gesticulate to their hearts’ content.

Great—until you yank the human from the driver’s seat. “These simple lights aren’t gonna cut it anymore,” says roboticist Carol Reiley, co-founder and president of Drive.ai. Today, the startup emerges from stealth mode as the latest entrant in the rapidly expanding roster of companies testing autonomous cars.

Like most companies competing in this space—from automakers like Audi to rideshare behemoth Uber—Drive.ai is using deep learning to teach its cars to drive, and exploring how they will talk to their passengers.

What sets the Mountain View-based startup apart is its interest in how driverless cars will communicate with outsiders like pedestrians and other drivers. “We need to be able to communicate in all directions, and we need to be able to show intention and have a conversation with the other players on the road,” Reiley says.

A New Language

This is largely unexplored territory. Mercedes' F 015 concept can project a crosswalk onto the ground for wary pedestrians; and last year, Google patented a pedestrian notification system for its autonomous car, with a stop sign on its side and a "safe to cross" sign on its front bumper. But that's about it.

Still unknown: How to communicate to non-passengers how a driverless car will behave. Will it let them cross, or run them down? Will it race up the highway on-ramp and merge like a jerk, or roll along until it finds a comfortable spot to join the flow? These are complicated non-verbal communication problems, Reiley says—problems that require reinventing the car.

To that end, Drive.ai is testing driverless vehicles with roof-mounted billboards that flash messages to everyone within eyeshot. "It could show text, it could show pictures," Reiley says. They've toyed with emoji-base signaling, to skirt language and literacy issues. The cars can even draw from a library of "safety sounds," to express everything from the aggressive get out of my way! to the courteous after you, I insist.

Drive.ai bounced early ideas against employees' friends and families, and "crowd-sourced" some testing with Amazon's "Mechanical Turk" workforce. But it didn't wait to figure out the actual driving stuff to get its design theories onto the streets. "These things need to be baked in from day one," Reiley says, not just because they may take as long to sort out as the driving itself, but because their design will influence how the car interacts with the world.

"I think it's an interesting design problem," says John Rousseau, executive director at design firm Artefact, who worked with Hyundai on a self-driving concept. "It's absolutely worth thinking about."

He agrees autonomous cars should be able to communicate their intent, but isn't sure about Drive.ai's approach. Even with sounds and signs that seem intuitive, you're essentially creating a language—a language not everyone will understand. The fact that dozens of companies are working on autonomous vehicles stands to complicate things further; if one outfit's language doesn't mean the same thing as another's, blue lights could mean "I'm stopping" on one car and mean "get out of my way" on another.

Rousseau argues for taking the onus of communication away from each individual car, and working on the system as a whole. Cars should tie into our infrastructure (or our augmented reality goggles), he says, with our traffic signals and built environment. "Get past the immediate, this is what we can make this device do," he says. "Think about the entire system."

But for now, Drive.ai is making its own path. “I think robots need to be adorable and loved,” Reiley says. And it’s hard to love something you can’t understand.

[IEEE Spectrum] Drive.ai Solves Autonomous Cars' Communication Problem

Evan Ackerman August 30, 2016

<http://spectrum.ieee.org/cars-that-think/transportation/self-driving/driveai-solves-autonomous-cars-communication-problem>

Understandably, most people working on autonomous vehicles are very focused on things like getting the cars to avoid running into stuff. And in general, this is something that autonomous cars have gotten very good at—especially on highways and in other areas where they don't have to worry about unpredictable humans running around and making their thinking more complicated and difficult.

Drive.ai is one of a small handful of startups pushing for rapid commercialization of autonomous driving technology. It came out of stealth mode back in April, and IEEE Spectrum wrote about its top-to-bottom deep learning approach to the problem. Today, Drive.ai is “officially emerging from stealth” (whatever that means), and we've learned a bit more about what the company is working on. Drive.ai is touting a retrofit kit for business fleets that can imbue existing vehicles with full autonomy. But uniquely, it includes an HRI (human-robot interaction) component in the form of a big display that lets the car communicate directly with people. At first glance, something like this may seem like a novelty, but it's a feature that autonomous cars desperately need.

To understand why giving autonomous cars the ability to communicate like this is so important, consider what happens when you're trying to use an uncontrolled crosswalk as a pedestrian. An oncoming car might slow for you, but typically, before you cross in front of it you make eye contact with the driver to make sure that they've seen you and will stop. Now, imagine a driverless car in the same situation. With no human in control, how would you know whether the car has: a) detected you at all; b) understood what you want to do; and c) decided that it's going to stop for you?

Communication like this happens far more frequently than you probably realize, whether it's involving pedestrians, cyclists, or other drivers. It also probably happens far less frequently than it actually should. (I consider myself an expert on this subject, since I drove from NYC to Washington, D.C., last weekend.) Not only will autonomous cars actually use their turn signals, but with the ability to communicate more complex concepts, they could even politely ask to merge, provide useful information like “slowing for accident ahead,” or even apologize if they cut you off, which they probably won't ever do.

The fundamental necessity for a focus on HRI in the first generation of commercial autonomous vehicles stems from the fact that there's going to be a significant transitional period between mostly human-driven cars and mostly autonomous cars. Once roads are full of autonomous vehicles, and vehicle-to-vehicle communication is done wirelessly, it's not going to be as big of an issue.

At times, it can feel like most self-driving car companies are hyperfocused on that end goal. And because the transitional period is going to be messy, the common solution is to either ignore it (“we’ll deal with it later”) or try to circumvent the problem. Going back to the crosswalk example, the difference is between making sure your autonomous car doesn’t hit humans in crosswalks, as opposed to actually helping humans safely cross the street.

For more details on applying HRI techniques to driverless cars, as well as more on Drive.ai’s full stack deep learning approach to autonomy, we spoke with co-founder and president Dr. Carol Reiley:

IEEE Spectrum: How is Drive.ai’s approach to self-driving cars unique?

Carol Reiley: I’m looking at self-driving cars as the first social robot most people are going to interact with. It’s not a humanoid, but it is a smart machine that’s going to be enabled through artificial intelligence.

[We had to ask ourselves], once you solve the problem of getting from point A to point B, how do these self-driving cars interact with all of the other players on the road? What does that relationship look like, and what is the non-verbal dance that happens at crosswalks, at intersections, or when you’re trying to merge? When you replace the human behind the wheel, how does this car now emote? How does it communicate so that everyone feels safe and trusts it? We felt like this was a piece of the conversation that people aren’t talking about.

Spectrum: When you talk about enabling a smarter robot through artificial intelligence, how has that evolved in the context of autonomous driving? How is the AI that the cars in the 2007 DARPA Grand Challenge used different from the AI that autonomous cars are using now?

Reiley: There are lots of different layers to that question. We’re building our company with deep learning from the ground up; the Darpa days were pre-deep learning. Sebastian [Thrun, who led Stanford’s Darpa Grand Challenge team before developing autonomous cars at Google] had said “computer vision isn’t going to work, and I’m betting on HD maps and lidar,” and that’s how Google’s autonomous car program was built: on the assumption that computer vision won’t work.

In 2012, Google Brain revolutionized artificial intelligence for computer vision and perception, and that industry is all powered by deep learning now. At that point, Google had already invested years into a non deep learning approach, and they’re switching it out module by module, but it’s hard to fundamentally change the approach. That’s one of the advantages of our startup: we’re building a deep learning self-driving car company from the ground up. And we’re using it not just for perception, but for decision making as well. It’s a more end-to-end approach. That’s one perspective of how AI has changed since the DARPA Grand Challenge days.

Spectrum: What kind of sensors do your cars use? How do you feel about cameras as opposed to lidar?

Reiley: At the very front of our deep learning pipeline are the questions like, what are the right sensors to put on your car, how much data do I collect, and how many miles do I need to drive. On the deep learning side of that, we're taking the approach that we want to push low-cost sensors farther than they've ever been. One sensor that's incredibly inexpensive is cameras, and with deep learning, you're able to contextualize images. We have other sensors for redundancy, but we're really pushing cameras a lot harder than most other teams, and deep learning enables that.

Certain groups use lidar front and center, or think that you can't solve this problem without HD maps. Humans drive around fine locally, without maps in their heads, and they basically have the equivalent of a [stereo] camera. Our group welcomes any low cost sensors; if Quanergy can get \$100 lidar available, that would be terrific, and we would use it. We're not trying to show off what we can do with cameras; we're just trying to build safe, affordable systems that people can actually use.

Spectrum: Why is HRI such an important consideration for autonomous cars?

Reiley: When a human drives, you look for all these social cues. For instance, you look at the car in front of you, and if its wheels are turned to the right, you can now infer what its next motion is: it's probably going to turn to the right. There are all these other subtle cues that humans look for that help us navigate in the world, and make it seem like [our cars are] more socially intelligent, because you can start anticipating motions before they happen.

We're really pushing this social interaction aspect of the self-driving car. When there's nonverbal human to human communication, it can be very confusing at times. When you remove the human, these cars need to be able to intelligently navigate in the world, and also be socially accepted by all the other humans on the road, and do that very safely. So, what happens at a four way intersection, between cars and pedestrians? We're looking at how does our car express itself, and we do it through LED lights, R2-D2-like sounds, and through different ways that our car moves to give indication of its intentions. We're trying to think about how we get our cars to communicate to everyone else.

What's interesting about driving is that it's so dynamic, and there are so many humans around, and humans are indecisive. For a self-driving car to have to make real-time decisions, it needs to be very transparent when it switches modes, so that it doesn't just seem unstable. How do we indicate to the outside world that this car is autonomous, and how do we indicate what our intentions are?

Spectrum: Does this emphasis on HRI imply that the actual driving part of vehicle autonomy is a (mostly) solved problem?

Reiley: I feel like most of the industry is focused on the mechanics of driving. This is not to suggest that the HRI is completely separate from that; I see it as highly coupled, and something that needs to be developed in parallel as opposed to in series. This is not just a robot in a lab. There are so many human-related problems that need to be considered. I think that the auto industry takes a modular approach to things, but self-driving cars are not a modular problem: they're a software-based, holistic thing, and you have to step back and look at the big picture.

Spectrum: What is Drive.ai's plan from here?

Reiley: We're not building cars; we're building retrofit kits for businesses. So, select partners that are interested in delivery of goods or delivery of people. Existing vehicles come into the Drive.ai factory, we add the roof rack which has the sensors and HRI component and software, and we work with these partners to drive on a route-based situation.

We see this as a safe, logical first step for self-driving cars. I think global deployment of autonomous vehicles is going to cause mass chaos. I don't think people are thinking about humans in the loop at all right now. Even if we solve autonomous cars, the bigger problem is really humans. Humans are going to mess everything up, and you have to really design for humans using self-driving cars, and how they're going to understand things around them. We want to roll this technology out quickly, and also safely, and we see this route-based strategy with our partners as a first step. And we're definitely interested in doing a Level 4 [fully autonomous] approach, because Level 3 [where a human takes over sometimes] is also chaotic.

Drive.ai has its own fleet of cars that it'll be testing around Mountain View, Calif. Because the company's vision involves vehicles that will "communicate transparently with us, have personality, and make us feel welcome and safe, even without a human driver," we recommend that you find creative ways of pestering them just to see what they do, and then tell us about it.

Eventually, Drive.ai will expand from delivering goods into ridesharing and both public and private transit. The press release mentions some existing partnerships with major OEMs and automotive suppliers. And because of that \$12 million in funding, we wouldn't be surprised to see vehicles with big friendly screens politely driving around California delivering things within the next year or two.

Self-Driving Cars

[Fortune] This Startup Is Using Deep Learning to Make Self-Driving Cars More Like Humans

Kirsten Korosec August 30, 2016

<http://fortune.com/2016/08/30/self-driving-drive-ai/>

And they've tapped a former GM executive for help.

The first intelligent robots that humans interact with on a regular basis will likely be self-driving cars—not a humanoid working in the cubicle next door.

Drive.ai, an autonomous vehicle tech startup founded by former graduate students working in Stanford University's Artificial Intelligence Lab, officially came out of stealth mode—a temporary quiet period to avoid alerting competitors—on Tuesday with some details about what it's building and a high-profile addition to its board. Steve Girsky, who sat on the General Motors board for seven years until June, has joined the Drive.ai board.

The Mountain View-based startup, which has raised \$12 million from an undisclosed venture capital firm and strategic investors, was forced out of stealth in April when it was awarded a license to test autonomous vehicles in California. But until now, little was known about what Drive.ai was working on.

In two words, it's about brains and personality.

The startup is focused on developing deep learning software—a sophisticated form of artificial intelligence—and applying it to everything the self-driving car does from recognizing objects to making decisions. Drive.ai, which was founded in April 2015, is combining deep learning software with hardware to make self-driving retrofitted kits designed for business fleets. The company will be launching pilot programs with unnamed partners in the coming months to test the delivery of people and things on fixed routes.

The company's initial market approach will focus on proving the technology with route-based vehicle fleets for industries such as freight delivery, ride-sharing, and public or private transit. Eventually, the company could work with automakers or businesses to integrate the systems within the vehicle.

“Deep learning is the best enabling technology for self-driving cars,” Sameep Tandon, CEO and co-founder of Drive.ai, tells Fortune. “You hear a lot about all these things on the car: the sensors, the cameras, the radar, and Lidar (light-sensitive radar). What we really need is the brains to make an autonomous car work safely and understand its environment.”

Deep learning is used by a few other companies developing self-driving car technology, but it's typically limited to perception—recognizing an object—and not for making decisions.

“Deep learning is the closest algorithm to how the human brain learns; it's not rule-based,” explains Carol Reiley, president and co-founder of Drive.ai. “It's much like how a 16-year-old, or young driver

learns. Instead of hard-coding rules, you're given a lot of different examples —what is right, wrong, safe, what is a car, what is not a car. It starts to generate its own set of rules on how to navigate in the road.”

The company's co-founders—there are eight of them—are passionate about the potential for deep learning to help self-driving cars handle the millions of situations that pop up on the roads. Reiley even opted to use her wedding fund to provide seed funding for the company.

But Reiley, Tandon, and the rest also recognize that it's not enough for these cars to be smart like humans. They also have to be easy to communicate with and likable.

“My passion is really figuring out ways to help humanity through robots, and I view the self-driving car as a robotic, and the first one that most people are going to interact with,” Reiley says. “People's first interaction with a self-driving car will not be in the car, but as bystander either as a pedestrian, bicyclist, motorcyclist, or another driver. To gain trust of the public, these cars have to communicate with the outside world, and be able to emote what it's intentions are.”

Drive.ai is outfitting its six autonomous test vehicles with sensors, software, and audio equipment to learn how to best communicate with people. An LED sign will be on the roof rack and will be able to send messages and emojis directed at pedestrians and other drivers. The car will also be able to emit sounds.

For instance, the car might sound a friendly horn and display a message to tell a pedestrian that it's OK to cross in front of them.

The young company is facing off against tech giants such as Google GOOG -0.40% , Tesla TSLA -1.87% , and Uber as well as traditional automakers like Ford F 0.64% , General Motors GM -0.44% , and Toyota TM 0.75% , in the race to deploy autonomous vehicles. Not to mention a growing collection of startups, notably Nutonomy, an autonomous vehicle software startup and MIT spinoff that has managed to beat them all to market with a self-driving taxi service in Singapore.

For more about other companies getting into self-driving cars, watch:

The race to develop autonomous vehicles has prompted a number of automakers to snap up these small, yet talent-rich startups companies.

Earlier this month, Volvo Car Group agreed to a \$300 million alliance with Uber to develop self-driving cars. Ford also announced its intention to make self-driving cars for commercial ride-sharing or on-demand taxi services by 2021, a target the automaker says it will reach by expanding its Silicon Valley research lab, as well as investing in or buying autonomous vehicle technology startups. Meanwhile, GM snapped up Cruise Automation for more than \$1 billion, and sank \$500 million into ride-hailing service Lyft as part of its plan to deploy self-driving taxis.

The co-founders at Drive.ai say they're not interested in being acquired.

"Our goal is build a sustainable large organization that really brings a product to market," Tendon says. "Acquisition is not our goal here. Where we really think we'll be able to make an impact is with deep learning."

[USA Today] (Self-driving) car wars heat up between Google, Uber

Marco della Cava

August 30, 2016

<http://www.usatoday.com/story/tech/news/2016/08/30/self-driving-car-wars-heat-up/89580752/>

SAN FRANCISCO -- If you need a sure sign the race to develop self-driving cars is no longer just an interesting science project, David Drummond's departure from Uber's board is it.

Drummond, an early employee of Alphabet who oversees corporate development and its investment arm for the parent of Google, stepped down Monday after two years of serving on Uber's board. Prior to both companies confirming the departure, tech news site The Information reported Drummond had been kept out of recent Uber board meetings.

Drummond's departure coincided with a report Tuesday that Google was getting ready to roll out a service in San Francisco soon that would allow riders to use the Google-owned Waze traffic app to carpool with commuters heading in similar directions. The resulting fee to the rider would be significantly lower than a current Uber or Lyft fare, according to sources speaking to The Wall Street Journal.

Google's Waze pilot project began in May around its Mountain View, Calif. headquarters, and charges riders 54 cents a mile for the service, a source told the Journal. Waze, which was founded in Israel, has been offering its carpooling service in that country since last year.

The competition between the two tech companies over the coming shift in transportation couldn't be more pointed.

Just a few weeks ago, Uber CEO Travis Kalanick revealed his company would be piloting a self-driving car service in Pittsburgh, a driverless shift that ultimately would slash the cost of a ride. Kalanick also announced Uber was buying self-driving truck startup Otto, which was started by former employees of Google's seven-year-old self-driving car project.

"I recently stepped down from Uber's board given the overlap between the two companies," Drummond, 53, said in a statement provided to USA TODAY by both Uber and Alphabet. "GV remains an enthusiastic investor and Google will continue to partner with Uber."

Kalanick, 40, thanked Drummond for his service, adding that he "has been a sage advisor and a great personal friend. I wish David and Alphabet the best, and look forward to continued cooperation and partnership."

The move is reminiscent of Google executive Eric Schmidt's resignation from Apple's board in 2009, just as competition mounted between the two tech companies over smartphones (Android vs iPhone) and related consumer services.

As chairman of Alphabet's GV, for Google Ventures, Drummond was instrumental in a massive \$250 million investment in Uber in 2013. Drummond joined Alphabet, then called Google, in 2002 from storied Silicon Valley law firm Wilson Sonsini, and served as Google's first outside counsel.

In the past few years, Google has developed its own proprietary self-driving cars that eventually will have neither steering wheels nor pedals and most likely serve as fleets of low-speed urban transportation.

Earlier this year, Uber opened its Advanced Technologies Center in Pittsburgh, staffing it largely with engineers from longtime self-driving car hotbed Carnegie Mellon University. In May, Uber started testing self-driving cars.

In the coming weeks, Uber will begin picking up passengers in a handful of Volvo SUV's outfitted with technology created by both companies in a \$300 million partnership to advance autonomous driving.

With its purchase of Otto, Uber lands that start-up's guiding light, Anthony Levandowski, who will take over self-driving car tech for all of Uber, Kalanick said. Levandowski spent eight years at Google, where he was instrumental in building the company's first self-driving car tech.

Uber's forward momentum stands in contrast to recent high-level departures from Google's autonomous car program, notably that of its longtime technology lead, Chris Urmson.

For many years, Urmson was the public face of Google's efforts (he was often quoted as saying that he hoped to get a self-driving car on the road by 2020, in time so that his son didn't have to get a license). But the engineer abruptly announced his farewell in a blog post Aug. 5.

Uber will begin picking up passengers in Pittsburgh

Uber will begin picking up passengers in Pittsburgh soon with a small fleet of self-driving cars it is developing through a \$300 million partnership with automaker Volvo. (Photo: Uber)

The past month has seen a flurry of self-driving car news from companies large and small. Ford recently announced that it would be developing an autonomous car without a steering wheel or pedals specifically for ride-hailing purposes by 2021.

And Lidar (laser radar) company Velodyne landed \$150 million in funding from Ford and China's Baidu to speed up development of lower-cost Lidar, which is considered integral to scaling up autonomous car fleets.

Google

[The WSJ] Google Takes on Uber With New Ride-Share Service

Jack Nicas

August 30, 2016

<http://www.wsj.com/articles/google-takes-on-uber-with-new-ride-share-service-1472584235>

Google is moving onto Uber Technologies Inc.'s turf with a ride-sharing service to help San Francisco commuters join carpools, a person familiar with the matter said, jumping into a booming but fiercely competitive market.

Google, a unit of Alphabet Inc., began a pilot program around its California headquarters in May that enables several thousand area workers at specific firms to use the Waze app to connect with fellow commuters. It plans to open the program to all San Francisco-area Waze users this fall, the person said. Waze, which Google acquired in 2013, offers real-time driving directions based on information from other drivers.

Unlike Uber and its crosstown San Francisco rival Lyft Inc., which each largely operate as on-demand taxi businesses, Waze wants to connect riders with drivers who are already headed in the same direction. The company has said it aims to make fares low enough to discourage drivers from operating as taxi drivers. Waze's current pilot program charges riders at most 54 cents a mile—less than most Uber and Lyft rides—and, for now, Google doesn't take a fee.

The company says it doesn't believe Waze drivers' income is taxable because it considers payments through its service effectively as money for gas.

Google's push into ride-sharing could portend a clash with Uber, a seven-year-old private firm valued at roughly \$68 billion that largely invented the concept of summoning a car with a smartphone app.

Google and Uber were once allies—Google invested \$258 million in Uber in 2013—but more recently have become rivals in some areas. Alphabet executive David Drummond said on Monday that he resigned from Uber's board because of rising competition between the pair. Uber, which has long used Google's mapping software for its ride-hailing service, recently began developing its own maps.

The two also are racing to develop driverless cars. Google has led the way with such technology, founding a project in 2009 that has now amassed more than 1.8 million miles of autonomous driving with its test cars. Uber earlier this month bought Ottomotto LLC, a six-month-old driverless-truck startup founded by Google veterans. Uber said it plans to start testing robotic taxis in Pittsburgh over the next several weeks, beating Google to a commercial test of self-driving technology.

Uber and Lyft declined to comment.

Waze is one part of Google's larger ambitions to upend transportation. Google is considering testing its driverless cars in a ride-sharing service, people familiar with the matter said, and executives have identified that as a potential business model for its self-driving technology.

Waze's path in new markets could mimic its development in Israel, where the company was founded, according to the person familiar with the matter. Google started testing a Waze carpool service there last year, and it quickly expanded. The service is now available at all hours in most parts of Israel.

In the San Francisco pilot, any local Waze user can sign up as a driver, but ridership is limited to roughly 25,000 San Francisco-area employees of several large firms, including Google, Wal-Mart Stores Inc. and Adobe Systems Inc. Riders are limited to two rides a day—intended to ferry them to and from work.

Google's Waze is moving into Uber and Lyft's ride-sharing turf with plans to expand its own ride-sharing program in San Francisco. Photo: Getty Images

In the planned expansion, anyone with the Waze app in the San Francisco area could sign up to be a rider or driver, the person said. Though Google currently doesn't collect a fee, the company is exploring different rates in Israel and San Francisco, the person familiar with the matter said.

Ben Schachter, an analyst at Macquarie Group Ltd., said a Waze ride-sharing service is a natural next step for Google, which has made clear its intentions to move into transportation. He warned that the company would need to navigate several potential pitfalls, including legal and safety questions.

"I don't think they've had any significant experience in a lot of the issues that will surely arise around" starting a ride-sharing business, Mr. Schachter said.

Like Uber and Lyft, Waze's drivers aren't employees of the company, the person said. Unlike Uber, Google doesn't plan to vet drivers for a Waze service, instead relying on user reviews to weed out problem drivers, the person said.

Waze, which operates as its own unit within Google, boasts 65 million active users, many of whom alert other users to police or traffic accidents—a hallmark of the app.

Robert Rickett, a 29-year-old nonprofit worker in Sacramento, Calif., said he uses Waze for navigation daily, particularly while driving for Lyft in the evenings. But he said he wouldn't abandon Lyft for a Waze ride-hailing service, unless it offered him better opportunities as a driver.

Still, he noted Waze's positive reputation among drivers is a big advantage—though he admitted he didn't know Google owned the service.

"They have a lot of people who trust Waze," he said while driving two Lyft passengers across the Bay Bridge into Oakland, Calif. "If they can capitalize on that, they could pull some market share."

[\[LA Times\] Tensions mount as Uber eyes self-driving cars and Google tests ride-hailing](#)

David Pierson

August 30, 2016

<http://www.latimes.com/business/technology/la-fi-tn-uber-president-board-20160830-snap-story.html>

Uber Technologies Inc. and Google were seen as allies after the search giant invested \$258 million in the ride-hailing firm in 2013. But the companies are starting to act more like competitors.

A top Google executive who held a seat on Uber's board announced his resignation this week after Uber allegedly shut him out of meetings to limit his knowledge of the company's plans for self-driving vehicles. Google, meanwhile, is expanding its reach into ride-hailing by reportedly turning its navigation app Waze into a potential competitor to Uber.

David Drummond, senior vice president of corporate development at Google holding company Alphabet Inc., acknowledged in an emailed statement that he had "stepped down from Uber's board given the overlap between the two companies."

Uber also reportedly withheld information from David Krane, an observer on Uber's board, according to the Information, which first broke news of Drummond's resignation. Krane heads a venture capital subsidiary of Alphabet called GV, which is also one of Uber's biggest shareholders.

The Wall Street Journal reported that Drummond stepped down weeks ago as the conflict of interest grew more pronounced. The newspaper also reported Tuesday that Google would expand a ride-sharing service to all San Francisco users of its navigation app Waze. The service previously had been restricted to a handful of firms around its headquarters.

Unlike Uber, which takes a cut of the fare and compensates drivers, the Waze program requires riders pay their drivers for only the cost of gas — typically 54 cents per mile, the IRS' mileage reimbursement rate.

Neither Uber nor Google responded to requests for comment.

In written statements, both Drummond and Uber Chief Executive Travis Kalanick said their companies would continue to work with each other.

"It's been a pleasure having David on the board," Kalanick said in an emailed statement. "He's been a sage advisor and a great personal friend. I wish David and Alphabet the best, and look forward to continued cooperation and partnership."

On Tuesday, as intrigue swirled around the two tech giants, Uber also named a new top executive.

Target Corp.'s chief marketing officer, Jeff Jones, was appointed president of the San Francisco company.

Jones will be responsible for Uber's ride-hailing operations, marketing and customer support, Kalanick said in a statement.

Jones has been one of the most visible and best-known members of Target's leadership team since joining the Minneapolis firm as its top marketer in 2012.

"He's been an important partner during my time at Target, and I, along with the entire team, wish him well in his future endeavors," Chief Executive Brian Cornell said in a statement.

At Uber, Jones succeeds Ryan Graves, who has been at the company since its start in 2009. Graves will remain at the firm as "resident entrepreneur."

Apple

[The Hill] Five takeaways from the EU's blockbuster ruling against Apple

Naomi Jagoda and Ali Breland

30 August 2016

<http://thehill.com/policy/finance/293849-five-takeaways-from-the-eus-blockbuster-ruling-against-apple>

The European Commission has ordered Apple to pay Ireland 13 billion euros — \$14.5 billion — for its tax dealings in a case that is being closely followed in Washington and by the business community.

The European Union's executive arm ordered the payout on the grounds that Apple had received unfair state aid from Ireland in the form of tax rulings that allowed the tech giant to pay very little in taxes on its profits from European sales. According to the Commission, such aid was a violation of European Union regulations that prevent member states from granting special tax provisions to companies.

Apple and lawmakers in the U.S. have blasted the decision, which could have broader implications for the future of commerce in the European Union.

Here are five things to know about the ruling.

The payout is unprecedented

The 13 billion euro fine is the largest ever issued by the European Union over such tax dealings.

Though some experts had predicted the penalty could run in the tens of billions of dollars, many expected a number closer to 100 million euros.

The tech giant had previously paid a comparatively paltry \$350 million in back taxes to Italy in 2015, [reports](#) Reuters.

Apple is the most profitable company in the world and the most valuable, in terms of market capitalization.

The case isn't over yet

Apple and Ireland have said they will appeal the opinion.

In a letter addressed to the Apple community in Europe, CEO Tim Cook said that the company is “confident that the Commission’s order will be reversed.”

During a conference call following the decision, representatives from the company mocked the rationale behind the decision, calling it “legal mumbo jumbo” that threatens state sovereignty in Europe and the rule of law.

“The fundamental concern is that the commission has decided to rewrite tax law,” a representative from Apple said. The company is set to release more detailed legal briefs detailing its opposition to the ruling later on Tuesday.

Ireland Finance Minister Michael Noonan said in a statement that an appeal “is necessary to defend the integrity of our tax system; to provide tax certainty to business; and to challenge the encroachment of EU state aid rules into the sovereign Member State competence of taxation.”

Ireland is required to recover the taxes from Apple while the appeal is pending, but the money can be held in an escrow until the case is finished, the finance minister’s office said.

Amazon could be next

The online retail giant has own legal woes with the European Commission. The Commission has two pending investigations into the company, an [antitrust probe](#) and a tax case not unlike the situation with Apple.

The tax investigations revolve around Luxembourg allegedly providing state aid to Amazon that the commission says would be in violation of European Union agreements. Preliminary findings in 2015 said that state aid from Luxembourg might have allowed Amazon to underpay taxes.

“Amazon has received no special tax treatment from Luxembourg — we are subject to the same tax laws as other companies operating here,” Amazon said in a 2015 statement.

Amazon declined to comment further.

Though Amazon's case, like Apple’s, pertains to state aid, there are differences. Amazon generates less profit than Apple and aggressively reinvests what it does make into its operations. If the Commission ruled against the digital retailer, the taxes owed likely would be less significant.

A decision on the Amazon-Luxembourg case is expected within the next several months.

The decision could heighten US-EU tensions

The Obama administration and members of Congress have been critical of the EU state aid cases.

Ahead of the Apple ruling, the Treasury Department issued a special report last week listing its objections to the investigations. The Treasury on Tuesday declined to comment specifically on the Apple decision but reiterated that it views the Commission's retroactive assessments as unfair.

"The Commission's actions could threaten to undermine foreign investment, the business climate in Europe, and the important spirit of economic partnership between the U.S. and the EU," a Treasury spokesperson said.

Lawmakers also blasted the EU's ruling, with Speaker [Paul Ryan](#) (R-Wis.) calling it "awful."

Senate Finance Committee Chairman [Orrin Hatch](#) (R-Utah) said the commission "has issued an extraordinary decision that targets U.S. business by rewriting already existing tax policies."

The top Democrat on the committee, Sen. [Ron Wyden](#) (Ore.), warned that the decision could make partnerships between countries to prevent tax evasion more difficult.

"This ruling could set a dangerous precedent that undermines our tax treaties and paints a target on American firms in the eyes of foreign governments," he said.

Tax reform is getting a boost

Lawmakers and other stakeholders said that the ruling was a sign that the U.S. international tax system should be overhauled.

The back taxes that U.S. companies have to pay as a result of EU rulings could be foreign taxes that are creditable against the U.S. taxes companies have to pay when they repatriate their income.

"By forcing their member states to retroactively impose taxes on U.S. companies, the EU is unfairly undermining our ability to compete economically in Europe while grabbing tax revenues that should go toward investment here in the United States," said Sen. [Charles Schumer](#) (D-N.Y.). "This is yet another example of why we need to reform the international tax system to ensure these revenues come home."

Sen. [Rob Portman](#) (R-Ohio) similarly said that the Apple ruling signals the importance of international tax reform. "The Commission is blatantly attempting to take advantage of the antiquated U.S. international tax system," he said.

House Ways and Means Committee Chairman [Kevin Brady](#) (R-Texas) called the Commission's decision an "extreme consequence of our broken tax code," which he said incentivizes U.S. companies to keep profits overseas.

Brady was a leader on the House Republicans' tax reform blueprint. That proposal calls for moving toward a "territorial" system where U.S. corporations are only taxed on the income they earn in the U.S. going forward and for taxing U.S. companies' earnings currently held offshore at lower rates. Schumer and Portman led a Senate Finance Committee working group on international tax reform last year that made similar recommendations.

But Frank Clemente, executive director of the liberal Americans for Tax Fairness, said that Congress should end companies' ability to defer U.S. taxes on their foreign earnings and require them to pay U.S. taxes on the income right away.

“While it’s at it, Congress needs to collect the up to \$700 billion in back taxes that Apple and other multinational corporations owe on the \$2.4 trillion in profits now offshore, most of which are stashed in tax havens,” he said.

Rep. Sandy Levin (Mich.), the top Democrat on the Ways and Means Committee, cautioned that those who are criticizing the EU ruling should “totally avoid legitimizing the practices of multinationals and some nations rigging the tax system so the companies pay little or no taxes for their operations.”

Sen. [Bernie Sanders](#) (I-Vt.) tweeted that he applauded the EU’s decision because “huge corporations can’t be allowed to use loopholes and tax havens to boost their obscene profits even higher.”

Tax reform highly unlikely to happen this year because it is an election year, but many lawmakers view 2017 as a window of opportunity to enact tax changes.

[NY Times] [Apple, Congress and the Missing Taxes](#)

Editorial Board 30 August 2016

<http://www.nytimes.com/2016/08/31/opinion/apple-congress-and-the-missing-taxes.html?ref=technology>

[Apple](#) and the United States are crying foul over the ruling in Europe that Apple received illegal tax breaks from Ireland and must hand over 13 billion euros (\$14.5 billion), a record tax penalty in Europe.

But Apple and the United States have only themselves to blame for the situation.

Apple has engaged in [increasingly aggressive tax avoidance](#) for at least a decade, including stashing some \$100 billion in Ireland without paying taxes on much of it anywhere in the world, according to a [Senate investigation in 2013](#). In a display of arrogance, the company seemed to believe that its arrangements in a known [tax haven like Ireland](#) would never be deemed illegal — even as European regulators cracked down in similar cases against such multinational corporations as Starbucks, Amazon, Fiat and the German chemical giant BASF.

[Congress](#), for its part, has sat idly by as American corporations have indulged in increasingly intricate forms of tax avoidance made possible by the interplay of an outmoded [corporate tax code](#) and modern globalized finance. The biggest tax dodge in need of reform involves deferral, in which American companies can defer paying taxes on foreign-held profits until those sums are repatriated.

Initially, deferral was a convenience for multinationals, as they sought investment opportunities abroad. Today, it is the taproot of global tax avoidance. Financial engineering has let American companies shift profits into foreign accounts, while they lobby Congress for tax-rate cuts in exchange for repatriating the money. Currently, there is some \$2 trillion in corporate profits in offshore tax-deferred accounts; besides Apple, Microsoft, Google, Cisco and Oracle also have large stashes. Apple is one of nearly two dozen major corporations pushing Congress for a “tax holiday,” which would let companies bring back foreign-held money over the course of a year at a discounted tax rate, rather than the current rate, 35 percent.

Every weekday, get thought-provoking commentary from Op-Ed columnists, The Times editorial board and contributing writers from around the world.

Before the European ruling on Tuesday, the debate over a tax holiday had pitted Republicans, who have generally favored the idea, against Democrats, who have viewed it as an unjustified reward for tax avoidance. The Democrats have history on their side. A tax holiday in 2005 lowered the corporate rate to 5.25 percent, enticing corporations to repatriate some \$300 billion. It was billed as a way to create jobs and increase investment, but the money was used mostly for dividend payments, share buybacks (which tend to raise [executive pay](#)) and severance for laid-off employees. Worse, the tax holiday inspired multinationals to stash as much money abroad as they possibly could in anticipation of another holiday.

The European ruling, however, could sharply alter the terms of the congressional debate. Republicans and Democrats alike have always assumed that foreign-held profits would one day be repatriated. The big question was the rate at which they would ultimately be taxed. Similarly, the Treasury assumes that deferred foreign profits will one day be taxed when it projects future revenues — an important measure of the nation’s fiscal health.

But the money won’t be repatriated and taxed under American law if Europeans, in the course of enforcing their own laws against tax havens, get their hands on it first. And that, in a nutshell, is why members of Congress and Treasury officials are so upset about the Apple ruling. They understand, correctly, that tax-law enforcement in Europe could reduce the sums they expect to collect taxes on someday. What they don’t understand, or aren’t saying, is that they brought the problem on themselves.

The way forward is not to declare a tax war with Europe. It is for Congress to agree on a way to tax foreign-held corporate profits. President Obama put forth a reasonable approach in 2015, when he proposed a mandatory 14 percent tax on multinationals’ current offshore profits — whether they are repatriated or not — and, thereafter, a new minimum tax rate of 19 percent on profits moved offshore. An even better approach would be to simply end indefinite corporate tax deferral, imposing American taxes on profits when they are made.

Republicans rejected Mr. Obama’s proposal in 2015, and there is no chance that lawmakers will engage in such a debate so close to the election. But the next president and Congress will need to act to ensure that at long last, American corporations pay their fair share in taxes.

[\[NY Times\] Fact-Checking Apple’s Claims on E.U. Tax Ruling](#)

Katie Benner

30 August 2016

<http://www.nytimes.com/2016/08/31/technology/tax-experts-check-out-arguments-from-apple-over-ruling.html?ref=technology& r=0>

SAN FRANCISCO — [Timothy D. Cook](#), Apple’s chief executive, issued a [defiant letter](#) to his European customers on Tuesday after the [region’s antitrust enforcer ordered Ireland](#) to collect 13 billion euros, or about \$14.5 billion, in back taxes from the company.

By turns outraged and scolding, Mr. Cook pushed back on the [findings by Europe’s competition commission](#), which said that Apple had made inappropriate low-tax deals with the Irish government that let the technology company pay almost nothing on its European business in some years.

Instead, Mr. Cook framed Apple's operations in Ireland as an investment in the people there, declared that Apple has a history as a good corporate tax citizen, and added that the [European Commission's](#) decision will hurt investment and business growth in Europe.

We examined some of the points Mr. Cook made in the letter, consulting with five tax experts to fact-check the chief executive's statements. While Mr. Cook was technically truthful, he omitted some context and shifted the spotlight from the thrust of the European Commission's case: whether Apple took advantage of loopholes in Irish tax laws.

MR. COOK'S LETTER "As our business has grown over the years, we have become the largest taxpayer in Ireland, the largest taxpayer in the United States, and the largest taxpayer in the world."

FACT CHECK While it's not a bad guess that Apple is the largest taxpayer on the planet because of the company's immense size, even Mr. Cook said [in testimony before Congress](#) in 2013 that this was just an estimate. United States corporate tax information is private, so there is no way for Apple to say for sure that it is the biggest taxpayer in the country, much less the world.

The issue of how much money Apple pays in taxes is also a bit of a red herring. "This fight with the European Union is not about what the company has paid in taxes overall, but about how much it should pay," said Steven Rosenthal, a senior fellow at the Urban-Brookings Tax Policy Center. "Tax systems are not a pay-what-you-want system."

MR. COOK'S LETTER "In Ireland and in every country where we operate, Apple follows the law and we pay all the taxes we owe."

FACT CHECK Apple, along with many multinational companies, takes advantage of differences in national tax laws by moving money around the globe in ways that shrink their overall tax burdens. While a company like Apple may pay all of the taxes that it owes, it also tries to find legal ways to owe as little as possible.

The European Union wants to crack down on the ways that companies minimize their tax bills in Europe, especially in Ireland. In the 1980s, Ireland began modeling itself after Bermuda, a well-known corporate tax haven, said Khadija Sharife, a forensic financial researcher and an editor at the African Network of Centers for Investigative Reporting. Ireland's corporate tax rate is 12.5 percent, compared with 35 percent in the United States.

While Ireland is phasing out some corporation-friendly rules, "companies will continue to come up with ways to pay less taxes in other countries until all countries across the world can agree on corporate tax rules," said Lisa De Simone, assistant professor of accounting at Stanford University.

MR. COOK'S LETTER "The opinion issued on August 30th alleges that Ireland gave Apple a special deal on our taxes. This claim has no basis in fact or in law. We never asked for, nor did we receive, any special deals."

FACT CHECK The European Commission makes clear, and tax experts agree, that Ireland let Apple determine how much of the income that it generated in the country would be recognized and taxed there.

The rest of Apple's income that was not recognized and taxed in Ireland could be put in other corporate structures that were effectively stateless. That meant the money in those structures was not taxable anywhere — not even in Ireland — and thus not subject to Ireland's 12.5 percent tax rate.

While other companies have also had the right to negotiate with Ireland, the commission considers these sorts of loopholes a no-no.

"In the U.S., states can fall all over themselves to offer subsidies and loopholes, but that is exactly what is illegal in Europe," said Edward D. Kleinbard, professor at the Gould School of Law at the University of Southern California and a former chief of staff to the congressional Joint Committee on Taxation.

MR. COOK'S LETTER "The Commission's move is unprecedented and it has serious, wide-reaching implications. It is effectively proposing to replace Irish tax laws with a view of what the Commission thinks the law should have been."

FACT CHECK Mr. Kleinbard said the commission is not replacing Ireland's tax law with a view of what the commission thinks should happen. It is simply asking Ireland to enforce the tax rate that it has and close loopholes that allow companies like Apple not to recognize large portions of the income they generate in Ireland and pay even less.

MR. COOK'S LETTER "This would strike a devastating blow to the sovereignty of E.U. member states over their own tax matters, and to the principle of certainty of law in Europe."

FACT CHECK Stanford's Ms. De Simone agrees with Apple that the E.U. ruling hurts the sovereignty of its member countries. If Ireland wants to create rules that allow for stateless entities not to pay taxes anywhere, up until now that has been Ireland's decision to make.

While the E.U. has been trying to create harmony across the region when it comes to how to treat corporate taxes, for now taxes are "an issue for each individual member state in Europe," said Dr. Liza Lovdahl Gormsen with the British Institute of International and Comparative Law. She said this case creates uncertainty for many multinational companies across Europe.

MR. COOK'S LETTER "In Apple's case, nearly all of our research and development takes place in California, so the vast majority of our profits are taxed in the United States."

FACT CHECK It's true the majority of Apple's profits are taxed in the United States.

But Ms. De Simone said Apple has also kept more than \$200 billion in accumulated profits offshore. That money could someday be brought home and taxed, but Apple is in control of whether or not that actually happens.

MR. COOK'S LETTER "Beyond the obvious targeting of Apple, the most profound and harmful effect of this ruling will be on investment and job creation in Europe."

FACT CHECK There is support among tax experts for this statement. Mr. Rosenthal of the Tax Policy Center said so many countries are motivated to use low tax rates to generate business that Europe could lose multinational business if companies are discouraged by the commission's ruling on Irish tax treatment of Apple.

But Mr. Rosenthal said the issue is ultimately broader than Europe. People would do well to also remember the total amount of government revenue being lost to low-cost tax deals, he said.

"If we allow companies like Apple to pick its tax haven — to place a few thousand employees in a place for a lower tax rate — we do add a few jobs," he said. "But more widely, the taxes given up globally could be used for public service, worker training and infrastructure repair."

[Wired] How Apple—and the Rest of Silicon Valley—Avoids the Tax Man

Lee Simons August 30, 2016

<http://www.wired.com/2016/08/apple-rest-silicon-valley-avoids-tax-man/>

TODAY, THE EUROPEAN Union ordered Apple to pay \$14.5 billion dollars in back taxes, which its antitrust regulator says the company owes because a sweetheart tax deal offered by Ireland violated EU policy.

The penalty, which is the largest the EU has ever lobbied against a single corporation, signals that the Union is getting increasingly serious about holding foreign companies accountable for their tax bills. But Apple is far from alone.

For sheer ingenuity, you can't beat Silicon Valley—especially at outsmarting the tax man. By selling intellectual property rights to sock-puppet subsidiaries, tech giants shift profits to low-tax nations like Ireland. But that's just a start. Sublicense the IP to a second Irish unit that books global sales, have entity B pay onerous royalties back to A (wiping out its earnings), then show that A is headquartered in the Caribbean, making its royalty income untaxable in Ireland. Slick! Only problem: Until the IRS gets its cut, the companies can't bring the cash back home to use it. Hmm ... not so genius after all.

Editor's note: This story originally appeared in the April 2014 issue of WIRED; it has been updated to reflect breaking news. Figures are for 2012 (except Microsoft: 2011); R&D cost-sharing payments to US parent companies and some IP paths not shown. Information on the sources for the infographic can be found here.

Commercial Space

[Science World Report] ULA Challenges SpaceX In Commercial Space Services

Franz Cube August 31, 2016

<http://www.scienceworldreport.com/articles/46401/20160831/ula-challenges-spacex-in-commercial-space-services.htm>

SpaceX could no longer be the lone space cargo contactor of NASA as the new United Launch Alliance (ULA) is planning to develop cheap reusable rockets similar to what SpaceX did to its Dragon space capsule.

This year, SpaceX Dragon capsule successfully arrived at the International Space Station to deliver supplies, researches and space gears. It also successfully returned carrying data gathered from researches and experiments back to Earth. This was a very remarkable moment in aerospace history because this was the very first time NASA outsourced a space mission like this to a corporation like SpaceX.

SpaceX was able to secure the deal by reinventing rocket technology. Before, aerospace missions were tremendously expensive, one major factor is the wasted resources using dated rocket technology. Rockets that were used before are bulky, expensive and with fuel draining mechanisms. And the worst part is that after the launch, it is not reusable. However, SpaceX were able to resolve these problems and proposed changes in the design and engineering of rockets. This greatly increased efficiency, performance but significantly reduced the cost.

However, SpaceX's greatest rival Lockheed Martin, partnered with Boeing Space Defense & Security to form a new commercial space company called United Launch Alliance. This new commercial space company has big potential to rival with SpaceX in its outsourcing space services with NASA. ULA will be launching "space truck" to compete with SpaceX's existing space cargo division. ULA will be using a different strategy in reusing rockets. Instead of returning the rockets back to Earth, they are suggesting that it would be more practical to convert it to relief rocket that can be refueled while it stays in the orbit waiting for the next space flight to be reused.

In a report by Quartz, Tory Bruno, CEO of ULA said that, "We realized that you don't have to bring it back in order for it to be reusable. That's the big paradigm change in the way that you look at the problem-if you have an upper stage that stays on orbit and is reusable."

ULA is also proposing to build a massive infrastructure for a lunar colony by 2020. They will also do further research and development to make space travel easier and more cost efficient.

[\[WSJ\] SpaceX Signs First Customer for Launch of Refurbished Rocket](#)

Andy Pasztor 30 August 2016

http://www.wsj.com/articles/spacex-signs-first-customer-for-launch-of-refurbished-rocket-1472594431?mod=WSJ_TechWSJD_moreTopStories

Satellite operator SES SA has agreed to launch one of its large commercial spacecraft on a refurbished Space Exploration Technologies Corp. rocket, marking another advance for reusable boosters.

Scheduled to occur before the end of the year, the mission announced on Tuesday will be the first one to use the lower stage and nine main engines of a Falcon 9 rocket that experienced the rigors of a blastoff and acceleration through the atmosphere on a previous launch. No other commercial space company or military contractor has achieved such a landmark by recovering and reusing the entire lower stage intact, after an initial orbital flight.

Officials of SpaceX, as the Southern California company is called, have been eager to demonstrate such reusable technology, which they describe as a game changer that eventually will allow more frequent and significantly less expensive launches of all types of spacecraft. SpaceX officials have talked about

ultimately being able to launch spacecraft at a faster tempo—and for a fraction of their current prices, which typically start at roughly \$60 million.

The company so far has returned the main lower portions of six Falcon 9 rockets, by landing them vertically on land or on a [specially outfitted floating ocean platform](#). The booster destined to carry the SES satellite lifted an unmanned cargo capsule toward the international space station in April.

SpaceX officials also have said the engines of boosters that have returned to Earth proved to be in excellent shape, requiring little refurbishment. The engines are slated to undergo extensive analysis, including repeated test firings on the ground, before being readied for repeat launches. Senior SpaceX officials have predicted that Falcon 9 engines could end up being reused multiple times—potentially up to dozens of missions, and other experts have concurred.

SpaceX founder and Chief Executive Elon Musk hasn't said how much it is likely to cost to put used boosters back into service, nor has he indicated the extent of discounts available for customers willing to sign up for such launches. Overall, the company has signaled relatively little refurbishment work is expected to be necessary. Detailed structural and other tests are continuing on another returned booster, which experienced the highest re-entry forces.

The [U.S. military remains cool](#) to the general concept because it is reluctant to trust its expensive satellites to recycled boosters until the technology is proven. Claire Leon, the Air Force's top rocket-acquisition official, told a space-industry conference in May: "It's going to be a long time before we can actually say we're going to reuse a rocket." Some satellite industry consultants and SpaceX critics have argued that the company has a long way to go to [demonstrate the benefits](#) and most of all, the reliability, of reusable rockets.

But commercial satellite operators generally have been more supportive, and in recent months, SES officials have talked up the potential benefits of reusing boosters. The upcoming mission is intended, among other things, to demonstrate that a blue-chip customer is willing to accept a previously used rocket with a relatively short turnaround time to get it ready for another launch.

SpaceX officials also are betting that the Pentagon and other U.S. government customers, which are independently studying broader reusability questions, gradually will follow the lead of SES.

The decision by Luxembourg-based SES, which operates more than 50 large commercial satellites in high-Earth orbit, is particularly significant for several reasons. The move comes despite the fact that the company's satellite-deployment plans have been disrupted by previous slips in SpaceX launch schedules.

SES, which years ago was the first commercial operator to launch with SpaceX, also has a reputation for technical expertise and long has been viewed by the rest of the industry as exercising caution in adopting new technologies.

As a result, the upcoming launch could help convince other operators, SpaceX customers and insurance providers that reusable rockets are likely to be a major trend.

In its press release, SES called the recycled booster a "flight-proven Falcon 9." Martin Halliwell, chief technology officer at SES, said: "We believe reusable rockets will open up a new era of spaceflight, and make access to space more efficient in terms of cost and manifest management."

In Tuesday's joint release, Gwynne Shotwell, president and chief operating officer of SpaceX, said "relaunching a rocket that has already delivered spacecraft to orbit is an important milestone on the path to complete and rapid reusability."

One technical issue industry that officials are likely to be watching closely is whether additional tests and work may be needed before relaunching boosters that previously placed satellites into orbits requiring extra propulsion. Those boosters follow faster trajectories, and undergo greater stresses, when returning to land.

Broadband

[Engadget] [Virgin Media has a broadband plan just for gamers](#)

Nick Summers

August 31, 2016

<https://www.engadget.com/2016/08/31/virgin-media-vivid-200-gamer-broadband-plan/>

When most people shop for a new broadband package, they're focused on download speeds. What can I expect when everyone in my home is trying to stream Netflix? Or downloading a game like Inside to their PlayStation 4? But, now more than ever before, customers are interested in upload speeds too. It can affect your performance in a game like Overwatch, as well as Twitch-style streaming and video uploads to sites like YouTube. Virgin Media is catering for this group with "VIVID 200 Gamer," an optional upgrade for its VIVID 200 tariff. If you're willing to spend an extra £5 per month, you'll have your upload speeds increased from 12 to 20Mbps.

While Virgin Media is targeting "gamers" (some cringeworthy advertising is no doubt in the pipeline), the plan could appeal to anyone that deals with large files and demanding services. Professional filmmakers who regularly upload footage, for instance. Or wedding photographers that need to quickly upload large image libraries. Of course, video games are a popular past-time, so it's easy for Virgin Media to market the new tariff this way. Anyone that's played a fast-paced shooter in the last few years, like Titanfall or Battlefield 4, will understand the frustration when it's your internet connection, rather than your thumbs, that result in a loss.

[PR Newswire] [Verizon- Incompas Special Access Proposal Would Cripple Investment in Broadband](#)

August 30, 2016

<http://www.prnewswire.com/news-releases/verizon-incompas-special-access-proposal-would-cripple-investment-in-broadband-300320387.html>

WASHINGTON, Aug. 30, 2016 /PRNewswire-USNewswire/ -- The Federal Communications Commission (FCC) must reject an alternative proposal for regulation of special access services offered by Verizon and INCOMPAS that would deliver a crippling blow to investment, according to a coalition of carriers in the business broadband market.

In comments filed Tuesday with the FCC, network infrastructure providers, including CenturyLink, Inc., Frontier Communications Corporation, FairPoint Communications, Inc., and Consolidated Communications, demonstrate that the Verizon-INCOMPAS proposal neither attempts to reach a reasonable solution between parties, nor works within the framework of the Commission's process in reviewing regulation.

"It should go without saying that the Commission may not, on the basis of an alleged compromise, adopt outcomes that are on their own indefensible. The core features of the Verizon-INCOMPAS proposal lack merit, and the Commission therefore must reject them," states the letter from the companies, who are members of the Invest in Broadband for America coalition.

In an analysis provided by the carriers, the first of several flaws is that the Verizon-INCOMPAS proposal misrepresents a majority of the competition that exists in the business broadband market today, by deeming services that provide speeds below 50 Mbps as non-competitive. However, the FCC's own data reveals that, in reality, competitive service providers account for the majority of the market for offerings below 50 Mbps. To disregard the providers that make up a majority of the market, and to drive prices below existing competitive rates, threatens the viability of broadband investment in underserved communities.

"The FCC's stated goal has been to incent broadband investment and competition across the country," said John Jones, CenturyLink Senior Vice President, Public Policy and Government Relations. "Yet the proposal offered by Verizon and INCOMPAS would hijack the FCC's process and drive investment and competition out of the market altogether."

"We want to put the goals of the FCC back in front and bring all of the principals in the marketplace together to fashion a solution that encourages investment and connects underserved communities that would be left in the dark by the Verizon-INCOMPAS proposal," Jones said.

The Verizon-INCOMPAS proposal also includes a substantial one-time rate reduction to the special access market—a proposal that is not based on data and costs and one that would significantly limit investment in broadband expansion. Additionally, it proposes ongoing rate cuts for services that are becoming more expensive to provide in today's telecommunications market.

The sponsorship of this alternate proposal by two companies who invest only a fraction of what true network providers invest annually in the broadband industry highlights the crucial flaw within Verizon-INCOMPAS's proposed "compromise"—that the proposal has been influenced by either a true disregard or a complete lack of understanding of long-term, effective network investment, planning, and

maintenance that benefits not just competitors, but also community anchor institutions, according to Jones.

In their haste to impose price regulation and transfer operational costs to the only companies investing in broadband infrastructure, the Verizon-INCOMPAS proposal risks causing significant loss of investment in rural areas around the country, he said.

"We urge the FCC to reject this proposal that, if adopted, would cripple investment in needed infrastructure, result in job losses and raise the cost of capital for ongoing broadband deployment. Our goal is to work with the Commission as it constructs a final order based upon the competitive realities of today's marketplace and the facts in the record," said Kathleen Abernathy, Executive Vice President for External Affairs at Frontier Communications.

The "Invest in Broadband for America" coalition (investinbroadband.org) is made up of CenturyLink, Inc. (NYSE: CTL), Cincinnati Bell, Inc. (NYSE: CBB), Consolidated Communications, Inc. (NASDAQ: CNSL), FairPoint Communications, Inc. (NASDAQ: FRP) and Frontier Communications (NASDAQ: FTR). James E. Prieger's report can be found [here](#).

Cybersecurity

[Washington Post] [Could hackers tip a U.S. election? You bet.](#)

Craig Timberg and Andrea Peterson

30 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/30/could-hackers-tip-an-american-election-you-bet/>

Reports this week of Russian intrusions into U.S. election systems have startled many voters, but computer experts are not surprised. They have long warned that Americans vote in a way that's so insecure that hackers could change the outcome of races at the local, state and even national level.

Multibillion-dollar investments in better election technology after the troubled 2000 presidential election count prompted widespread abandonment of flawed paper-based systems, such as punch ballots. But the rush to embrace electronic voting technology — and leave old-fashioned paper tallies behind — created new sets of vulnerabilities that have taken years to fix.

"There are computers used in all points of the election process, and they can all be hacked," said Princeton computer scientist Andrew Appel, an expert in voting technologies. "So we should work at all points in that system to see how we make them trustworthy even if they do get hacked."

The alleged Russian hacks to voter registration systems in Arizona and Illinois exposed one of the major weak spots in election systems. Deleting or altering data on voter rolls could cause mayhem on Election Day, disenfranchising some voters. Many voting machines themselves also are vulnerable, especially touch-screen systems that do not create a paper record as a guard against fraud or manipulation.

Several swing states, including Pennsylvania, Florida and Virginia, have insecure touch-screen systems in some jurisdictions. Other states, such as Georgia and New Jersey, still use them at every polling station.

At stake are not just the results themselves. Faith in the reliability and transparency of balloting, experts say, is crucial to democracy, especially in a year when allegations of voting irregularities already have been aired by politicians, most notably Republican presidential nominee Donald Trump.

While there are few documented cases of electronic systems producing flawed voting results in the United States, experts say fears of potential hacks by foreign intelligence services are legitimate. Government databases of all sorts have been routinely pilfered by hackers for years, meaning that voter rolls likely are vulnerable too.

“I am not an expert on reading Vladimir Putin’s mind, and I don’t know what he’s up to if anything, but if your goal is to simply cause chaos, then destroying the voter registration databases would be an excellent way to cause chaos,” said Dan S. Wallach, a Rice University computer science professor who has long studied the security of election systems.

When it comes to voting machines, experts say the most secure systems rely on the strengths of old technologies and new ones. Voting machines with optical scanners, for example, use computer technology to read paper ballots in which voters fill in a bubble next to their preferred candidates. This creates both an electronic tally and a paper record, as do some newer touch-screen systems.

The combination is difficult for even the most sophisticated hackers to defeat. Some states require automatic auditing of selected results to verify that computerized and paper totals are the same. In the case of controversy, recounting is a possible if cumbersome remedy.

Systems that collect only digital records offer many possible targets for hackers — at polling machines, at counting stations and on the computers that collect and tally up overall results for a jurisdiction. Princeton researchers showed in 2006 that one widely deployed electronic voting machine was vulnerable to a virus that could be carried on memory cards used to collect totals. Once installed, such a virus could quietly tweak results for years without detection.

Even when electronic systems are insecure, paper records allow for auditing and verification. Such reviews have caught software errors that could have affected the outcomes of elections.

In a 2006 Republican primary in Pottawattamie County, Iowa, an election official noticed that a little-known candidate was close to beating a popular incumbent. When the official ordered a hand count of the ballots, they uncovered a programming mistake that was tipping the election toward the challenger.

Fairfax County, Va., [probed its new voting machines](#) in 2003 after Election Day malfunctions, including one where some machines appeared to subtract 1 out of every 100 votes for a Republican candidate who lost a close school board election.

Maryland recently switched to secure optical scanners for its elections. Virginia has been upgrading its systems and is expected to complete the transition by 2020. (For a map of the technology used in particular jurisdictions, look [here](#).)

The nationwide trend is toward adoption of systems that produce paper and electronic records; they are deployed universally in 35 states and in many counties elsewhere, according to tracking by Verified Voting Foundation, a California-based nonprofit group that monitors voting technologies. Pamela Smith,

president of Verified Voting Foundation, estimated that more than 75 percent of U.S. voters cast ballots on machines that create a reliable paper trail.

"When you have voters marking a physical ballot, it's pretty easy to check — and it's obvious what's being counted," Smith said. "Those physical records of voter intent can be used for a postelection audit to check the software on a system counting the votes or if a candidate requests a recount or one is required because the margin of victory is small. It lets election officials use that record to demonstrate that the count was correct."

More than just vote tallies can be in peril. The alleged Russian intrusions into voting systems in Arizona and Illinois, which prompted the FBI to issue warnings to election officials in June, could have targeted voter lists or other personal data kept on state databases. Altering lists of registered voters could potentially cause long lines or other problems on Election Day, leading some people to not cast ballots.

The 2000 presidential election, won by George W. Bush after weeks of wrangling over "butterfly ballots," "hanging chads" and other flaws with paper balloting systems, prompted Congress to outlaw punch ballots and allocate \$3 billion to help states switch to supposedly secure electronic systems.

Much of the first wave of new technologies, however, left no paper record of voter intent and often relied on outdated hardware and software. Technology experts warned of the security risks, but several states made major investments in flawed machines before there was widespread consensus among election officials that paper verification was essential.

"The systems are absolutely horrible," said Joe Hall, chief technologist for the Center for Democracy and Technology. "Some of these systems are essentially 15- to 20-year-old computers, and there's only so much you can do to try to protect them, unfortunately."

[The Hill] Reid requests FBI probe into Russia 'tampering' in US election

Rebecca Savransky

30 August 2016

<http://thehill.com/blogs/blog-briefing-room/news/293762-reid-requests-fbi-investigation-into-russia-tampering-in-us>

Senate Minority Leader [Harry Reid](#) (D-Nev.) on Monday sent a letter to the FBI asking the agency to investigate the threat the Russian government poses to the U.S. presidential election.

"I have recently become concerned that the threat of the Russian government tampering in our presidential election is more extensive than widely known and may include the intent to falsify official election results," Reid wrote in a letter addressed to FBI Director James Comey.

Reid said the evidence linking Republican presidential nominee [Donald Trump](#)'s campaign to Russia continues to grow.

"The prospect of a hostile government actively seeking to undermine our free and fair elections represents one of the gravest threats to our democracy since the Cold War and it is critical for the Federal Bureau of Investigation to use every resource available to investigate this matter thoroughly and in a timely fashion," Reid wrote.

"The American people deserve to have a full understanding of the facts from a completed investigation before they vote this November."

Reid cited the leak of a trove of emails released by WikiLeaks last month that appeared to show top Democratic National Committee officials planning ways to undermine the presidential campaign of Sen. [Bernie Sanders](#) (I-Vt.).

"The prospect of individuals tied to Trump, WikiLeaks and the Russian government coordinating to influence our election raises concerns of the utmost gravity and merits full examination," he wrote.

He also said there have been concerns about the Russian government attempting to influence the Trump campaign and use it as a "vehicle for advancing the interests of Russian President Vladimir Putin."

"The foregoing — and more — has led me to believe that this matter should be fully investigated," Reid wrote, "and the investigation made public."

Reports on Monday revealed that the FBI found evidence that foreign hackers had penetrated two state election databases.

Questions have previously been raised about the Trump campaign's ties to Russia.

[The Hill] [FBI head: We're taking suspected political hacks 'very seriously'](#)

Julian Hattem

30 August 2016

<http://thehill.com/policy/national-security/293801-fbi-taking-suspected-political-hacks-very-seriously-chief-promises>

The FBI is "very seriously" examining alleged hacks at two state election offices, director James Comey said Tuesday.

"We take very seriously any effort by any actor — including nation states but especially nation states — that moves beyond the collection of information about our country, and then offers the prospect of an effort to influence the conduct of affairs on our country, whether that's election or something else," Comey said at a conference in Washington hosted by Symantec, a digital security company.

"Don't want to comment on the particular, but those kinds of things are something that we take very, very seriously and work very, very hard to understand so that we can equip the rest of our government with options for how to deal with it."

Comey's comments were the first he has given publicly since news broke on Monday that the FBI had previously raised alarms about the suspected hacks of voter databases in Arizona and Illinois earlier this month. News of the Aug. 18 alert sparked fresh fears about the ability of foreign governments to interfere in American elections.

The state database hackers are suspected to be linked to Russia, in what could be an escalation of state-sponsored cyber activity in the U.S. ahead of the November elections.

Russia has previously been tied to a massive hack of the Democratic National Committee (DNC) and other party arms, which resulted in scores of emails being posted on WikiLeaks on the eve of the party's nominating convention this summer.

Documents unveiled in the leak, which some have interpreted as an effort to put a finger on the scale of U.S. democracy, appeared to show Democratic Party leaders trying to boost [Hillary Clinton](#)'s candidacy over that of Sen. [Bernie Sanders](#) (I-Vt.). The release forced resignations from senior party officials including DNC Chairwoman Debbie Wasserman Schultz (Fla.).

[The Hill] Top Dems push FBI to investigate Trump campaign role in DNC hack

Katie Bo Williams

30 August 2016

<http://thehill.com/policy/national-security/293868-top-dems-push-fbi-to-investigate-trump-campaign-role-in-dnc-hack>

The ranking members of four House committees have asked the FBI to investigate whether officials from [Donald Trump](#)'s campaign had any role in recent cyberattacks on the Democratic National Committee (DNC) and the Democratic Congressional Campaign Committee (DCCC).

The FBI is investigating the attacks, which are widely believed to be the work of Russian intelligence groups. Some suspect that the operation was a bid to tilt the presidential election in the Republican nominee's favor.

The top Democrats from the Oversight, Judiciary, Foreign Affairs and Homeland Security committees — Reps. Elijah Cummings (D-Md.), John Conyers Jr. (D-Mich.), Eliot Engel (D-N.Y.) and Bennie Thompson (D-Miss.), respectively — pressed FBI Director James Comey to look into those suspicions on Tuesday.

“Serious questions have been raised about overt and covert actions by Trump campaign officials on behalf of Russian interests,” they wrote. “It is critical for the American public to know whether those actions may have directly caused or indirectly motivated attacks against Democratic institutions and our fundamental election process.”

Specifically, the lawmakers asked that the agency “assess whether connections between Trump campaign officials and Russian interests may have contributed to these attacks in order to interfere with the U.S. presidential election.”

The five-page letter lists a number of press reports detailing an apparent relationship between Trump aides and Russia, including foreign policy adviser Carter Page's reported dealings with Russian energy firm Gazprom and former campaign chairman Paul Manafort's ties to a pro-Russian official in Ukraine.

Democrats are rallying behind this characterization of the hack and subsequent leak of the DNC documents on the eve of the Democratic National Convention as a pro-Trump effort.

Senate Minority Leader [Harry Reid](#) (D-Nev.) on Monday [sent](#) a separate letter to the FBI asking the agency to investigate any threat the Russian government poses to the U.S. presidential election.

"I have recently become concerned that the threat of the Russian government tampering in our presidential election is more extensive than widely known and may include the intent to falsify official election results," Reid wrote in a letter addressed to Comey.

The evidence linking Trump's campaign to Russia continues to grow, Reid wrote.

Democratic nominee [Hillary Clinton](#)'s campaign has also characterized the leak as a bid by Russia to help Trump, citing the suspicious timing of the email dump. Documents unveiled in the leak, which appeared to show Democratic Party leaders trying to boost Clinton's candidacy over that of Sen. [Bernie Sanders](#) (I-Vt.), forced resignations from senior party officials, including Chairwoman Debbie Wasserman Schultz.

"I don't think it's coincidental that these emails were released on the eve of our convention here, and I think that's disturbing," Clinton campaign manager Robby Mook said at the time.

The Kremlin has denied any involvement in the hack. And both Trump and WikiLeaks, the anti-secrecy organization that published the stolen emails, have pushed back on speculation that the leak was a conspiracy to boost Trump's chances in November.

"The new joke in town is that Russia leaked the disastrous DNC e-mails, which should never have been written (stupid), because [Russian President Vladimir] Putin likes me," Trump tweeted in July.

"Clinton campaign pushing lame conspiracy smear that we are Russian agents," WikiLeaks tweeted. "Get it right."

Separate reports on Monday also revealed that the FBI found evidence that foreign hackers — believed to be Russian — had broken into two state election databases.

[\[WSJ\] Computer-Security Firm Says Hackers Targeting Russian-Focused Think Tanks](#)

Robert McMillan

30 August 2016

http://www.wsj.com/articles/computer-security-firm-says-hackers-targeting-russian-focused-think-tanks-1472589087?mod=WSJ_TechWSJD_moreTopStories

A Russian hacking group linked to a series of computer intrusions at the Democratic National Committee and other organizations is now targeting Washington think tanks focused on Russian policy, according to investigators at computer-security firm CrowdStrike Inc.

The company detected "several intrusions" at think tanks that it said bore the trademarks of a Russian hacking group alternatively known as Cozy Bear and APT 29, said Dmitri Alperovitch, CrowdStrike's co-founder and chief technology officer.

In June, CrowdStrike published a report linking Cozy Bear to a year-long intrusion at the DNC, after the security company was brought in to investigate.

One think tank, the Center for Strategic & International Studies, confirmed Tuesday it was under attack last week. "As with many research institutions we are constantly dealing with cyberattacks," Andrew Schwartz, the institute's senior vice president of external relations, said by email.

The Russian group has targeted think tanks in the past and also gained access to unclassified networks at the White House, State Department and U.S. Joint Chiefs of Staff, CrowdStrike says. News of the latest attacks come as U.S. authorities ponder how to respond to the intrusions at the Democratic committee and elsewhere.

Asked about CrowdStrike's allegations, a Russian embassy spokesman referred to an Aug. 17 statement by Russian Foreign Minister Sergei Lavrov, who declined to comment on "pseudo sensational news" involving cybercrime allegations.

“President [Vladimir] Putin has repeatedly articulated our position and stated publicly that we never interfere in the internal affairs of other countries,” Mr. Lavrov said at the time.

Earlier this month, the Federal Bureau of Investigation issued an alert warning that U.S. election systems were being targeted by hackers.

Cozy Bear broke in to the DNC network a year ago, but had kept a low profile until these latest attacks, Mr. Alperovitch said. “This is the first big new campaign that we’re seeing since last summer,” he said.

The attacks at the think tanks came in the form of email messages written to encourage victims to click on maliciously encoded [Microsoft](#) Word or Excel attachments. Once clicked, these files would install unauthorized software on the victim’s computer, which would then move from one machine to another on the network.

The software contained a number of “digital indicators”—the malicious software and internet infrastructure that it used—that allowed CrowdStrike to link it to the Russian hackers, Mr. Alperovitch said.

Mr. Alperovitch declined to name the think tanks that had been attacked or say how many had been targeted. [News of the attacks](#) was reported Monday by Defense One, a national security magazine.

[\[Washington Examiner\] White House: GOP to blame for cyberinsecurity](#)

Susan Crabtree August 30, 2016

http://www.washingtonexaminer.com/white-house-gop-to-blame-for-cyber-insecurity/article/2600527?custom_click=rss

The White House is blaming Republicans for failing to do everything they can to help the U.S. government protect the nation from cyberattacks, in the wake of new FBI evidence that foreign hackers penetrated two state election databases in recent weeks.

"What's true is that President Obama has made cyber-security a national priority ... I think there are significant concerns being raised about whether Republicans in Congress have made it a priority," presidential press secretary Josh Earnest told reporters.

Earnest argued that Obama included a special proposal for cybersecurity in his budget proposal early this year, but said Republicans "wouldn't even hold a hearing to talk about the issue."

Under Obama's leadership, he continued, the administration has worked to help safeguard the private sector computer networks, including some media organizations' systems, against foreign and domestic hackers.

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"We only wish Republicans were able to put the cybersecurity concerns of the American people above their own politics," he said.

Asked whether he believes the government has done enough to protect against hacks both in government and the private sector, Earnest said the administration has treated it as a serious threat and has taken the kind of "appropriate steps that the American people would expect their government to take."

"But there is more we can do if Republicans in Congress would do their job," he added.

The FBI issued a warning from its Cyber Division Tuesday, alerting states and local law enforcement officials that two state voting systems have been hacked and warning election officials across the country to take new steps to enhance the security of their computer systems, according to a report on Yahoo News.

[The Hill] Researchers: Evidence St. Jude report might not be accurate

Joe Uchill

August 30, 2016

<http://thehill.com/policy/cybersecurity/293850-researchers-evidence-st-jude-report-might-not-be-accurate>

A prominent medical-device security expert tried to reproduce a purported hack of St. Jude Medical pacemakers and came to what a university press release called "strikingly different conclusions."

University of Michigan associate professor Kevin Fu, along with the Archimedes Center for Medical Device Security that he heads, tried to recreate a "crash attack" listed in a controversial report released last week. What they found was evidence that the report is in error.

The crash attack was one of two attacks in a report released by Muddy Waters Investments with research done by a team at MedSec. The report created a small uproar in the security community because, rather than contact the manufacturer with the security vulnerability it had discovered, MedSec went to Muddy Waters Investments, who shorted the stock before releasing the vulnerability publicly.

The second attack in the report, a "battery drain," was already criticized by St. Jude Medical for being deceptive. To successfully drain a battery, the device company said, the attack could require a patient to stay within a small radius for more than a day.

The Archimedes Center has now cast doubts on the crash attack, too. They found that the error messages reported by MedSec and Muddy Waters as indicators that the device had been successfully attacked were the same messages given when the pacemaker was not properly plugged in.

Drivers are stunned that they never knew this. If you drive less than 50 mi/day, you better read this [Read More](#)

"In layman's terms, it's like claiming that hackers took over your computer, but then later discovering that you simply forgot to plug in your keyboard," said Fu in the University of Michigan press release.

This does not necessarily mean the report was false. But the Muddy Waters report does not describe an exact recipe to recreate its attack. Short of having a reproducible method to attack the pacemakers, the fact that the MedSec attacks appear so similar to a device simply not plugged in suggests an alternate explanation for the supposed hack.

"We're not saying the report is false. We're saying it's inconclusive because the evidence does not support their conclusions. We were able to generate the reported conditions without there being a security issue," said Fu in the press release.

ICANN

[\[Breitbart\] Exclusive—Breitbart/Gravis Poll Reveals Americans Strongly Oppose Obama's Internet Handover](#)

Neil McCabe 30 August 2016

<http://www.breitbart.com/big-government/2016/08/30/exclusive-breitbartgravis-poll-reveals-americans-strongly-oppose-obamas-internet-handover/>

There is overwhelming opposition to President Barack Obama's plan to hand over control of the Internet to an international advisory body, 41 percent against with 14 percent supporting, according to the Breitbart/Gravis poll of 1,493 likely voters released Friday.

"In addition to the high opposition, the 44 percent who are unsure really means that many, many Americans are not following the story," said Doug Kaplan, the managing partner of [Gravis Marketing](#), the Florida-based firm that executed the poll. The poll carries a margin of error of 2.5 percent.

Kaplan said as a follow up, respondents, who were opposed to the handover were asked: "Is this an example of America's weakening leadership in the world?"

Seventy-five percent of the likely voters who said they opposed the U.S. handing over control of the Internet said it was an example of "America's weakening leadership in the world," he said.

Under the Obama administration's plan, the Commerce Department's [National Telecommunications and Information Administration](#), which oversees the World Wide Web, intends to transfer stewardship of

domain name system functions, formally known as Internet Assigned Numbers Authority, to the [Internet Corporation for Assigned Names and Numbers](#).

In an Aug. 16 statement, NTIA Administrator [Lawrence E. Strickling](#) said ICANN has met all of its objectives to be ready to take over Oct. 1, when the NTIA allows its contract with [ICANN](#) to expire.

An international consortium of [non-government organizations and foreign governments](#), ICANN had been running the Internet for the Commerce Department, since 1998.

Inside the numbers of the poll, 61.4 percent of likely voters who said the economy was giving them serious anxiety also said turning over control of the Internet was a bad idea. The 32.1 percent of respondents who said the economy is great said the handover was a good idea.

Men were opposed to the Internet handover at 43.9 percent with 16.9 percent saying it was a good idea and 39.2 percent of men unsure.

Women also opposed the Internet handover at 39.4 percent with 11.8 percent saying it was a good idea and 48.8 percent of women unsure.

[Rick Manning](#), the president of [Americans for Limited Government](#), told Breitbart News the handover should be bigger news.

“It is a big deal, because it ends First Amendment protections over the web,” he said

“Right now, the only real protection that exists on the web is not from Facebook, Google, Yahoo or even Breitbart, but it is from the U.S. government contract with ICANN which means that ICANN cannot limit speech by arranging contracts with GoDaddy and others,” he said.

As long as ICANN is working under the cover of the federal government and the protections guaranteed in the Constitution, the Internet remains free, he said.

Once the contract expires, there is nothing to stop ICANN from hiring [Lois Lerner](#) to take down all the sites that belong to the Tea Party or advocates for gun rights.

Manning said, instead of vowing to maintain the protections in the Constitution for Internet sites and users, ICANN has promised to abide by human rights established by the United Nations, which means the opposite of gun rights and legal protections for the unborn.

“China has already tried to pressure one domain name registrar to not allow about 20,000 words and combinations as websites under the .xyz domain under the threat that they would lose access to the Chinese market, so this is not hyperbole,” he said.

“The Internet is the modern day Guttenberg press, which is changing the world’s access to information and delinking the key functions of the Internet from basic First Amendment protections. [This] puts the whole idea of what the Internet is on life support,” he said.

When Congress returns from its summer recess, it will be interesting to see how the handover of the Internet plays out.

Of particular concern is the fact that as the Obama administration continues to work to hand the Internet over to ICANN, despite [a specific rider in the federal budget for 2016 forbidding it](#):

“Sec. 539. (a) None of the funds made available by this Act may be used to relinquish the responsibility of the National Telecommunications and Information Administration, during fiscal year 2016, with respect to Internet domain name system functions, including responsibility with respect to the authoritative root zone file and the Internet Assigned Numbers Authority functions.”

Privacy Shield

[Yahoo Finance] Bitglass Named First CASB to Receive EU-U.S. Privacy Shield Certification From the U.S. Department of Commerce

August 31, 2016

<http://finance.yahoo.com/news/bitglass-named-first-casb-receive-120000749.html>

CAMPBELL, CA--(Marketwired - Aug 31, 2016) - Bitglass, the total data protection company, today announced that it is the first Cloud Access Security Broker (CASB) to receive the European Union (EU)-U.S. Privacy Shield Certification from the United States Department of Commerce. Bitglass is one of the first 100 organizations certified under the voluntary program, furthering Bitglass' commitment to enhancing data protection and the privacy of its customers.

The EU-U.S. Privacy Shield framework was designed to provide companies on both sides of the Atlantic with a mechanism to comply with EU data protection requirements when transferring personal data from the EU to the U.S. in support of transatlantic commerce. It also gives EU citizens a mechanism for resolving privacy disputes through the Better Business Bureau and improves transparency with respect to the types of data U.S. organizations collect and how the data is used.

"With the invalidation of the Safe Harbor framework, EU citizens were concerned that their data would be subject to misuse and many EU-based organizations require compliance with EU data protection rules," said Nat Kausik, Bitglass CEO. "As Bitglass grows its presence in Europe, we believe it's essential to keep pace with the region's changing regulatory landscape and to be completely transparent with customers and prospects about the data we collect and how that information is used."

On July 12, 2016 the European Commission deemed the Privacy Shield Framework adequate to enable data transfers under EU law. Privacy Shield certifications will be enforced by the Federal Trade Commission in the U.S. and provides EU citizens access to U.S. courts for dispute resolution if deemed necessary. This is particularly valuable for those EU-based organizations that require U.S. vendors to be certified under Privacy Shield.

More information about the Privacy Shield can be found at: <https://www.privacyshield.gov/Program-Overview>. The full list of past and present Privacy Shield-certified organizations can be found here: <https://www.privacyshield.gov/list>.

About Bitglass

Bitglass (bitglass.com) is a leading cloud access security broker (CASB) solution that delivers security and management of corporate data in the cloud, at access, on mobile devices, and anywhere on the Internet. Bitglass was founded in 2013 by a team of industry veterans with a proven track record of innovation and execution. Bitglass is based in Silicon Valley

Business/Market

[WSJ] Uber Hires Target Executive as President

Greg Bensinger and Khadeeja Safdar

30 August 2016

<http://www.wsj.com/articles/uber-hires-target-executive-as-president-1472578656?tesla=y>

Uber Technologies Inc. is hiring Target Corp.'s top marketing executive to serve as a deputy to Chief Executive Travis Kalanick and oversee its operations.

Jeffrey Jones, 48 years old, will join San Francisco-based Uber next month, where he will be president of ride-sharing and be responsible as well for marketing and customer support globally. He will also advise on corporate actions, such as acquisitions or a potential future initial public offering.

Mr. Jones, who has been Target's marketing chief for four years, is taking over some of the responsibilities of Ryan Graves, a former Uber CEO and director. Mr. Graves will focus on some of Uber's experiments, such as prepared food and package delivery services.

"Ryan is the progenitor of everything Uber Operations—setting the gold standard," Travis Kalanick, Uber's founder and CEO, wrote in a blog post. "But as we grow, marketing is becoming more and more of a thing, and it was clear we needed a real infusion of talent on that front. So we went big."

Target said Tuesday that Mr. Jones, who is the retailer's chief marketing officer, was resigning from the company on Sept. 9, to pursue "a new opportunity."

Mr. Jones joined Target in 2012 from a Durham, N.C.-based advertising agency and previously was chief marketing officer at [Gap](http://www.gap.com) Inc. He received compensation of \$7.7 million, including stock awards, in fiscal year 2015, according to Target's regulatory filings.

Under his leadership, Target invested in digital marketing and shifted its focus toward millennial and Hispanic shoppers. Mr. Jones "modernized Target's marketing" and evolved the company's "capabilities to center on the important role digital plays in their lives," Target CEO Brian Cornell said in a press release.

Target said it would conduct a search to find Mr. Jones's replacement. In the interim, Chief Operating Officer [John Mulligan](#) will assume his duties.

Artificial Intelligence

[The Huffington Post] Artificial Intelligence, Rise of Agents and The Death of Choice

Michael Nicholas August 30, 2016

The Same Like Never Before

Everyone is talking about bots. Whether it is a panel discussion, keynote or headline, they're all the rage. But are they just the latest version of trendy presentationware (remember Blockchain)? We've had chat and messaging for decades and social media for years – automated message robots aren't new. What is new, however, is the availability of high quality Artificial Intelligence that supercharges their marketing effectiveness in a way that makes them unrecognizable to what we have seen in the past.

Artificial Intelligence moves us beyond the limits of the “scripted and rules-based” approaches we have seen in marketing since the AIMbot days (remember Jill020306?), toward real “Natural Language Understanding” most of have only glimpsed in The Jetsons or Star Trek. In 2016, the availability of A.I. moves NLU out of places like MIT, into consumers' personal robots, providing a bridge to new kinds of marketing relationships.

Empathy and the door of Understanding

Empathy is the ability to understand and share the feelings of another. A.I. empowers machines to understand and learn from us and that door swings both ways. It enables people to relate to a bot as something familiar that makes you feel differently than you typically would about a machine. It's why we like R2-D2 and BB-8. It's why social robot JIBO was funded at 2,288% on Indiegogo. It's why when Boston Dynamics posts a YouTube video showing engineers trying to knock over their “dog-like” robots to highlight their awesome gyroscope tech, people respond in the comments with things like “leave it alone” and “stop harassing it.” The Empathy that A.I. unlocks is key for brands because it opens the door to trust.

Unlocking Trust and Unleashing the Rise of Agents

When a bot ceases being “just a machine”, it can earn your trust. If the bot can understand you, learn to makes good recommendations based on your habits and understand successful outcomes that make you pleased and fulfilled, it can ultimately become an agent you trust. It's not about knowing everything and pretending to be a human - it's about becoming a specific trusted agent by delivering repeated value in specific areas like travel, weather or entertainment.

Artificial Intelligence and The Death of Choice

The Oracle: "Because you didn't come here to make the choice, you've already made it. You're here to try to understand *why* you made it. I thought you'd have figured that out by now."

The A.I. agents we're discussing in marketing implement "human in the loop" optimization much like the program predicting the next word I'm going to type while writing this. By seamlessly learning from my behavior to improve its ability to serve me better, by design it obscures choice by eliminating the options I see. So what? Well think about this - once an A.I. is a trusted agent of the user, why would it show them alternatives if it already had isolated and determined a successful brand solution (type of detergent, ride share service, airline, Italian restaurant)? Not sure, but it's a scary thought if you're a marketer. If you're a brand that's a high scoring solution for a particular consumer, it's the ultimate "lock-in." If you're not or represent a new offering, how do you get in? This level of control is why so many tech companies are interested in the space.

When you think about A.I. in terms of "trusted agents," the stakes are high. So why aren't CMO's and agencies jumping at this opportunity to be your A.I. agent's "Go-To" brand?

A.I. is easier than ever to leverage, but not what client-side digital marketing or agency folks are used to. First, it's not much to look at (in fact, it's nothing to look at - it's syntax, vocabulary and diction-based). The technology is different, it's not about pages, apps or ads (NLP Libraries!? Parsers?! This isn't HTML5!). And to do it right, it's a very tight combination of technical and creative, medium and message. Moreover, there are practical barriers to just getting started. How does a brand issue a brief? How does an agency take requirements? What's the right combination of technologies for a brand's marketing needs? Does a hotel need the same NLP libraries as a movie character? Does a commerce-bot for a retailer need the same parser as a service-bot for a bank? How do we brief the creative? Should our bot emulate an "English Butler" or a "Teenage Japanese Girl"? Who do I call to figure all this out?

What if the copywriter met the technologist before she fell into partnership with the art director? Imagine a creative relationship based on no graphics or visuals. Creative Character development based around vocabulary, diction and syntax. Marketing development built around conversational requirements and actions. Technical requirements based around the best combinations of Natural Language Processing libraries and Parsers. This "A.I. agency" would literally deliver "brand-as-service" instead of brand as message. Agencies that understand these differences and opportunities will be in high demand very soon. Moreover, the most progressive brands that understand what's at stake will seek them out aggressively to learn how to use Artificial Intelligence to connect genuinely with millions of consumers, simultaneously, like never before.

[The Guardian] [The rise of robots: forget evil AI- the real risk is far more insidious](#)
Olivia Solon August 30, 2016

<https://www.theguardian.com/technology/2016/aug/30/rise-of-robots-evil-artificial-intelligence-uc-berkeley>

When we look at the rise of artificial intelligence, it's easy to get carried away with dystopian visions of sentient machines that rebel against their human creators. Fictional baddies such as the Terminator's Skynet or Hal from 2001: A Space Odyssey have a lot to answer for.

However, the real risk posed by AI – at least in the near term – is much more insidious. It's far more likely that robots would inadvertently harm or frustrate humans while carrying out our orders than they would become conscious and rise up against us. In recognition of this, the University of California, Berkeley has this week launched a center to focus on building people-pleasing AIs.

The Center for Human-Compatible Artificial Intelligence, launched this week with \$5.5m in funding from the Open Philanthropy Project, is lead by computer science professor and artificial intelligence pioneer Stuart Russell. He's quick to dispel any "unreasonable and melodramatic" comparisons to the threats posed in science fiction.

"The risk doesn't come from machines suddenly developing spontaneous malevolent consciousness," he said. "It's important that we're not trying to prevent that from happening because there's absolutely no understanding of consciousness whatsoever."

Russell is well known in the artificial intelligence community and in 2015 penned an open letter calling for researchers to look beyond the goal of simply making AI more capable and powerful to think about maximizing its social benefit. The letter has been signed by more than 8,000 scientists and entrepreneurs including physicist Stephen Hawking, entrepreneur Elon Musk and Apple co-founder Steve Wozniak.

"The potential benefits [of AI research] are huge, since everything that civilization has to offer is a product of human intelligence; we cannot predict what we might achieve when this intelligence is magnified by the tools AI may provide, but the eradication of disease and poverty are not unfathomable," the letter reads.

"Because of the great potential of AI, it is important to research how to reap its benefits while avoiding potential pitfalls."

It's precisely this thinking that underpins the new center.

Up until now, AI has primarily been applied to very limited contexts such as playing Chess or Go or recognizing objects in images, where there isn't much scope for the system to do much damage. As they start to make decisions on our behalf within the real world, the stakes are much higher.

"As soon as you put things in the real world, with self-driving cars, digital assistants ... as soon as they buy things on your behalf, turn down appointments, then they have to align with human values," Russell said.

He uses autonomous vehicles to illustrate the type of problem the center will try to solve. Someone building a self-driving car might instruct it never to go through a red light, but the machine might then hack into the traffic light control system so that all of the lights are changed to green. In this case the car would be obeying orders but in a way that humans didn't expect or intend. Similarly, an artificially intelligent hedge fund designed to maximize the value of its portfolio could be incentivized to short consumer stocks, buy long on defence stocks and then start a war – as suggested by Elon Musk in Werner Herzog's latest documentary.

"Even when you think you've put fences around what an AI system can do it will tend to find loopholes just as we do with our tax laws. You want an AI system that isn't motivated to find loopholes," Russell said.

"The problem isn't consciousness, but competence. You make machines that are incredibly competent at achieving objectives and they will cause accidents in trying to achieve those objectives."

To address this, Russell and his colleagues at the center propose making AI systems that observe human behavior and try to work out what the human's objective is, then behave accordingly and learn from mistakes. So instead of trying to give the machine a long list of rules to follow, the machine is told that its main objective is to do what the human wants them to do.

It sounds simple, but it's not how engineers have been building systems for the past 50 years.

But if AI systems can be designed to learn from humans in this way, it should ensure that they remain under human control even when they develop capabilities that exceed our own.

In addition to watching humans directly using cameras and other sensors, robots can learn about us by reading history books, legal documents, novels, newspaper stories as well as by watching videos and movies. From this they can start to build up an understanding of human values.

It won't be easy for machines. "People are irrational, inconsistent, weak-willed, computationally limited, heterogenous and sometimes downright evil," Russell said.

"Some are vegetarians and some really like a nice juicy steak. And the fact that we don't behave anything close to perfectly is a serious difficulty."

Cloud

[CNBC] Google's cloud favored to win PayPal's business: Sources

Ari Levy August 31, 2016

<http://www.cnbc.com/2016/08/30/googles-cloud-favored-to-win-paypals-business-sources.html>

[Google's](#) aggressive push into cloud computing, where it trails [Amazon.com](#) and Microsoft, has put the internet giant in the lead position to land a marquee client: PayPal.

While Google is the front-runner, according to people familiar with the matter, [PayPal](#) is evaluating the other leading providers and hasn't made any final decisions. PayPal is unlikely to move its technology infrastructure in the fourth quarter, the peak period for online commerce, said the sources, who asked not to be named because the talks are confidential.

Under the leadership of VMware co-founder [Diane Greene](#), Google is out to prove that it's a legitimate player in the rapidly expanding cloud infrastructure market.

It's a business that Amazon Web Services has come to dominate by opening up massive data centers across the globe and continuously adding new software tools that allow large corporations — and government entities — to securely offload their computing and storage needs.

Since taking the helm nine months ago, Greene has been in hot pursuit of Google's rivals, and her team is getting particularly aggressive on price as a way to potentially lure some of the biggest enterprises, sources said.

With close to \$80 billion in [cash](#) and equivalents at the end of the second quarter and a \$10 billion annual capital expenditure budget for parent Alphabet, Google has plenty of ammunition to engage in a pricing war.

Representatives from Google and PayPal declined to comment, as did spokespersons from Amazon and [Microsoft](#).

PayPal would be a top-tier logo for a variety of reasons. It's a name with broad brand recognition and it's a Silicon Valley company that operates in the financial services sector. All the big banks are evaluating cloud vendors, and of primary concern is their ability to manage the regulatory burden around data protection.

Mark Mahaney, an analyst at RBC Capital Markets in San Francisco, said in an [interview](#) last week on CNBC that cloud computing is "really kind of reaching these tipping points in large companies, including financial services firms [which] are really starting to embrace cloud computing."

Additionally, PayPal is a massive technology company built in the pre-cloud era. Within its own data centers, the company processes \$10,900 worth of payment volume per second and stores information on 188 million active accounts in over 200 markets.

On the company's first-quarter earnings call in April, CEO Dan Schulman said, "We run one of the largest private cloud environments in the world."

PayPal does have some existing business with AWS, namely its Braintree and Venmo products, which the company acquired in 2013 (when PayPal was still part of [eBay](#)). In moving infrastructure to the cloud, big companies often start with test and development workloads before touching critical customer information, and that's likely where PayPal will begin, sources said.

No move to Google, AWS or Microsoft Azure would mean abandoning its own data centers and technology. After all, the company owned or leased 3.5 million square feet of space, including offices and data center facilities, as of the [end of 2015](#).

But cloud services would open up new technical capabilities that are difficult inside their existing infrastructure. For example, on Cyber Monday, when transaction volume is many times the daily average, PayPal could quickly spin up new servers to meet demand and not have to pay for a bunch of gear that sits idle the rest of the year.

On Cyber Monday 2015, PayPal experienced a brief service [interruption](#), an embarrassing and potentially costly gaffe.

[\[WSJ\] China Grants Clearance for Dell-EMC Merger](#)

Rachel King

30 August 2016

<http://www.wsj.com/articles/china-grants-clearance-for-dell-emc-merger-1472587852>

Dell Inc. Tuesday said it received regulatory clearance from China and intends to complete its merger with [EMC Corp.](#) on Sept. 7. The \$60 billion deal will be the [largest technology merger ever](#).

Approval from China's Ministry of Commerce was the last remaining hurdle to the deal, which was approved by EMC shareholders on July 19.

The newly combined company, to be named Dell Technologies, aims to be a one-stop shop for information technology sold to businesses.

Dell hopes to make the combined company a favored supplier in the rapidly growing market for cloud computing, where companies tap software programs via the internet.

Dell will face intense competition from [Amazon.com](#) Inc.'s Web Services unit, the leader in the market. Amazon Web Services is so far ahead in the cloud market, some analysts have questioned Dell's ability to compete.

[In an interview](#) with The Wall Street Journal on Monday, Dell Chief Executive Michael Dell said there will be room for other competitors, particularly those selling to companies that want to build their own cloudlike systems. While some predict that most corporate computing will move to third-party systems like Amazon's, "I think that's wrong," Mr. Dell said.

The market is in its early stages, and there will be many different types of clouds, said Mr. Dell.

“There will be growth in the public clouds and still an enormous amount of on-premise infrastructure, and there will be a lot of service providers outside of the major clouds that are also growing,” he said.

The combined company will be the leading vendor by revenue in the world-wide \$29 billion market supplying hardware to cloud-computing providers. In 2015, Dell and EMC combined garnered 18.2% of the highly fragmented market, according to market watcher International Data Corp. That market is characterized by low-margin hardware.

Dell, which is privately held, is buying not only EMC but its federation of wholly and partially owned subsidiaries including cybersecurity firm RSA Security LLC, software development company Pivotal Software Inc. and virtualization software vendor [VMware](#) Inc.

EMC shareholders will receive \$24.05 a share in cash in addition to a newly issued tracking stock linked to a portion of EMC’s economic interest in the VMware business. Based on the estimated number of EMC shares outstanding at the close of the transaction, EMC shareholders are expected to receive approximately 0.111 shares of the new tracking stock for each EMC share.

[\[Bloomberg Technology\] Huawei Aims to Sell the Nuts and Bolts of Global Cloud Computing](#)

Bloomberg News August 31, 2016

<http://www.bloomberg.com/news/articles/2016-08-31/huawei-aims-to-sell-the-nuts-and-bolts-of-global-cloud-computing>

Huawei Technologies Co. intends to become a major provider of gear and software to global cloud computing providers, aiming for a \$10 billion business by 2020.

The Chinese company will keep investing in the cloud, its fastest-growing business, as it seeks to supply chips, servers and other equipment to a booming market, said Ken Hu, the rotating chief executive overseeing the fledgling division.

Huawei has begun working with foreign firms including SAP SE and Intel Corp. to crack the market for cloud services. Unlike providers such as Amazon.com Inc. and Alibaba Group Holding Ltd., it wants to supply the basic components of computing infrastructure, as domestic industries from education to health care begin to move data online. China’s largest telecommunications gear company, also the world’s third-largest smartphone brand, may benefit from the local government’s preference for local over foreign technology.

“Cloud will penetrate in industries, including traditional industries globally. Adopting cloud computing is how they digitize their businesses,” Hu told reporters at the company’s annual cloud computing conference in Shanghai. “There are many different models for entering the global cloud computing market.”

Spending on cloud computing services in China alone could reach \$20 billion by 2020, consultancy Bain & Co. estimates. Huawei will eventually target the global market, despite suspicions about Chinese espionage that have kept its networking gear out of the U.S. Hu said Huawei can rely on a large in-house research and development effort as well as its expertise on telecommunications equipment.

“Huawei’s experience and ability to integrate technologies in different areas is a unique advantage,” he said.

5G

[The Wall Street Journal] Ericsson to Start Delivering 5G Components in 2017

Matthias Verbergt

August 30, 2016

<http://www.wsj.com/articles/ericsson-to-start-delivering-5g-components-in-2017-1472576556>

STOCKHOLM— Ericsson AB on Tuesday said it would start delivering all components necessary to roll out fifth-generation, or 5G, mobile-phone networks in 2017—three years ahead of a 2020 deadline that inter-government agencies have set to agree on frequencies and standards for the new equipment.

The Swedish company, one of the world’s largest suppliers of wireless networks, said it has struck partnerships with 26 telecom carriers willing to deploy the technology, which promoters say will power self-driving cars and other connection-hungry projects.

“5G is happening now,” said Arun Bansal, head of Network Products at Ericsson.

Ericsson might appear as if it is putting the cart before the horse because the telecom industry has yet to say precisely what 5G will bring beyond broader bandwidth and smoother interaction between connected objects.

But the early marketing salvo is part of a highly competitive race in which Ericsson is sparring with rivals Finland’s Nokia Corp. and Huawei Technologies Co. of China for a larger seat at the table where 5G capabilities are being defined.

At stake are billions of dollars in future intellectual property and patent revenue.

Final 5G standards will be set by the International Telecommunication Union, a United Nations agency that coordinates information and communication technologies world-wide, after taking into consideration proposals by the industry. The most important body feeding the ITU with proposals is the Third Generation Partnership Project, or 3GPP, a telecom industry group that developed current mobile-phone standards, known as 4G.

By supplying 5G prototypes to customers, network-equipment makers are seeking to gain influence on the standard-setting process. Like Ericsson, Nokia and Huawei said they also were testing future equipment with customers.

Industry officials say they expect 5G standardization rounds to be hotly disputed, citing in part a shrinking presence of Western vendors whose numbers have fallen sharply after a series of mergers. In contrast, Huawei and other Chinese suppliers have invested heavily in research and development and are playing a more active role in setting standards.

“Europe’s total impact is in decline,” said Toon Norp, chairman of one of 3GPP’s working groups. “The influence of the Chinese vendors has grown enormously.”

Ericsson has a lot riding on 5G. The company, which ousted its chief executive, Hans Vestberg, last month, is straining to remain profitable amid weak demand for 4G networks.

Carriers world-wide have spent billions of dollars in recent years to deploy 4G, but most projects in mature markets have been completed, while many emerging markets lack financial resources to upgrade their networks.

“Ericsson and several of its industry peers are haunted by declining sales volumes,” said Mathias Lundberg, an analyst at Swedbank. “A new generation of wireless technology would set about a much needed investment cycle at the operators.”

In July, Ericsson posted a second-quarter net profit of 1.59 billion Swedish kronor (\$187.8 million), a 24% drop from a year earlier. Revenue fell 11% to 54.1 billion kronor. The company collected 2.2 billion Swedish kronor in intellectual property rights in the period, about 4% of total revenue.

During the standard-setting negotiations, each vendor seeks to include as much of its intellectual property into product specifications to maximize fees from other players when the technology comes in use, said Bengt Nordström at Stockholm-based telecom consulting firm Northstream.

Telecoms carriers involved in testing experiments usually weigh in. Swisscom, a Swiss operator that has agreed to acquire Ericsson’s 5G equipment, said it would report the results of its tests to standard-setting bodies.

Ericsson said it was confident that bringing its 5G products in line with the technology’s final standards could be achieved through software updates.

While large 5G rollouts aren't expected until early in the next decade, vendors and operators are expected to launch large-scale networks at some major sports events in the years to come, such as the 2018 Winter Olympics in South Korea

Spectrum

[The Hill] Court rejects challenge to aspect of FCC's spectrum sale

David McCabe August 30, 2016

<http://thehill.com/policy/technology/293817-court-rejects-challenge-to-aspect-of-fccs-spectrum-sale>

A federal court on Tuesday ruled against a challenge to part of the Federal Communications Commission's ongoing process of reassigning valuable wireless spectrum to mobile providers.

FCC officials are currently running an auction to buy spectrum from broadcasters and sell it wireless providers and other buyers — and repackage the assignment of radio frequencies in the process.

Low-power television (LPTV) services, small regional stations that have a secondary position to full-power broadcasters, were not protected from potential difficulties during that repacking process by the commission. The United States Court of Appeals for the District of Columbia denied a challenge from Mako Communications, an LPTV operator, to the FCC's decision not to extend those protections to its operations, citing a prohibition on altering their spectrum rights in the law authorizing the repacking.

The court said that the FCC's decision not to offer the protections did not change the rights of LPTV broadcasters, since full-power stations already have priority when it comes to using wireless spectrum.

"As a general matter, LPTV stations' secondary status renders them subject to displacement insofar as they cause interference to primary services," Judge Sri Srinivasan wrote in the ruling.

Mako Communications did not immediately offer a comment when reached on Tuesday.

"Today's court ruling validates the Commission's Incentive Auction design in light of the Spectrum Act's goals," said an FCC spokesperson in a statement. "The Commission values the important role that low-power TV and TV translator stations play in the communities they serve. With that in mind, we have taken — and continue to consider — steps to assist any displaced low power stations to find feasible channels after the close of the auction."

Drivers are stunned that they never knew this. If you drive less than 50 mi/day, you better read this
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The repacking process is one of several steps in the process of reassigning the spectrum. Earlier this year, the commission held an auction for broadcasters to bid to give up their spectrum. It is currently accepting bids for the licenses from wireless companies, including AT&T and Verizon, and others.

The hope is to help meet the high demand from consumers created by the rise of smartphones and other connected devices. It also could mean a major payout for the broadcasting industry, with FCC Chairman Tom Wheeler calling it a “once-in-a-lifetime” opportunity for stations.

Competition

[WSJ] [Asahi Mixes Drinks as Japan’s Beer Market Shrinks](#)

Atsuko Fukase and Megumi Fujikawa

31 August 2016

<http://www.wsj.com/articles/asahi-mixes-drinks-as-japans-beer-market-shrinks-1472639654>

TOKYO—In an era when Budweiser is sold by a Belgium-based company and California’s Lagunitas IPA is partly Dutch-owned, Japanese beer has remained in Japan’s hands, away from the global consolidation party.

The head of the biggest-selling Japanese beer maker says he wants to keep it that way.

“The subtle taste and quality of beer that the Japanese favor can be created only under Japanese management,” said Akiyoshi Koji, president of [Asahi Group Holdings](#) Ltd., in an interview. “If a foreign company takes control of a Japanese maker, there is a risk of the brand’s credibility being harmed.”

The [planned merger of the world’s two biggest beer makers, Anheuser-Busch InBev NV](#) and [SABMiller](#), has brought renewed attention to global consolidation. Japan is something of an anomaly because its top players have been the same for decades. Tokyo-based Asahi and its leading rival in Japan, [Kirin Holdings](#) Co., are minnows globally but big fish in their own pond.

That pond is getting smaller. Japan’s population is shrinking and younger consumers are heading toward wine or cocktails instead of beer. Shipments of beer and related brews including low-malt beer came to about 425 million cases in 2015, compared with a peak of 573 million cases in 1994, according to the Brewers Association of Japan.

The answer, say Asahi and its main Japanese rivals, is to branch out into other drinks and try to build a global business focused on premium brands.

However difficult it may be for foreigners to re-create the taste of Japanese beer, Mr. Koji is betting billions of dollars that his company can do so with Italian and Dutch beer. Asahi plans to acquire European brands [Peroni and Grolsch for \\$2.9 billion](#) from SABMiller, divestitures that SABMiller is making to get regulatory clearance for the Anheuser-Busch InBev deal.

“We aren’t planning to engage in a head-on fight with products in a similar price range” to those from AB InBev, Mr. Koji said. “We would like to challenge our global competitors with value-added products.”

Advertisement

Mr. Koji said Asahi had room to make further acquisitions, although he declined to say whether he was interested in Eastern European assets of SABMiller that are also up for sale. An Asahi spokesman said the company could spend roughly \$3 billion to \$4 billion for further acquisitions and still stay within its debt target.

The Anheuser-Busch InBev-SABMiller combination would create a giant brewer with around 30% global market share by volume. That compares with 1.2% for Asahi, putting it in 10th place, according to Euromonitor.

The megamerger could pose “immense competition to the Japanese beer companies,” said Ranjan Kumar Singh, an analyst at Allied Market Research. “The big players are using these strategic moves to boost profitability by cutting costs.”

Asahi is still growing, despite slower sales of its flagship Super Dry brand. The company has recently posted steadily rising revenue and profit, with sales of ¥1.86 trillion (\$18.2 billion) in 2015. Its market capitalization of ¥1.6 trillion slightly exceeds Kirin’s.

It has kept growing partly by diversifying into products such as wine and baby food, and by adding beer alternatives that cost less because of lower taxes. These include “new genre” products brewed from peas or corn to avoid Japan’s taxes on malt.

Such peculiarities in taxes and distribution have turned the nation’s beer market into another example of what locals call the Galapagos phenomenon, in which Japan evolves in isolation from global trends. That is another reason Mr. Koji is confident foreigners wouldn’t try to buy Asahi.

“I wouldn’t say there’s no risk of being acquired,” he said. “But for foreign brewers, it would be extremely difficult to buy a Japanese maker and further boost profitability.”

AB InBev set up an office in Tokyo about a year ago to work more effectively with local partners that handle its beer brands in Japan, regional director Toon Van der Veer said in an email. He declined to comment on whether AB InBev would be interested in directly challenging Japanese beer makers in their home market.

Japan’s other top beer makers, which include Suntory Holdings Ltd. and [Sapporo Holdings Ltd.](#), have tried similar strategies of holding on to their core beer market at home while branching out abroad.

“AB InBev’s acquisition of SABMiller could change power relationships of the beer industry. However, it won’t directly affect Suntory because we mainly focus on premium beer, as well as soft drinks, health food and other alcohol,” Suntory Holdings president Takeshi Niinami said in an email.

Suntory, which has long had a more diversified portfolio than Asahi or Kirin, further broadened its business through [the \\$16 billion acquisition of U.S. whiskey maker Beam](#) in 2014.

Kirin, which bought a 55% stake in Myanmar Brewery for \$560 million last year, says it is focusing on cost cuts to counteract a shrinking home market. Part of its strategy has echoes of the global consolidation trend, but it is consolidation with a Japanese flavor: combining certain operations rather than entire companies. Kirin and Asahi recently said they would open a joint logistics center and share trains to ship their beer beginning next year.

Net Neutrality

[WSJ] Advocates hail Europe's net neutrality guidelines

David McCabe 30 August 2016

<http://thehill.com/policy/technology/293863-advocates-hail-europes-net-neutrality-guidelines>

Advocacy groups cheered on Tuesday the release of new guidelines for implementing net neutrality rules in the European Union.

The Body of European Regulators for Electronic Communications (BEREC) released the guidelines after years of haggling over the rules. Groups that are supportive of net neutrality — the idea that all content on the internet should be treated in the same way — called the guidelines a victory.

“These guidelines allow the EU to join the leading voices on Net Neutrality globally, and bring much-needed clarity for the industry and the users — something to be truly proud of,” said Estelle Massé, a senior policy analyst at Access Now, in a statement.

Advocates were wary of the rules when they were initially adopted last year, because they included what they saw as abstract language that could lead to strikes against net neutrality. In June, BEREC announced draft guidance for implementing the rules. Those drew 500,000 comments.

Now, activist groups say that the guidelines help to clarify the worrisome language.

“Internet users have fought and won Net Neutrality protections in India, South America and the United States,” said Timothy Karr, the senior director of strategy for advocacy group Free Press. “Europe’s decision today — heeding the advice of internet users who favor robust safeguards for the open internet — is an essential part of this global push to advance the online rights of everyone.”

Massé said that Access Now was less-than-pleased with the case-by-case standard used to consider plans where data is delivered for free to consumers in exchange for using certain apps or services, a practice known as zero-rating.

“Unless all regulators hold the industry to a high standard, we could see fragmentation across the EU in the protection of users’ right to receive and impart information,” said Massé.

And advocates warned that net neutrality supporters should continue to watch how the rules are implemented by the individual countries in the E.U.

“Internet freedom supporters must remain vigilant in ensuring that the rules remain strong—particularly as BEREC’s guidelines are implemented by EU member states,” said Joshua Stager, a policy counsel at the Open Technology Institute, in a statement.

The United States' Federal Communications Commission approved new net neutrality regulations last year, despite an outcry from industry over the rules.

[The Verge] Europe’s net neutrality guidelines seen as a victory for the open web

Amar Toor August 30, 2016

<http://www.theverge.com/2016/8/30/12707590/eu-net-neutrality-rules-final-guidelines-berec>

Europe's telecommunications regulator has published final guidelines on how the EU will implement net neutrality rules that were adopted last year, in what digital rights groups are hailing as a victory for the free and open internet. The guidelines, published Tuesday, clarify vaguely worded provisions that experts say could have been exploited by telecoms to favor certain internet services over others.

The net neutrality rules adopted by the European Parliament last year aimed to strengthen net neutrality by requiring internet service providers (ISPs) to treat all web traffic equally, without favoring some services over others. But the regulations contained several loopholes that raised concerns among net neutrality advocates, including a provision that would have allowed ISPs to create "fast lanes" for "specialized services," and another that would have allowed for zero-rating, under which certain services and apps would be exempt from counting against monthly data limits. A "traffic management" provision would have allowed telecoms to prioritize internet traffic from some services over others.

"A TRIUMPH FOR THE EUROPEAN DIGITAL RIGHTS MOVEMENT"

Those provisions were clarified under the guidelines published today by the Body of European Regulators for Electronic Communications (BEREC). "ISPs are prohibited from blocking or slowing down of Internet traffic, except where necessary," BEREC said. "The exceptions are limited to: traffic management to comply with a legal order, to ensure network integrity and security, and to manage congestion, provided that equivalent categories of traffic are treated equally."

The guidelines prohibit zero-rating in circumstances "where all applications are blocked or slowed down once the data cap is reached," though they acknowledge that some cases are "less clear-cut." European regulators should assess such practices on a case-by-case basis, BEREC said, taking account for factors such as the market share of an ISP, effects on app choice, and the scale of the practice. The regulations also allow for traffic management "under limited circumstances;" traffic management practices that block, interfere with, or slow down services and apps would be banned.

The guidelines provide examples of what could be considered as a specialized service, including VoLTE (high-quality voice calls), linear IPTV services, and remote surgeries, which would operate separately from the internet. Such services would have to meet certain quality and capacity requirements to ensure that they can only operate on networks that are not connected to the internet.

Net neutrality advocates welcomed BEREC's guidelines as a milestone for the open internet in Europe. "Europe is now a global standard-setter in the defense of the open, competitive and neutral internet," Joe McNamee, executive director of the Brussels-based organization European Digital Rights (EDRi), said in a statement. Net neutrality activist Thomas Lohninger, of SaveTheInternet.eu, described the tougher guidelines as "a triumph for the European digital rights movement."

"COMPETITION, INNOVATION, AND CREATIVE EXPRESSION"

"After a very long battle, and with the support of half a million people, the principles that make the internet an open platform for change, freedom and prosperity are upheld in the EU," Lohninger said in a statement.

BEREC published draft guidelines on how the rules will be implemented by EU member states in June, and opened them to public consultation, garnering more than 480,000 responses. Major telecoms lobbied heavily for the regulatory body to adopt a more relaxed interpretation of the rules. More than 20 telecoms — including Vodafone, BT, and Deutsche Telekom — published a "manifesto" in July, saying that they would not introduce high-speed 5G networks unless BEREC took a softer approach to net neutrality. ISPs in Europe and the US have argued that aggressive net neutrality regulations would harm their business.

In response, world wide web creator Sir Tim Berners-Lee, together with law professors Barbara van Schewick and Larry Lessig, published an open letter calling on European regulators to "save the open internet."

"Strong guidelines will protect the future of competition, innovation, and creative expression in Europe, enhancing Europe's ability to lead in the digital economy," the letter said. "They will ensure that every European, no matter the color of their skin or the size of their wallets, has an equal chance to innovate, compete, speak, organize, and connect online."

Julia Reda, Member of European Parliament for the Pirate Party, said that authorities will have to "stay vigilant" on zero-rating practices as national regulators assess them on a case-by-case basis, but she described the regulations as "a victory for civil society" in a blog post published Tuesday.

"By demanding strong net neutrality in record numbers, Europeans managed to overcome massive lobbying by the telecom industry and narrowly avert a catastrophe for the internet," Reda said.

[Bloomberg] A Bad Ruling for those who want to throttle AT&T

Noah Feldman August 30, 2016

<https://www.bloomberg.com/view/articles/2016-08-30/a-bad-ruling-for-those-who-want-to-throttle-at-t>

Ma Bell came back from the grave Monday, saving AT&T from the supervision of the Federal Trade Commission. The FTC had sued the company for intentionally “throttling” the mobile internet for its unlimited data customers when they passed a certain usage. A federal appeals court rejected the suit on the ground that as a common carrier, AT&T is exempt from FTC regulation. The outcome is wrong, the product of a literalist reading of the laws that produces terrible real-world consequences. It should be reversed, by the courts or by Congress.

AT&T’s throttling practice is fairly outrageous. It’s the result of the deal AT&T struck in 2007 to be the sole provider of data services for Apple’s iPhones. As part of that arrangement, AT&T offered an unlimited data plan that many customers adopted -- I know I did.

In 2010, AT&T stopped offering the unlimited data plan to new customers. But it allowed old customers to keep the plan -- or so they were led to believe. In reality, AT&T allocated a certain amount of data usage to its unlimited customers. Once those customers passed the threshold set by the company, however, AT&T “throttled” those customers by slowing the speed of their data access for the rest of the billing cycle.

AT&T has claimed that it needed to throttle those customers in order to “prevent harm” to its network. As the FTC asserted, and two federal courts have recognized, “AT&T’s throttling program is not actually tethered to real-time network congestion.” Supposedly unlimited-data-use customers are throttled “even if AT&T’s network is capable of carrying the customers’ data.” And customers who don’t have unlimited plans are not ordinarily throttled, even if they use vast amounts of data.

It should be obvious that this throttling is an abuse, at least insofar as customers weren’t clearly informed that their unlimited-data-use plans weren’t really unlimited anymore. It’s part of the FTC’s job to look out for such consumer abuses, especially when they arise from a quasi-monopoly situation like the initial AT&T-Apple arrangement. So it made sense for the FTC to bring a lawsuit, and for a federal district court to allow the suit to go forward.

But AT&T had a legal trick up its sleeve. It argued that it’s exempt from regulation by the FTC altogether. Its reasoning was that Section 5 of the Federal Trade Commission Act exempts “common carriers” from the FTC’s jurisdiction.

In some of its business dealings -- most notably, the wired phone communications going back to the company’s origins as Bell Telephone -- AT&T is a common carrier. That term, which originally included companies that transported people or goods along set routes at fixed rates, was extended over time to include telecommunication services, which function as utilities.

It isn't as though no one regulates common carriers. In the case of telecommunications, that job ordinarily falls to the Federal Communications Commission. Indeed, in 2015, the FCC officially declared internet service providers to be common carriers and thus subject to its regulation for purposes of ensuring net neutrality.

But when the FTC brought its claims against AT&T, the company's mobile services hadn't been classified as common carriers. AT&T didn't try to claim otherwise.

Instead, AT&T maintained that to the extent that the company is a common carrier at all, it's completely exempt from the FTC's supervision.

The district court rejected this claim on several grounds. The essence of its holding was that it makes no sense to treat AT&T's non-common-carrier functions as exempt from FTC supervision. The court showed that prior to the FTC's creation, common carriers ordinarily didn't get full on exemptions from regulation when they were performing non-common-carrier tasks. And it offered a snippet of 1914 legislative history in which a drafter of the FTC Act said that "even as to [common carriers] I do not know but that we include their operations outside of public carriage regulated by the interstate-commerce acts."

The U.S. Court of Appeals for the 9th Circuit reversed the district court's decision. The three-judge panel was made up entirely of George W. Bush appointees. It held unanimously that the statute must be read literally. It exempts common carriers, not common carriers engaged in common-carrying activity. And that, said the court, was the end of the matter. The 1914 legislative history was vague, it said, because the congressman said he did "not know but that" common carriers were included when they did non-common-carrying things.

The 9th Circuit panel as much as admitted that it was disagreeing with a 4th Circuit decision going back to 1959. The judges said that the facts of that case were different, because the defendant company in that case had only trivial common-carrier operations, which it had apparently acquired precisely in order to try to avoid FTC regulation.

That's important mostly because it gives the FTC good grounds to demand rehearing by the full 9th Circuit and, if necessary, review by the U.S. Supreme Court. A split between a new decision and one from 1959 isn't the most ordinary basis for Supreme Court review. But a split is a split, no matter how chronologically lopsided. And it definitely matters for the FTC, which ought to have the same jurisdictional reach throughout the country, and not have to regulate in a patchwork manner depending on the circuit where a defendant is located.

Above all, the panel's decision is an object lesson in how courts shouldn't interpret statutes literally without regard to their actual functions. The point of federal regulatory law is to protect consumers and enable business to function rationally. The job of judges is to enforce those goals. When they don't, it's bad for consumers -- and for the rule of law.

Miscellaneous

[Washington Post] [Who would win the coding Olympics?](#)

Karen Turner

30 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/30/who-would-win-the-coding-olympics/>

The United States took home the most number of medals at this year's Summer Olympics in Rio. But what if coding was one of the competitive events? A new HackerRank study reveals that the United States wouldn't stack up quite so well against international competition.

The [study](#) compiled the results of 1.4 million coding challenges by about 300,000 developers completed on the website [HackerRank](#), a free coding practice website that doubles as a developer recruiting ground for companies such as Facebook and Airbnb. After breaking down the results by country, HackerRank found that U.S. coders landed in 28th place.

"I don't think it's that surprising," said Vivek Ravisankar, co-founder and chief executive of HackerRank. "In my opinion, the U.S.'s position here mirrors a lot of the other world ranking reports, such as STEM education performance or even other international coding competitions," he said.

HackerRank found that the most talented coders were based in China, followed closely by Russia. Rounding out the top five were Poland, Switzerland and Hungary. The three poorest performing countries were Pakistan, Sri Lanka and Nigeria.

The data was also spliced by type of challenge, breaking down into puzzle categories such as algorithms, data structures and artificial intelligence. Algorithms, which was the top challenge choice for coders, was dominated by Russians, while the Chinese performed best at data structures.

The study falls in line with other rankings that capture the skill sets of coders by country. Last year's Pew Research Center [analysis](#) of STEM test scores revealed that American students fell in the middle of the pack, underperforming compared to students in Singapore and South Korea. At this year's International Olympiad in Informatics, a UN-sponsored competition of computing skills, the [list of winners](#) told the same story. Chinese, Russian and Eastern European contestants dominated, while the highest scoring American coder came in 15th place.

Russian and Chinese coders continue to triumph at the [ACM International Collegiate Programming Contest](#), where St. Petersburg University beat out Harvard University this year. Then there's [Google Code Jam](#), where participants compete to solve algorithmic puzzles — China and Russia are neck and neck with first-place prizes, save for three back-to-back wins by a top coder from Belarus named Gennady Korotkevich.

Part of these countries' success with producing top-quality coders might have to do with starting math- and computer-focused education at an early age. In China, [preschool coding classes](#) have become increasingly popular for parents of young children. In Russia, [math circle](#) culture that dates back to the Soviet era introduces problem solving and math "olympiad" competitions to students as young as middle school.

Ravisankar, who has spoken with top performing coders on HackerRank about where they learned their skills, agrees that this is the most commonly cited answer for coding excellence. "There's more of a culture of coding and practicing math-related subjects at a much, much earlier age in these countries," said Ravisankar.

"It's just a part of early education over there," he added.

[Washington Post] [Twitter just became even more like a cable company](#)

Brian Fung 30 August 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/30/twitter-just-became-even-more-like-a-cable-company/>

If Twitter's biggest challenge is attracting new users to its service and showing investors it's capable of competing with the likes of Facebook, the company's latest move seems to take direct aim at fixing that problem.

Twitter is beginning to offer individual users and entities the chance to make money off the videos they post, according to [reports](#). And the terms look pretty favorable to content creators, who will get to take home 70 percent of the ad dollars from their videos. That's somewhat more money than what YouTube or Facebook offer.

In rolling out the change, Twitter moves another step closer to a business model that has defined another industry for about three decades.

As anyone who has a cable subscription knows, it isn't Time Warner Cable or Cox that actually make the programming you find in your lineup. Instead, companies like ESPN and HBO produce shows that they then market to distributors.

What the folks at Twitter (and to a similar extent, Facebook and YouTube) have done is to graft this model onto the new Internet economy.

In April, Twitter announced it was [expanding into live sports coverage](#) by inking a deal with the NFL to live-stream Thursday night football games. The development may not appeal to sports fans accustomed to watching games on TV, but for the growing share of Americans who get their television primarily through the Internet, this could be a big signal of what's to come. Indeed, at the time, Twitter said it was also mulling a move into live political coverage, another popular form of TV content.

The prospect of Twitter offering a "skinny bundle" of sorts — one that includes news, sports and other TV content — underscores the growing resemblance between social networks on the one hand and cable operators on the other. Although Twitter has rejected charging a subscription fee like a regular cable company, it's clear that different parts of the media-entertainment complex, once cleanly segregated, are now quickly collapsing into a single competitive space.

In a universe where attention spans are precious and finite, Twitter's bet on video stands to pull viewers away from cable while also replicating some of its most iconic features. And at its core, the company's revenue-sharing with individual video creators reflects the latest example of that: It's simply a small-scale version of the payment-for-programming deals that large corporations strike all the time. And with all of that content, Twitter may be able to create compelling bundles more easily for different groups

The one big difference? Cable customers have no power to ask that their providers pay them for anything they create. But on the Internet, anyone can become a paid programmer. And Twitter wants to take that to the bank.

[WSJ] [Message to Tech Firms From Palo Alto Mayor: Go Away. Please.](#)

Thomas Fuller 30 August 2016

<http://www.nytimes.com/2016/08/30/us/spotty-cell-reception-in-the-heart-of-silicon-valley.html?ref=technology>

PALO ALTO, Calif. — My phone connection kept dropping out, which didn't make sense because I was in the heart of Silicon Valley.

It turns out that poor cellphone reception has been a problem for years in downtown [Palo Alto](#), which has a relationship with [technology](#) that is decidedly mixed.

Here in the city where Facebook and Google grew into the world famous companies they are today, many homeowners passionately oppose new cell towers in their upscale neighborhoods, complicating connections.

Third Time's a Charm

After three starts and stops and starts, Thomas Fuller interviewed a couple in Palo Alto on Facebook Live.

Palo Alto residents also gripe about traffic. But over all the city has problems the rest of the country would love to have. Start-up technology companies are clamoring for the prestige of a Palo Alto address. The vibrancy of [Stanford University](#) keeps the city young and humming.

In an election year, with nearly constant squawking from presidential candidates about well-paying jobs, the mayor of Palo Alto has an unusual message for some of the cash-flush tech companies based here: Go away. Please.

"Big tech companies are choking off the downtown," Mayor [Patrick Burt](#) said. "It's not healthy."

As one walks down the sidewalks in residential areas, shaded by mature trees and basking in the city's sunny, mild weather, it's not too hard to understand why homeowners are trying to keep Palo Alto small despite its reputation for giving birth to the world's next big thing.

Last year, the city of 66,000 people set a [cap](#) of less than 1 percent a year on the growth of office space in most of its parts. In the charming downtown, where battalions of tech workers from companies like Amazon stroll the streets, their eyes often glued to their smartphones, the mayor is looking to enforce, in some form, an all-but-forgotten zoning regulation that bans companies whose primary business is

research and development, including software coding. (To repeat: The mayor is considering enforcing a ban on coding at ground zero of Silicon Valley.)

“This is crazy,” said Kate Vershov Downing, a lawyer who lit up the internet this month when she [announced](#) that she was quitting the city’s planning commission because she was moving someplace cheaper. “This is Silicon Valley. We’ve been writing code here for decades.”

I interviewed Ms. Downing on Facebook Live, but the connection kept cutting out. Her husband, Steve, works for [Palantir Technologies](#), a software company, and joined the interview.

The symbolism of the couple’s departure from Palo Alto is poignant: Even a lawyer married to an engineer can’t afford Palo Alto. (The [median price](#) of a home is around \$2.5 million, making it one of the most expensive places in the country.)

But as symbols go, it’s hard to beat the paradox of bad cellphone reception in the cradle of cutting-edge technology.

Brian Reid, a computer scientist and Palo Alto resident, blames “an unbelievable, fanatical fear of cell towers” among Palo Alto residents for the somewhat spotty coverage, and he said heavy data usage compounded the problem.

Mr. Reid, who lives four doors from the house of Steve Jobs, the co-founder of Apple who died in 2011, remembers the irony in 2007, a time of even worse cellphone coverage, when the iPhone was being introduced. Mr. Jobs had to leave his house to make calls, Mr. Reid said.

“He was trying to sell these phones, but he couldn’t use one in his front yard,” Mr. Reid said.

[\[WSJ\] Ship Operators Explore Autonomous Sailing](#)

Robert Wall and Costas Paris

http://www.wsj.com/articles/ship-operators-explore-autonomous-sailing-1472635800?mod=WSJ_TechWSJD_moreTopStories

“All hands on deck” may become a thing of the past.

Ship designers, their operators and regulators are gearing up for a future in which cargo vessels sail the oceans with minimal or even no crew. Advances in automation and ample bandwidth even far offshore could herald the biggest change in shipping since diesel engines replaced steam.

Ship operators believe more automation will enable them to optimize ship use, including cutting fuel consumption. “The benefit of automation is as an enabler of further efficiency across the 630 vessels we operate,” said Palle Laursen, head of Maersk Line Ship Management, a unit of cargo-ship giant [A.P. Moeller-Maersk](#) A/S.

British engine maker [Rolls-Royce Holdings](#) PLC is leading the Advanced Autonomous Waterborne Applications initiative involving other companies and universities. It foresees technologies long used to improve commercial airline operations migrating to ships. The group also is tapping know-how from those working on driverless cars to adapt for safe at-sea autonomous operations.

A future unmanned ship could resemble some of the most advanced combat drones. It would sport infrared detectors, high-resolution cameras and laser sensors to monitor its surroundings. The vast troves of data would be transmitted to command centers where staff do little more than monitor progress and ensure ships are operating at optimum speeds.

The consortium completed a study this year that concluded such vessels are feasible and offer savings.

Oskar Levander, vice president for innovation at Rolls-Royce's marine unit, said moving toward greater autonomy and unmanned shipping could cut transport costs 22%. The bulk would come from lower staff costs, though such vessels also would be more fuel efficient by eliminating the need to carry equipment to support people onboard.

The first steps already are being taken. The Stella ferry, used in the Baltic and operated by Finferries, has been equipped with a variety of sensors including lasers and thermal cameras to assess whether such sensors could allow autonomous operations.

A critical step toward floating remotely controlled unmanned cargo ships on the oceans by 2030, and autonomous ones by 2035, is the ability to pass large amounts of data from ship to shore to ensure safe operations. For years, lack of affordable bandwidth has made that a challenge. A new generation of communications satellites is promising lower costs to transfer data.

Satellite-services company [Inmarsat](#) PLC this year launched its Fleet Xpress service to provide improved connectivity to ship operators. It combines high-bandwidth satellites with a more secure connection to guarantee vital safety connectivity. Ronald Spithout, president of Inmarsat's maritime business, said the connection will let operators monitor engine and other ship functions more closely to enable enhanced automation.

Rolls-Royce, no longer affiliated with the luxury car maker, is betting that a push to smarter vessels will lift the fortunes of its struggling marine business. The prolonged slump in crude prices has led to a sharp drop in demand for sophisticated offshore vessels. Marine sales at Rolls-Royce fell 23% last year after declining 16% the prior year when oil prices started to slump.

Oil prices may rebound, but the demand for the gold-plated vessels used to service oil and gas rigs far offshore may never fully recover, said Mikael Makinen, president of Rolls-Royce's marine division. Rolls-Royce is betting smart ships will be a new growth market.

The company is already in talks with operators it wouldn't name to start trials of more autonomous vessels.

Automating shipping faces barriers, though. "There are a vast range of safety, security, navigational and legal challenges to be solved before crewless container vessels can be considered in our fleet," said Maersk's Mr. Laursen.

The International Maritime Organization, the arm of the United Nations overseeing global shipping, prohibits ship operations without crew. The International Convention for the Safety of Life at Sea, known as Solas, requires all ships to be "sufficiently and efficiently manned," the IMO said.

Safety rules emerged in 1914 in the wake of the sinking of the RMS Titanic two years earlier, which killed more than 1,500 passengers on the ship's maiden trans-Atlantic voyage. Current rules, completed in 1974, have been adapted for new technologies such as introducing mandatory requirements for

electronic charts and automatic identification systems for ships. Proponents of greater autonomy hope the rules may be further relaxed.

Separately, it is unclear as of yet how security issues like piracy and the mandate to help distressed ships will be addressed for these ships

IMO spokeswoman Natasha Brown said the British government-sponsored Marine Autonomous Systems Regulatory Working Group, set up in 2014, is reviewing pertinent regulations to potentially propose changes.

James Fanshawe, chairman of the working group, said it hopes to convince the international organization to pave the way for autonomous vessels before the end of the decade.

Capt. Thanasis Apostolopoulos, head of crews at Athens-based Springfield Shipping Co. and a sailor for 17 years, said the drive to unmanned ships may be inevitable. "It will be a sad day for seafarers when it happens," he said.

[\[WSJ\] Theranos Halts New Zika Test After FDA Inspection](#)

John Carreyrou and Christopher Weaver

30 August 2016

http://www.wsj.com/articles/theranos-halts-new-zika-test-after-fda-inspection-1472598332?mod=WSJ_TechWSJD_NeedToKnow

Theranos Inc. withdrew its request for emergency clearance of a Zika-virus blood test after federal regulators found that the company didn't include proper patient safeguards in a study of the new test, said people familiar with the matter.

The move is another setback for the Palo Alto, Calif., company as it tries to recover from crippling regulatory sanctions that followed [revelations by The Wall Street Journal](#) of shortcomings in Theranos's technology and operations. Theranos has said it is appealing.

Theranos founder Elizabeth Holmes announced Aug. 1 [a new blood-testing device](#) called miniLab that she said was designed for use outside a clinical laboratory and could run accurate tests from a few drops of blood.

Ms. Holmes also said Theranos was seeking clearance for its Zika test, and a [company news release](#) said Theranos had collected finger-stick blood samples from patients, including in the Dominican Republic, and run the tests on the new miniLab device, which showed that the Zika test worked.

But during an inspection by the Food and Drug Administration earlier this month, regulators concluded that Theranos had collected some data supporting the accuracy of the Zika test without implementing a patient-safety protocol approved by an institutional review board, according to the people familiar with the matter. Institutional review boards ensure that patients are treated safely and ethically during medical studies.

"We hope that our decision to withdraw the Zika submission voluntarily is further evidence of our commitment to engage positively with the agency," said Dave Wurtz, Theranos's vice president of regulatory, quality and clinical affairs. An FDA spokeswoman declined to comment on the inspection, citing the agency's policy on pending product applications.

It isn't clear if the problem affected any patients. Some data in the submission was collected under review-board-approved protocols, the people said. Theranos didn't contest the agency's findings and withdrew its submission for authorization of the new Zika test, according to people familiar with the matter.

Theranos executives told employees about the setback during a staff meeting last week, one person familiar with the meeting said.

In an email to Theranos investors Saturday, the company said it plans to collect additional data requested by the FDA under properly reviewed protocols and resubmit the Zika application. The letter said Theranos would handle a submission for an Ebola test "in the same manner."

The miniLab that Ms. Holmes, Theranos's chief executive, unveiled to laboratory scientists in Philadelphia signaled a potential shift in the closely held company's business model and a new source of revenue. FDA approval of the miniLab would allow Theranos to sell the device for outside use [even if she is banned](#) from owning or running a lab for at least two years.

The federal agency that oversees labs, the Centers for Medicare and Medicaid Services, imposed the ban and other penalties in July because of problems it found at a Theranos lab. The agency said the deficiencies affected test accuracy and put patients at risk.

Theranos is [appealing the lab's closing](#), Ms. Holmes's ban and other sanctions imposed by CMS and is continuing to negotiate a possible settlement.

Theranos also has said it is doing no patient testing at the lab where the deficiencies were found. In its investor email Saturday, Theranos said its appeal will argue that CMS hasn't "fully accounted for the progress we have made toward correcting" problems.

A CMS spokesman said Tuesday the agency is "reviewing a copy of Theranos's appeal." He declined further comment.

Theranos has pursued a manufacturing-focused business model before. An initial agreement with former retail partner Walgreens, now part of [Walgreens Boots Alliance](#) Inc., called for Theranos to sell blood-testing devices directly to the drugstore giant and have Walgreens perform the tests, according to a 2010 contract between the two companies.

The arrangement later shifted as Theranos sought tighter control over its proprietary technology and operations, according to people familiar with the negotiations. Michael Polzin, a Walgreens spokesman, declined to comment.

The FDA's inspection in August was triggered by Theranos's request for "emergency-use authorization" to sell its new Zika test, a person familiar with the matter said.

The FDA has cleared Zika tests from several other companies since invoking a rule allowing the agency to lower hurdles for new medical products during emergencies.

An epidemic of the mosquito-borne Zika virus has swept through parts of South and Central America and reached into South Florida in recent months. The virus can cause serious birth defects in developing fetuses, including distinctively undersized heads and brain abnormalities.

Theranos's news release on Aug. 1 as Ms. Holmes spoke at the American Association for Clinical Chemistry's annual meeting said the company believed no other test for Zika that uses tiny blood samples collected by finger sticks was available.

"Theranos scientists conducted the tests reflected in the AACC presentation in 2016 under IRB-approved protocols," the company added, referring to the review-board process.

Theranos told investors that company officials "recognized" during the FDA's inspection that some patient data was collected before the review-board protocols were in place.

After an inspection in August 2015, the FDA declared Theranos's finger-stick collection device, called the "nanotainer," an uncleared medical device, and the company said it stopped using it on patients in the U.S. The agency earlier approved the use of nanotainers for a herpes test.

Theranos said in its news release that it used the nanotainer as part of its blood-collection system for the Zika study, which included the Dominican patients.

Separately, Theranos's general counsel, Heather King, is leaving the company to return to law firm Boies Schiller & Flexner LLP, according to the email sent to investors.

Theranos [announced Ms. King's hiring](#) in May 2015, and she led the company's legal response to accusations of technological snags. Boies Schiller Chairman [David Boies](#) is a Theranos director.

"We appreciate Heather's leadership and we wish her the very best," Theranos said in its email to investors Saturday.

In a sign that the blows to Theranos's credibility during the past year continue to hang over the company, leaders of the University of Washington's medical laboratory division balked when a Theranos manager approached the lab in late July about working with Theranos on research.

"This is a disgraced company that has not responded to the sanctions in an honorable way," the lab's compliance officer wrote in an email to the University of Washington technician who fielded the inquiry from Theranos. "As such, do not set up a client account for this company," according to the email, which was reviewed by the Journal.

[\[NY Times\] Alphabet Expands Car-Pooling Project, Casting Shadow on Uber](#)

Daisuke Wakabayashi and Mike Isaac

30 August 2016

<http://www.nytimes.com/2016/08/31/technology/google-broadens-car-pooling-project-casting-shadow-on-uber.html?ref=technology>

SAN FRANCISCO — [Alphabet](#) and Uber are inching closer to a showdown.

Alphabet, the parent company of Google, is broadening the scope of a car-pooling program that could challenge ride-hailing services like Uber and Lyft. The pilot program, operated through Google's navigation app Waze, is limited to employees of companies near Google's headquarters in Mountain View, Calif.

In the fall, Waze plans to expand the program to users in San Francisco, where Uber is based, according to a person briefed on the matter who was not authorized to speak publicly about it.

Waze promotes the service as [Waze Carpool](#) on its website, recruiting drivers and riders to commute together in the Bay Area. For now, Google is not pushing the service as a direct competitor to the taxilike services of Uber and Lyft, focusing mainly on matching drivers and riders already headed in the same direction.

Unlike ride services that summon drivers immediately, Waze suggests calling for a ride a few hours in advance. When a user wants a ride in the same direction, Waze offers the driver a price to pick up that passenger.

For now, Waze is keeping the cost of rides below the federal standard mileage rates of 54 cents a mile, making it impractical for drivers to make a living from driving. Under its terms of service, Google said it may deduct “a commission” from the price of the ride.

Representatives of Google and Uber declined to comment. The Wall Street Journal [earlier reported](#) on Waze’s expansion of its pilot program.

Google’s expansion of the program is another indication of the intensifying competition between the two companies. As the company toes the waters of the ride-hailing industry, Uber has made clear its intentions to break into autonomous vehicle technology, a longtime area of interest for Google and its self-driving car experimentation.

Next month, Uber plans to start its first pilot program of self-driving cars in Pittsburgh, home to the ride-hailing firm’s autonomous technology research efforts.

Once close allies, the two companies in recent months have taken steps to disentangle themselves from each other. David Drummond, Alphabet’s senior vice president of corporate development, announced he had [stepped down from Uber’s board](#) as overlap increased between the two companies. Mr. Drummond had joined Uber’s board as a director in 2013 when he led a \$258 million investment in Uber through GV, then called Google Ventures, the investment arm of Alphabet.

Uber has also signaled its intentions to develop its own mapping technology, an effort to decrease the company’s heavy reliance on Google Maps for navigation. And earlier this month it acquired [Otto](#), an autonomous technology start-up, to kick-start its self-driving efforts in Pittsburgh.

Along with some of the changes of the last month, Uber also announced on Tuesday that it had hired Jeff Jones, former chief marketing officer at Target, to be Uber’s new [president of ride-sharing](#).

[\[WSJ\] Google Takes on Uber With New Ride-Share Service](#)

Jack Nicas 30 August 2016

<http://www.wsj.com/articles/google-takes-on-uber-with-new-ride-share-service-1472584235>

Google is moving onto Uber Technologies Inc.’s turf with a ride-sharing service to help San Francisco commuters join carpools, a person familiar with the matter said, jumping into a booming but fiercely competitive market.

Google, a unit of [Alphabet](#) Inc., began a pilot program around its California headquarters in May that enables several thousand area workers at specific firms to use the Waze app to connect with fellow commuters. It plans to open the program to all San Francisco-area Waze users this fall, the person said.

Waze, which Google acquired in 2013, offers real-time driving directions based on information from other drivers.

Unlike Uber and its crosstown San Francisco rival Lyft Inc., which each largely operate as on-demand taxi businesses, Waze wants to connect riders with drivers who are already headed in the same direction. The company has said it aims to make fares low enough to discourage drivers from operating as taxi drivers. Waze's current pilot program charges riders at most 54 cents a mile—less than most Uber and Lyft rides—and, for now, Google doesn't take a fee.

The company says it doesn't believe Waze drivers' income is taxable because it considers payments through its service effectively as money for gas.

Google's push into ride-sharing could portend a clash with Uber, a seven-year-old private firm valued at roughly \$68 billion that largely invented the concept of summoning a car with a smartphone app.

Google and Uber were once allies—Google invested \$258 million in Uber in 2013—but more recently have become rivals in some areas. Alphabet executive David Drummond said on Monday that he resigned from Uber's board because of rising competition between the pair. Uber, which has long used Google's mapping software for its ride-hailing service, recently began developing its own maps.

The two also are racing to develop driverless cars. Google has led the way with such technology, founding a project in 2009 that has now amassed more than 1.8 million miles of autonomous driving with its test cars. Uber earlier this month bought Ottomotto LLC, a six-month-old driverless-truck startup founded by Google veterans. Uber said it plans to start testing robotic taxis in Pittsburgh over the next several weeks, beating Google to a commercial test of self-driving technology.

Uber and Lyft declined to comment.

Waze is one part of Google's larger ambitions to upend transportation. Google is considering testing its driverless cars in a ride-sharing service, people familiar with the matter said, and executives have identified that as a potential business model for its self-driving technology.

Waze's path in new markets could mimic its development in Israel, where the company was founded, according to the person familiar with the matter. Google started testing a Waze carpool service there last year, and it quickly expanded. The service is now available at all hours in most parts of Israel.

In the San Francisco pilot, any local Waze user can sign up as a driver, but ridership is limited to roughly 25,000 San Francisco-area employees of several large firms, including Google, [Wal-Mart Stores](#) Inc. and [Adobe Systems](#) Inc. Riders are limited to two rides a day—intended to ferry them to and from work.

Google's Waze is moving into Uber and Lyft's ride-sharing turf with plans to expand its own ride-sharing program in San Francisco. Photo: Getty Images

In the planned expansion, anyone with the Waze app in the San Francisco area could sign up to be a rider or driver, the person said. Though Google currently doesn't collect a fee, the company is exploring different rates in Israel and San Francisco, the person familiar with the matter said.

Ben Schachter, an analyst at [Macquarie Group](#) Ltd., said a Waze ride-sharing service is a natural next step for Google, which has made clear its intentions to move into transportation. He warned that the company would need to navigate several potential pitfalls, including legal and safety questions.

“I don’t think they’ve had any significant experience in a lot of the issues that will surely arise around” starting a ride-sharing business, Mr. Schachter said.

Like Uber and Lyft, Waze’s drivers aren’t employees of the company, the person said. Unlike Uber, Google doesn’t plan to vet drivers for a Waze service, instead relying on user reviews to weed out problem drivers, the person said.

Waze, which operates as its own unit within Google, boasts 65 million active users, many of whom alert other users to police or traffic accidents—a hallmark of the app.

Robert Rickett, a 29-year-old nonprofit worker in Sacramento, Calif., said he uses Waze for navigation daily, particularly while driving for Lyft in the evenings. But he said he wouldn’t abandon Lyft for a Waze ride-hailing service, unless it offered him better opportunities as a driver.

Still, he noted Waze’s positive reputation among drivers is a big advantage—though he admitted he didn’t know Google owned the service.

“They have a lot of people who trust Waze,” he said while driving two Lyft passengers across the Bay Bridge into Oakland, Calif. “If they can capitalize on that, they could pull some market share.”

[\[WSJ\] The CIA’s Venture-Capital Firm, Like Its Sponsor, Operates in the Shadows](#)

Damian Paletta August 30, 2016

<http://www.wsj.com/articles/the-cias-venture-capital-firm-like-its-sponsor-operates-in-the-shadows-1472587352>

Forterra Systems Inc., a California startup focused on virtual reality, was in need of money and its products didn’t have much commercial appeal. Then funds came in from a source based far from Silicon Valley: In-Q-Tel Inc., a venture-capital firm in Virginia funded by the Central Intelligence Agency.

One catalyst for the 2007 infusion, according to a former Forterra executive and others familiar with it, was a recommendation by a man who sat on the board of the venture-capital firm—and also on the board of Forterra.

In-Q-Tel pumped in cash, Forterra developed some tools useful to the military, and government contracts started coming in.

Like the agency that founded it, the CIA-funded venture-capital firm operates largely in the shadows. In-Q-Tel officials regard the firm as independent, yet it has extremely close ties to the CIA and runs almost all investment decisions by the spy agency. The firm discloses little about how it picks companies to invest in, never says how much, and sometimes doesn’t reveal the investments at all.

Even less well-known are potential conflicts of interest the arrangement entails, as seen in this Forterra example and others continuing to the present. Nearly half of In-Q-Tel's trustees have a financial connection of one kind or another with a company In-Q-Tel has funded, a Wall Street Journal examination of its investments found.

In-Q-Tel's hunt for promising technology has led the firm, on at least 17 occasions, to fund businesses that had a financial link of some sort to an In-Q-Tel trustee. In three instances a trustee sat on the board of a company that had an In-Q-Tel investment, as in the Forterra case, according to the Journal's examination, which was based on a review of investment records and interviews with venture-capital and In-Q-Tel officials, past and present.

In-Q-Tel differs from other venture-capital firms in an important way: It is a nonprofit. Instead of trying to make money, it seeks to spur the development of technology useful to the CIA mission of intelligence gathering.

Tangled connections are endemic in the venture-capital business, where intimate industry knowledge is essential to success. Other venture-capital firms, however, are playing with their own money, or that of private investors.

In-Q-Tel uses public money, to which strict conflict-of-interest rules apply—at least \$120 million a year, say people familiar with the firm's financials. It sometimes deploys this capital in ways that, even if not by intent, have the potential to benefit the firm's own trustees by virtue of other roles they have in the tech industry.

In-Q-Tel investments often attract other funding. Each dollar In-Q-Tel invests in a small business typically is matched by \$15 from elsewhere, the firm has found. That makes the small business likelier to succeed and makes its stock options more valuable for whoever has some.

In-Q-Tel said it needs to work with people who have industry connections if it hopes to find promising technology. Some of its trustees, it said, are so enmeshed in the tech world it would be hard to avoid any ties that might be interpreted as conflicting. Besides technology, trustees come from a variety of backgrounds including academia, national security and venture capital.

“In-Q-Tel put in place rigorous policies to safeguard taxpayer funds, prevent possible conflicts-of-interest and stay focused on developing technology to meet mission requirements,” said a CIA spokesman, Ryan Trapani. “We are pleased that both the In-Q-Tel model and the safeguards put in place have worked so well.”

The firm permits its trustees to recommend investing in businesses to which they have ties, so long as they disclose these internally and to the CIA. Trustees are required to recuse themselves from reviews and votes after such recommendations.

To succeed, “you want a board who knows what the hell they are doing,” said Jeffrey Smith, who helped design In-Q-Tel when he was CIA general counsel and is now its outside counsel, as well as a senior counsel at law firm Arnold & Porter. “This is to some extent a balance, and we know that,” he said.

While serving as an In-Q-Tel trustee, retired Air Force Gen. Charles Boyd, shown above in the early 1990s, suggested it invest in a virtual-reality startup on whose board he sat. Gen. Boyd said he received no compensation from the startup for recommending the investment.

While serving as an In-Q-Tel trustee, retired Air Force Gen. Charles Boyd, shown above in the early 1990s, suggested it invest in a virtual-reality startup on whose board he sat. Gen. Boyd said he received no compensation from the startup for recommending the investment. PHOTO: UNITED STATES AIR FORCE

In the Forterra case, Charles Boyd, a retired Air Force four-star general, joined the boards of both Forterra and In-Q-Tel in 2006. The following year, In-Q-Tel sank money into Forterra, according to an In-Q-Tel news release at the time. The amount couldn't be determined.

Gen. Boyd said he made an initial recommendation for In-Q-Tel to invest but didn't take part in its decision to do so. He said he received no compensation from Forterra for recommending to In-Q-Tel that it invest in the startup.

“It definitely was a win-win from our perspective to have Charles on the board and open those doors for us,” said Chris Badger, who was Forterra's vice president of marketing. He said there was discussion within Forterra about whether “In-Q-Tel's funding model was really generating a good benefit for the taxpayer.”

The money from In-Q-Tel and subsequent federal contracts proved insufficient. Forterra failed to attract commercial interest and closed in 2010 after selling off pieces of itself.

The purchaser was another company where an In-Q-Tel trustee served on the board of directors.

Investors in Forterra, including In-Q-Tel, took heavy losses, according to people involved in the unwinding. Gen. Boyd had no personal investment in Forterra, In-Q-Tel said.

He did have nonqualified stock options, according to In-Q-Tel, which said holders of such options didn't receive anything for them when Forterra stopped operating. Gen. Boyd said the only compensation he received from the small business was \$5,000 as it was closing down. He left In-Q-Tel's board of trustees in 2013.

For the CIA, a captive venture-capital firm is a way to encourage and shape technology development without getting bogged down in bureaucracy.

In-Q-Tel's beginnings trace to a plan hatched in the late 1990s by George Tenet, then the CIA director, who expressed frustration that access to pioneering technology was held back by byzantine government procurement rules.

Congress approved the creation of In-Q-Tel by agreeing to direct money to the organization, and its funding levels increased markedly in later years.

The venture-capital firm started investing in 2000, in businesses that made satellites, analyzed data, translated languages and stored data, gaining a chance to shape the technology.

In-Q-Tel has at times received funds to invest from other agencies, among them the National Security Agency, the Federal Bureau of Investigation and the Defense Department, but the CIA remains the main source of its funding.

In one case, In-Q-Tel invested in a business that analyzed chemical compounds in carpets, resulting in a method to detect deadly chemicals in Afghanistan and Iraq, said the venture-capital firm's chief executive, Christopher Darby.

Another time, it put money into a satellite antenna maker, leading eventually to the development of portable satellite antennas that can help troops or intelligence agents communicate in remote locations, Mr. Darby added.

“I’ve been told by our customers that the technology that we’ve delivered has saved countless lives,” he said.

In an example of the financial links some trustees have within the technology world, Mr. Darby also serves on the board of a for-profit tech company.

In-Q-Tel doesn’t invest in that company, which is called Endgame Inc. But the company competes with other firms in its field—cybersecurity—that sometimes seek In-Q-Tel cash. If that happens, Mr. Darby doesn’t take part in reviewing the funding requests, he said.

On the Endgame board, Mr. Darby serves as nonexecutive chairman. He said stock options he receives are “de minimis” next to the roughly \$2 million a year he earns as In-Q-Tel’s CEO.

The CIA has reviewed his role at Endgame and signed off on his work there, people familiar with the arrangement said.

Of about 325 investments In-Q-Tel says it has made since its founding, more than 100 weren’t announced, although the identities of some of those companies have leaked out. The absence of disclosure can be due to national-security concerns or simply because a startup company doesn’t want its financial ties to intelligence publicized, people familiar with the arrangements said.

While moneymaking isn’t In-Q-Tel’s goal, when that happens, such as when a startup it funded goes public, In-Q-Tel can keep the profit and roll it into new projects. It doesn’t obtain rights to technology or inventions.

CyPhy Works, led by CEO Helen Greiner, above, developed a surveillance drone useful to the government after In-Q-Tel provided capital to the company. One of In-Q-Tel trustees also sits on CyPhy’s board.

CyPhy Works, led by CEO Helen Greiner, above, developed a surveillance drone useful to the government after In-Q-Tel provided capital to the company. One of In-Q-Tel trustees also sits on CyPhy’s board. PHOTO: DAVID PAUL MORRIS/BLOOMBERG NEWS

At In-Q-Tel’s headquarters tucked in the back of an office park in Arlington, Va., the lobby is sparse, with three blank digital screens on the wall and an American flag in a stand. Some executives wear jeans, reflecting a Silicon Valley ethos. Its spy-world ties also are evident, in frosted windows and fingerprint scans required to enter certain rooms.

In-Q-Tel's investments include one made last year in CyPhy Works, a Massachusetts company that produces small surveillance drones.

CyPhy's board includes Anita Jones, a computer scientist and former Defense Department official. She is also a trustee of In-Q-Tel, appointed in 2002.

Ms. Jones didn't connect CyPhy with In-Q-Tel, said CyPhy's chief executive, Helen Greiner. The suggestion to seek In-Q-Tel funding came from another investor. At In-Q-Tel, Ms. Jones stayed out of discussions of whether to invest, the firm said.

After In-Q-Tel put money in, it suggested certain modifications to one of CyPhy's surveillance drones, a model that can stay aloft for hundreds of hours because it is powered through a microfiber tether. The resulting new drone, called the Persistent Aerial Reconnaissance and Communications, or PARC, is used by the U.S. government and is available for commercial purchase.

In-Q-Tel "could see the military opportunity," Ms. Greiner said. "They work with their customer base to say, 'This is what these guys are doing now, but what would be the most useful?'"

Asked if In-Q-Tel's investment boosted the value of any stock options held by Ms. Jones, she and CyPhy said in a written statement that "the transaction may or may not have had an effect on the value of options held" by her.

Forterra's case was the only time In-Q-Tel funded a business that had been recommended by a trustee who was on that business's board, according to the venture-capital firm. It said that other times when it funded businesses where a trustee was a director, the trustee wasn't the one proposing the investment.

Connections between trustees and funded companies often are indirect, such as parallel investments by In-Q-Tel and by the primary employer of an In-Q-Tel trustee.

Three of In-Q-Tel's 12 trustees work for other, larger venture-capital firms. In-Q-Tel has invested in at least 13 businesses in which those other firms already held stakes.

In-Q-Tel trustee Peter Barris is a co-managing general partner at New Enterprise Associates, one of the largest venture-capital firms.

Mr. Barris joined In-Q-Tel's board in 2006. Four years later, In-Q-Tel invested in a data-storage startup at which New Enterprise already held a stake, a company called Cleversafe.

Mr. Barris didn't recommend the investment or vote on it, according to him and other In-Q-Tel officials.

A few years later, New Enterprise Associates increased its stake in Cleversafe to 25%, and Mr. Barris joined Cleversafe's board.

Later still, he was involved in a restructuring at Cleversafe that polished up the data-storage business for a \$1.3 billion sale. At the time of the sale in 2015, Mr. Barris was on the board of Cleversafe as well as the boards of two of its investors: In-Q-Tel and Northwestern University.

The idea for a CIA-funded venture-capital firm came from former CIA director George Tenet in the late 1990s.

The idea for a CIA-funded venture-capital firm came from former CIA director George Tenet in the late 1990s. PHOTO: RICHARD ELLIS/ZUMA PRESS

Mr. Barris said that this triple connection was unusual, but that all of the investors' interests were aligned. "I could argue that In-Q-Tel benefited from [New Enterprise] rather than the other way around," he said.

Mr. Barris added that on at least three occasions, he has recommended In-Q-Tel look into investing in companies to which New Enterprise Associates had a connection, but In-Q-Tel didn't invest.

Ronald Gilson, a Columbia Law School professor who has written about governance and venture capital, said In-Q-Tel's unique semigovernmental model puts it in the situation of needing expert advice while trying to avoid overly cozy financial relationships.

"On the one hand, if you wanted really pristine independence, it means you are going to need people who don't have commercial ties to the industry," Mr. Gilson said. "On the other hand, if you have people without any commercial ties to the industry, they are not much use."

TT Clips September 1, 2016

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Patent Trolls

[Tech Crunch] [LOT Network waives patent troll protection membership fees for startups](#)
Darrell Etherington September 1, 2016

<https://techcrunch.com/2016/09/01/lot-network-waives-patent-troll-protection-membership-fees-for-startups/>

License on Transfer (LOT) Network is looking to make it even easier for smaller startups to sign up for its cross-licensing patent “immunization” organization, which includes members like Google, Netflix and Uber. Between now and March 1, 2017, any new members that join LOT Network that have annual revenues below \$5 million won’t have to pay the standard annual membership fees the group normally charges.

Google, Canon and Red Hat originally created LOT Network in 2014 to help protect members from patent trolls, by essentially pooling the patent holdings of all participating organizations and cross-licensing said intellectual property automatically when any patent held by a company within its ranks falls into possession of a “patent assertion entity” (PAE), which is the formal name for what we generally refer to as patent trolls. This can happen when companies switch from actively producing products to making possession and defense of intellectual property their sole line of business, or when smaller firms are acquired by PAEs, for instance.

“We wanted to find a way to solve for the troll problem, while still preserving the value of patents,” explained LOT CEO Ken Seddon. “So the LOT agreement was formed, and it was revamped last November, which has really been the catalyst for all the growth we’ve had. Under the new agreement, companies are basically free to use their patents for all the traditional uses, but if any of their patents fall into the hands of a troll, the rest of the community is immunized against it and gets a free license.”

Since the new agreement was put in place in November, LOT has grown from 15 to 78 members, which includes top-tier tech companies, banks, broadcasters, automakers and more. The new rule change today is designed to help add much smaller, younger companies to the mix. And

Seddon believes that in addition to the fee waiver, there's good reason for startups to consider membership.

"There's actually a distinct advantage that startups have that the big companies really don't get as part of LOT," Seddon explained. "So when a startup company joins LOT, it immediately begins accruing all of these license rights. The good news is that if one of our startup companies gets acquired by a bigger company, it's allowed to pass on those rights on whoever acquires it. So basically, it hasn't happened yet, but it's only a matter of time before a large company buys one of the startup companies in LOT in large part because of the license rights it's accrued."

Seddon also pointed out that PAEs are increasingly targeting startups instead of big companies; the process of suing smaller companies with less money might result in smaller eventual paydays, but those paydays come faster because the targets don't have the resources to sustain long legal battles. Waiving the fees for companies with revenue under \$5 million should help narrow the range of attack vectors PAEs have against smaller startups.

"We think that LOT is pretty much a one-size fits all solution for companies – large companies, small companies – to help address their patent troll problem," Google's Senior Patent Counsel Tim Kowalski told me in an interview. "But with small, early stage companies cash is king, so we're behind essentially removing a potential barrier to them joining, which makes a lot of sense because the benefit to all the members grows as more members join."

To be clear, this isn't a blanket cross-licensing arrangement for all companies involved; firms can still pursue legal action against other legitimate companies they believe are using their IP without proper license, and the "immunizing" cross-licensing is triggered only when it falls under the control of a PAE or patent troll. I asked if sweeping patent reform might be a better answer, and Seddon said that LOT believes "companies themselves" should be the ones who solve this issue, rather than leaving it up to legislative reform around patent law itself, precisely because that risks affecting "how patents have been used historically" prior to PAEs taking advantage of the system.

More info on the specifics of the waiver arrangement and LOT itself, as well as details on how startups can sign up, is available on [LOT Network's website](#).

China Technology Restrictions

[Fortune] EU Businesses Warn of Protectionist Backlash if China Doesn't Open Its Market
Reuters September 1, 2016

<http://fortune.com/2016/09/01/eu-chamber-china-protectionism/>

Progress on China's economic reforms has been "highly disappointing," the EU business lobby says.

A top European business lobby warned China on Thursday that it risked a protectionist backlash unless it opened its markets faster to foreign investment, saying the current unbalanced access for foreign companies was "not politically sustainable."

Progress on China's economic reforms has been "highly disappointing," the European Union Chamber of Commerce in China said in an annual paper, released as China prepares to host leaders from the world's biggest economies at this weekend's G20 summit.

Beijing wants to use the Sept 4-5 meeting in the tourist hub of Hangzhou to lay out a broad strategy for global growth, though talks are likely to be overshadowed by concerns such as protectionism.

China was angered by Australia's recent blocking of an A\$10 billion (\$7.7 billion) sale of the country's biggest energy grid to Chinese bidders, and by Britain's delay of a \$24 billion Chinese-invested nuclear project, saying the hurdles smacked of protectionism and paranoia.

But business groups and Western officials point out that restrictions on foreign companies in Chinese industries, such as financial services, healthcare, and logistics, are often far greater than what Chinese firms face abroad.

"This unbalanced situation is not politically sustainable and for its own benefit China should begin reciprocating by opening up and allowing European business to contribute more to its economy," the Chamber said, adding that doing so was needed if China was to avoid a middle income trap.

Chamber president Joerg Wuttke said he was worried about protectionist sentiments brewing among European officials as a result of China's slow progress in opening markets.

"We worry that China might unleash protectionist forces, which none of us want to see," Wuttke told reporters ahead of the paper's release.

Chinese Foreign Ministry spokeswoman Hua Chunying said China remained an ideal country for investment for the world, including from the EU.

"China's policy on using foreign investment will not change. We'll continue to create a good environment for investment from all countries," she told reporters at a regular briefing.

China has sought to address slowing growth by promoting innovation in strategic industries, such as information technology and robotics.

Beijing's "Made in China 2025" plan calls for a progressive increase in domestic components in such sectors, leading foreign firms to worry they will face increasing hurdles in China contrary to officials' vows to open markets.

The Chamber said the government's increasing role in directing capital to such industries "will not allow China to realize its full economic potential" and warned that waiting to carry forward reforms until after an important congress of the ruling Communist Party in 2017 would have "significant costs."

"If it is ultimately unwilling to offer reciprocal access to its own market, China cannot assume that it will indefinitely continue to enjoy open and unhindered access to the EU's," the Chamber said.

E-Rate

[Union Leader] Officials pledge to expand high-speed internet access for students

By Jason Schreiber

<http://www.unionleader.com/article/20160901/NEWS04/160839808>

FREMONT — Gov. Maggie Hassan and state Education Commissioner Virginia Barry welcomed Ellis School students back to school Wednesday with a promise to continue pushing to bring high-speed internet and other technology improvements to New Hampshire schools.

“We really want all of you to be prepared for the future,” Hassan told the hundreds of students from preschool to eighth grade who gathered for an assembly on the school’s participation in the New Hampshire School Connectivity Initiative.

The initiative was announced in February as part of a new partnership between the state Department of Education, the Department of Information Technology, the Department of Resources and Economic Development and the University of New Hampshire.

Through NHSCI, state leaders have begun fiber network discussions with school districts, service providers and partner organizations.

A nonprofit organization called Education Superhighway is working on the initiative for free. The organization supports increased broadband connectivity in public schools.

Education Superhighway CEO and founder Evan Marwell said the goal is to bring a fiber optic connection to every school; add a WiFi access point in every classroom to improve the wireless connection for all students; and make broadband more affordable for school districts.

According to Marwell, a program run by the Federal Communications Commission called E-rate covers most of the cost of bringing broadband to schools through the \$3.9 billion a year it receives in funding. Marwell said Ellis School is among the schools in New Hampshire planning to apply for funds to enhance its internet capabilities.

Marwell said that if the state puts up 10 percent of the cost, the FCC will pay for most of the remaining costs, easing the burden on schools to fund the improvements out of their own budgets.

“The governor has put in her budget money to support the schools that don’t have fiber optic

connections today to cover that 10 percent of the cost,” he said.

Marwell said there about 180 school districts in New Hampshire and roughly a third of them need to make the upgrades.

Carla Smith, Ellis School’s technology director, said the school currently some wireless connection but she hopes it can be expanded through the initiative.

“I would like to have access points in all rooms so that we can put mobile devices in any room,” she said.

The school also expects to add more devices in classrooms in the future and replace wired technology with wireless.

The district currently pays for business class internet service through Comcast, but school officials hope to be able to purchase more bandwidth to meet future demands.

Consumer Protection Privacy

[Washington Post] How America’s tech companies could wriggle out of the nation’s consumer protection laws

By Brian Fung August 31, 2016

<https://www.washingtonpost.com/news/the-switch/wp/2016/08/31/how-the-worlds-biggest-tech-companies-could-wriggle-out-of-all-privacy-regulations/>

Companies such as Google and Facebook thrive on your personal data — the bits of information that tell advertisers how old you are, what brands you like and how long you lingered on that must-see cat video. Historically, how these companies use this data has been subject to oversight by the Federal Trade Commission, the government's top privacy watchdog.

But a big court defeat for the FTC this week is putting the agency's power to protect your online privacy in jeopardy, analysts say. The ruling could wind up giving Google and Facebook, not to mention other companies in the Internet ecosystem, the ability to escape all consumer-protection actions from the FTC, and possibly from the rest of government, too, critics claim, unless Congress intervenes.

In the wake of the setback, the FTC is mulling an appeal — which would mean either asking for a rehearing at the U.S. Court of Appeals for the 9th Circuit, or escalating to the Supreme Court, according to a person close to the agency.

But unless regulators can persuade the courts to overturn Monday's decision, the result will be "a fatal blow" to consumer protection, said Jeffrey Chester, executive director of the Center for Digital Democracy.

"The decision will enable a company like Google ... to engage in unfair marketing and data-gathering practices without having to worry about possible FTC consequences," he said.

The FTC did not immediately respond to a request for comment. Neither did Facebook and Google.

What's potentially confusing is that the case doesn't talk about Facebook or Google. The substance of the case concerns another company, AT&T. But the meat of the lawsuit actually matters less right now than how the 9th Circuit dealt with it — which was to throw it out on a procedural argument that, analysts say, sets a precedent affecting the entire Internet economy. The case makes it possible for companies to effectively avoid consumer protection regulations by setting up or buying a phone or Internet service provider.

In its lawsuit, the FTC said AT&T had unacceptably tricked customers with its marketing surrounding unlimited data plans. AT&T's unlimited data plans aren't truly "unlimited," regulators argued, because AT&T actually slowed down its heaviest data users to dial-up speeds after they consumed a certain amount of mobile data.

The FTC has used this truth-in-advertising approach for decades to go after numerous companies, and it represents one of the agency's core legal tools.

But this time, the FTC's lawsuit never got off the ground. The regulators' claims of "unfair and deceptive" behavior don't apply, Judge Richard Clifton ruled, because no part of AT&T falls

within the FTC's jurisdiction. Clifton's argument set off a shock wave among policy analysts — and here's why.

As a telephone and Internet provider, AT&T is known in legal circles as a "common carrier," and the FTC is explicitly forbidden by Congress from taking action against common carriers. Until now, most legal experts interpreted this ban to mean that the FTC could still go after such firms for their marketing and advertising claims, because only the core parts of the business were actually engaged in common-carrier activities such as offering home phone service or mobile data.

Clifton's opinion surprised some policy analysts because it went much further, saying that all parts of AT&T, not just the core business, qualify for the FTC's common-carrier exemption.

"The immediate effect [of the ruling] is that the FTC can't pursue AT&T" for not being transparent enough about its unlimited data plans, said Paul Gallant, a telecom analyst at Cowen and Company, in a research note. "However, the court also ruled that the FTC is precluded from regulating any aspect of an ISP for privacy, even other units of the company. So [Monday's] ruling seems encouraging for some ISPs like Verizon."

Verizon, of course, is increasingly becoming an online content player with its recent acquisitions of AOL and Yahoo. Under the 9th Circuit's decision, the FTC would be barred from going after either subsidiary, analysts say, because Verizon also provides phone and Internet service out of a separate department and can claim common-carrier status.

Playing this forward, consumer protection advocates say Clifton's argument would allow any company to evade FTC oversight simply by launching or buying a small telecom service. Google already benefits from this line of reasoning because it operates Google Fiber. A company such as Facebook, whose goal is to connect a billion additional people to the Internet, could acquire its own broadband provider and claim common-carrier status.

As a consequence, they allege, any company with telephony or broadband operations could engage in fraudulent or misleading activity of any kind without risk of blowback from the federal

government. They could begin selling fake dietary supplements, or putting bogus charges on your phone bills, or failing to meet the industry standards to which they have publicly committed, said the person close to the agency, and the FTC would be unable to do anything about it.

Monday's ruling shines a spotlight on the only federal agency with a mandate to regulate common carriers such as AT&T and Google Fiber: the Federal Communications Commission. The FCC is currently developing a set of privacy regulations specifically for Internet providers. But unlike the FTC, the nation's top telecom regulator is limited to regulating only the parts of telecom companies that actually deal with Internet and phone service, analysts say.

Between the FCC's inability to regulate much beyond the communications-related units of a company and the FTC's newfound prohibition on regulating *any* part of a company that owns a communications business, the 9th Circuit decision creates a gap in consumer protection law, said Berin Szoka, president of the market-oriented think tank TechFreedom.

"Companies like Yahoo and AOL, all based [on] the Ninth Circuit [decision], may fall into a no man's land of consumer protection, policed by neither agency," Szoka said.

Even such companies as Apple could find themselves benefiting from this loophole, according to a lawyer who works for the telecom industry. If the FCC attempts to regulate iMessage or other messaging apps, justifying the move as a form of common-carrier regulation, the companies behind them could claim common-carrier status as well — and exemption from FTC oversight, said the lawyer, who spoke on the condition of anonymity to speak more freely.

The FCC said Wednesday it is still reviewing the 9th Circuit's decision.

The FTC's common-carrier exemption was never intended to lead to this result, said David Vladeck, a law professor at Georgetown University who led the agency's consumer protection bureau from 2009 to 2012.

The purpose of the exemption was to create a division of labor among different regulatory agencies, "not to have large swaths of the economy be unregulated by the federal government," he said. Thanks to Monday's decision, "AT&T could start selling high volumes of snake oil and be immune from federal law. Does that make any sense? I don't think so."

Data Breach

[Fox News] [Dropbox data breach: 68 million user account details leaked](http://www.foxnews.com/tech/2016/08/31/dropbox-data-breach-68-million-user-account-details-leaked.html)

By James Rogers August 31, 2016

<http://www.foxnews.com/tech/2016/08/31/dropbox-data-breach-68-million-user-account-details-leaked.html>

Four years after a data breach at cloud storage service Dropbox, details of more than 68 million user accounts have reportedly been leaked.

Tech website Motherboard reported Tuesday that it obtained files containing the account details from sources in the database trading community and breach notification service Leakbase. The files contain email addresses and "hashed" passwords, which use an algorithm to protect the passwords, it said.

It was not previously known how many users were affected by the 2012 hack, according to Motherboard, which says that the leaked data does not appear to be posted on the dark web. A senior Dropbox employee told Motherboard that the data is legitimate.

The data dump was also verified by security researcher Troy Hunt.

"This is not a new security incident, and there is no indication that Dropbox user accounts have been improperly accessed," said Patrick Heim, Dropbox's head of trust and security, in a statement emailed to FoxNews.com. "Our analysis confirms that the credentials are user email addresses with hashed and salted passwords that were obtained prior to mid-2012."

"Salted" passwords use random data as an additional layer of protection.

Dropbox recently launched a major password reset, prior to the dumped data becoming public.

"We can confirm that the scope of the password reset we completed last week did protect all impacted users," Heim said. "Even if these passwords are cracked, the password reset means they can't be used to access Dropbox accounts."

Heim noted that the reset only affects users who signed up for Dropbox prior to mid-2012 and hadn't changed their password since. However, he urged affected users who reused their passwords on other sites to protect themselves on those sites. "The best way to do this is by updating these passwords, making them strong and unique, and enabling two-step verification," he said. "Individuals who received a notification from Dropbox should also be alert to spam or phishing."

Two-step, also known as two-factor verification, is a method of bolstering users' online security. In addition to a password, additional login data could be used, such as a code sent to a cell phone.

Josh Feinblum, vice president of information security at cybersecurity specialist Rapid7 praised Dropbox's handling of the data breach. "Dropbox began taking proactive action to protect their users nearly a week before information about this leak became public," he said, in a statement emailed to FoxNews.com. "Their customer-first approach was refreshing and likely mitigated a great deal of risk to their users."

The Dropbox dump is just the latest in a string of high-profile data breaches. A hacker was reportedly looking to sell 117 million passwords from a 2012 LinkedIn breach on the dark web earlier this year. In June a hacker claimed to be selling 655,000 alleged patient healthcare records on the dark web, containing information such as social security numbers, addresses, and insurance details.

The dark web, or darknet, refers to private networks built from connections between trusted peers using unconventional protocols. Dark Web is just one part of what is known as deep web – a vast network which is not indexed by search engines such as Google and Bing.

Autonomous Vehicles

[MIT Technology Review] Fully Autonomous Cars Are Unlikely, Says America's Top Transportation Safety Official

By Andrew Rosenblum August 31, 2016

<https://www.technologyreview.com/s/602273/fully-autonomous-cars-are-unlikely-says-americas-top-transportation-safety-official/>

Auto accidents kill more than 33,000 Americans each year, more than homicide or prescription drug overdoses. Companies working on self-driving cars, such as Alphabet and Ford, say their technology can slash that number by removing human liabilities such as texting, drunkenness, and fatigue. But [Christopher Hart](#), chairman of the National Transportation Safety Board, says his agency's experience investigating accidents involving autopilot systems used in trains and planes suggests that humans can't be fully removed from control. He told *MIT Technology Review* that future autos will be much safer, but that they will still need humans as copilots. What follows is a condensed transcript.

How optimistic are you that self-driving cars will cut into the auto accident death toll?

I'm very optimistic. For decades we've been looking at ways to mitigate injury when you have a crash. We've got seat belts, we've got air bags, we've got more robust [auto body] structures. Right now, we have the opportunity to prevent the crash altogether. And that's going to save tens of thousands of lives. That's the ideal end point: no crashes whatsoever.

Autopilot systems can also create new dangers. The NTSB has said that pilots' overreliance on automation **has caused crashes**. Do you worry about this phenomenon being a problem for cars, too?

The ideal scenario that I talked about, saving the tens of thousands of lives a year, assumes complete automation with no human engagement whatsoever. I'm not confident that we will *ever* reach that point. I don't see the ideal of complete automation coming anytime soon. Some people just like to drive. Some people don't trust the automation so they're going to want to drive. [And] there's no software designer in the world that's ever going to be smart enough to anticipate all the potential circumstances this software is going to encounter. The dog that runs out into the street, the person who runs up the street, the bicyclist, the policeman or the construction worker. Or the bridge collapses in a flood. There is no way that you're going to be able to design a system that can handle it.

The challenge is when you have not-so-complete automation, with still significant human engagement—that's when the complacency becomes an issue. That's when lack of skills becomes the issue. So our challenge is: how do we handle what is probably going to be a long-term scenario of still some human engagement in this largely automated system?

The recent fatality of a driver using Tesla's Autopilot feature may be a failure of automation. Why is the NTSB investigating that crash?

We don't investigate most car crashes. What we bring to this table is experience [with] scenarios of introducing automation into complex, human-centric systems, which this one definitely is. We're investigating this crash because we see that automation is coming in cars and we would like to try to help inform that process with our experience with other types of automation.

Like what?

Well, we investigated a people-mover accident in an airport. It collided with another people mover. And our investigation found that the problem was a maintenance problem. Even if you eliminate the operator, you've still got human error from the people who designed it, people who built it, people who maintain it.

Some people say that self-driving cars will have to make ethical decisions, for example **deciding whom to harm when a collision is unavoidable. Is this a genuine problem?**

I can give you an example I've seen mentioned in several places. My automated car is confronted by an 80,000 pound truck in my lane. Now the car has to decide whether to run into this truck and kill me, the driver, or to go up on the sidewalk and kill 15 pedestrians. That would [have to] be put into the system. Protect occupants or protect other people? That to me is going to take a federal government response to address. Those kinds of ethical choices will be inevitable.

In addition to just ethical choices—what if the system fails? Is the system going to fail in a way that minimizes [harm] to the public, other cars, bicyclists? The federal government is going to be involved.

What might that process look like?

The Federal Aviation Administration has a scheme whereby if something is less likely than one in a billion to happen you don't have to have an alternate load path [a fallback structure to bear the weight of the plane]. More likely than that and you need a fail-safe. Unless you can show that the wing spar failing—the wing coming off—is less than one in a billion, it's "likely" to happen. Then you need to have a plan B.

That same process is going to have to occur with cars. I think the government is going to have to come into play and say, "You need to show me a less than X likelihood of failure, or you need to show me a fail-safe that ensures that this failure won't kill people." Setting the limit is something that I think is going to be in the federal government domain, not state government. I don't want 50 limits.

[\[CBS News\] Ford executive chairman on Ford GT and autonomous cars](#)

By CBS News August 31, 2016

<http://www.cbsnews.com/news/bill-ford-executive-chairman-ford-gt-racecar-first-place-le-mans-autonomous-cars/>

Fifty years ago, a Ford race car roared past archrival Ferrari to take first place in one of the world's oldest and most prestigious endurance races, the "24 Hours of Le Mans" in France. This year, after sitting it out for decades, Ford entered a new version of its original GT supercar in the roughly 3,000-mile Le Mans race and won its class.

On Wednesday morning, viewers got a good look at the new Ford GT, brought all the way from Europe to New York City, where it drew a crowd of admirers to the street outside CBS News' studio.

Ford Executive Chairman Bill Ford told "CBS This Morning" that while some people had doubts about their chances, Ford was prepared for the win.

"To think we could win in the first year, I think most people observing us didn't give us much of a chance," Ford said. "I was very confident. You race to win. People kept asking me, 'can you win this race?' I said, 'we're not here for practice, we're here to win.'"

In addition to investing in the high-performance race cars -- Ford will make just 250 of the GT models, all hand-assembled -- the company has also jumped in the race to develop autonomous cars. Ford [announced](#) this month its audacious plan to have a fully driverless car by 2021. But more than the upcoming deadline, Ford said the greater concern was with the “regulations and society’s acceptance” of the new vehicles.

The idea of making drivers obsolete has raised unprecedented issues. In June, the owner of a Tesla sedan using autonomous driving technology was [killed](#) after the vehicle failed to brake and collided with a truck, sparking a debate about the safety and limits of the new technology. Then there are new [ethical concerns](#), over whether the autonomous cars can be programmed to make potentially life-or-death decisions that are instinctive to humans.

Ford said he was “not concerned” about the potential dangers, calling them “something we’re going to always have to... work out.” He also asserted that while driverless cars will become part of “the world we’re going to live in,” change would be “introduced in a very measured way.”

“The change is happening in cities first, and rural transportation and suburban transportation will change more much slowly,” Ford said. “So we’re going to live kind of in this bifurcated world of urban transportation, which will change dramatically, and then the rest of transportation, which will change but more slowly.”

The race for [autonomous cars](#) has not yet taken a toll on personal car ownership, with record sales reported in 2015. But less than a quarter of 16-year-olds have driver’s licenses – a figure that has been declining since 1983. Ford said he sees the change in “the way people access vehicles” as an opportunity.

“You’ve already seen that with [Uber](#) and Lyft, and all of that ride hailing companies,” Ford said. “Our business model will change and we’re anticipating that and actually looking forward to it.”

Ford facing criticism amid planned move to Mexico

Ford Motor Company was recently in the spotlight on the campaign trail when Republican presidential nominee Donald Trump [blasted](#) its plan to build a \$1.6 billion auto assembly plant in [Mexico](#), which would create 2,800 jobs by 2020.

“The transaction is an absolute disgrace,” Trump said in a statement. “These ridiculous, job crushing transactions will not happen when I am president.”

Ford defended the company’s decision, explaining that Ford’s business in Mexico goes back as far as 100 years, in line with founder Henry Ford’s vision for an international company that made “vehicles all around the world.”

“In fact, we’ve added many, many more jobs in the U.S. than we have in Mexico... And we’re continuing to so we’re doing both,” Ford said.

Commercial Space

[Nature World News] [NASA International Space Station Gets New HD Camera and Biomolecule Sequencer Experiment](#)

By Sky Selrach September 1, 2016

<http://www.natureworldnews.com/articles/27936/20160901/nasa-international-space-station-new-hd-camera-and-biomolecule-sequencer-experiment.htm>

NASA's International Space Station (ISS) is truly a cut above the rest when it comes to the latest technological advancements. In fact, there's more to add at the ISS and more research to be done. Apart from the latest biomolecule sequencer experiment, a [new HD camera](#) is set to be installed.

Two American astronauts will be spacewalking during the early hours of Sept.1, namely Kate Rubins and Jeff Williams. This would be the [195th spacewalk](#), where Rubins and Williams will be working on a few repairs on the ISS, plus installing a new high-definition camera.

The latest HD camera is just another one of the cameras mounted outside the ISS. There's the HD Earth-viewing camera that broadcasts live views of Earth. On the other hand, there's an ultra HD camera that captures magnificent views of outer space.

As for the multitude of other cameras on the ISS, including the latest HD camera to be installed for this year's spacewalk, this would simply be to view crew members outside the ISS. The latest camera installation would give viewers a clearer picture of what astronauts do in space.

The space walk will be shown on [NASA TV](#) at 6:30 am. However, the space walk is expected to begin at 8:05 am ET. As for other advancements at the ISS, DNA was successfully sequenced at the ISS, which is a first.

The [biomolecule sequencer experiment](#) was one by Rubins. Having able to sequence DNA of living organisms in microgravity is a game-changer as it opens doors for medical and scientific possibilities.

Other notable instruments aboard the ISS include the RapidScat, which is an ocean vector wind scatterometer. It is the first operational science instrument onboard, which is dedicated to observing the Earth. Another is the Synthetic Muscle, a flexible polymer that is able to expand and contract through electricity. Aside from the biomolecular sequencer experiment, there's also the [Heart Cells study](#) and the [Mouse Epigenetics](#).

[\[Space\] Astronaut 'Dream Team' Takes Spacewalk Outside Space Station Today: Watch Live](#)

By Samantha Mathewson September 1, 2016

<http://www.space.com/33924-astronaut-dream-team-spacewalk-today-webcast.html>

Two NASA astronauts will take a spacewalk outside the International Space Station this morning (Sept. 1) and try to retract a radiator that proved troublesome for the last team that attempted to fold it up.

Expedition 48 Commander Jeff Williams and flight engineer Kate Rubins will exit the space station from the Quest Airlock at 8:10 a.m. EDT (1210 GMT), NASA officials said during a news briefing. The spacewalk is expected to take 6.5 hours and you can [watch it live here on Space.com](#), courtesy of NASA TV.

This will be Williams' and Rubins' second spacewalk together. Last week, [the team installed the first International Docking Adapter](#), which will allow private space taxis to link up with the station on future missions.

"Looking back at the last EVA, these guys [Williams and Rubins] both performed an outstanding job. [It] was Kate's first EVA as a rookie, but you certainly wouldn't have known it," Zebulon (Zeb) Scoville, NASA lead flight director, said at the news briefing Aug. 24. "Their combination of athleticism and problem-solving really, in my mind, is a perfect blend of Michael Phelps, Simone Biles and Mark Watney."

The primary object of today's spacewalk is to retract a thermal control radiator that is no longer in use. When fully extended, the radiator is susceptible to orbital debris that could cause damage.

"It is one of our high-priority spares," Scoville said. "We really want to be able to get it retracted and covered up so that we can count on it in the future, should the need arise."

However, this is not the first time astronauts have attempted to retract this radiator. On spacewalk 33, NASA astronauts Scott Kelly and Kjell Lindgren [encountered challenges while trying to retract the radiator](#) to its out-of-use position against the side of the space station. Having run out of time, the two astronauts re-extended the radiator to its outstretched position.

If Williams and Rubins are successful in retracting the radiator this time, they will deploy a thermal cover to fully protect the piece of equipment. Next, they will move forward with installing at least one high-definition camera onto the station's exterior.

This camera will be used to take high-resolution imagery of space vehicles that dock with the space station, so that NASA can carefully inspect the vehicles and ensure the crew's safe return home. The cameras will also provide images of Earth and be able to inspect other aspects of the space station. A total of three new cameras are expected to be installed on the station's exterior; however, only one installation is scheduled for today. A second camera will be ready for Williams and Rubins if they find themselves with extra time for get-ahead tasks.

Additional routine maintenance tasks are also planned, including inspecting a joint on the exterior of the space station to make sure that it is still in good condition and lubricated. They will also tighten some struts that have been vibrating slightly.

These tasks are about "preserving and keeping our [space] vehicle in top shape for its sustained use throughout the life of the [space] station," Scoville added.

The most difficult part of this spacewalk will be retracting the thermal control radiator. Due to its large size, the two astronauts will have to coordinate their movements and work in concert to properly fold the radiator into its out-of-use position — but this shouldn't be hard for the duo, who exhibited extraordinary teamwork during their last spacewalk together.

This spacewalk will be Williams' fifth and Rubins' second. The two NASA astronauts are part of a six-member space station crew. They arrived at the station July 9, and are joined by Japanese astronaut Takuya Onishi and Russian cosmonauts Oleg Skripochka, Alexey Ovchinin and Anatoly Ivanishin.

Last week, Williams broke the American record for most cumulative days in space. He is set to return home Sept. 6 with Skripochka and Ovchinin.

Visit Space.com later today for complete coverage of the spacewalk and a final wrap-up of the day's orbital activities.

Set-Top Boxes

[9 To 5 Mac] Steve Jobs planned to continue to run a secret TV set project after stepping down as CEO

By Chance Miller August 31, 2016

<https://9to5mac.com/2016/08/31/steve-jobs-tv-set-reinvent/>

Apple has long been rumored to be developing an actual TV set, but to this day the company has instead focused its efforts on the Apple TV set-top box. A new report from Recode, however,

details how Steve Jobs believed Apple finally thought of the perfect way to create a TV set two months before his death.

According to the report, Jobs called tech journalist Walt Mossberg on August 24th, 2011, just after it had been announced that Jobs would be resigning as CEO as his health continued to worsen. The call apparently started out with Jobs explaining to Mossberg that, even though he was resigning as CEO, he would still be involved with overall strategic ideas and would save one big task for himself: a television.

“He was going to still be involved. Their press release made some vague nod toward that. But he wanted me to know that he was going to be involved in big strategic things, and also that he was going to reserve one particular thing for himself.”

“I said, ‘well, what’s that?’”

“He said, ‘Well, it’s television ... I think we figured out a way to do it, and it’s going to be fantastic. I want you to come out, in a few months, and I want to show it to you.’”

While Jobs didn’t go into details regarding his plans for the television, Mossberg explained that after the conversation he very much believed that Jobs and Apple were going to “reinvent the whole TV set,” not just with a set-top box either, but with an actual television. “It would be Apple-esque, meaning it was high quality, and very easy to use. But he was thinking about more than hardware — that was clear, too,” Mossberg explained of his phone call with Jobs.

Apparently, Jobs told Mossberg that he wanted him to come to Cupertino to see what was being worked on, but before that could be arranged, Jobs passed away.

This isn’t the first time we’ve heard of Jobs’s efforts concerning TV. Walter Isaacson, the author of the Steve Jobs biography, stated that Jobs believed he had “cracked” the code for building a TV.

Since Jobs’s death, Apple has focused heavily on the Apple TV set-top box, releasing the third-gen minor refresh the March after his death. Since then, Apple has continued to build upon the set-top box idea rather than an actual TV set. While the company has also been rumored to be developing a web TV streaming bundle of TV channels, that effort ultimately was shelved due to unsuccessful negotiations with networks.

What came of Jobs’s TV plans may never be known. It’s certainly possible that deep inside Apple, people are still hard at work on an actual TV set, but for now, the Apple TV is what we’ll settle for.

Self-Driving Cars

[Fortune] Baidu and Nvidia to Build Artificial Intelligence Platform for Self-Driving Cars

By Kirsten Korosec September 1, 2016

<http://fortune.com/2016/09/01/baidu-nvidia-ai-self-driving-cars/>

The open platform will be used by Baidu to offer self-driving taxi services in China.

Chinese search engine Baidu and chipmaker Nvidia announced a partnership Thursday that will focus on using artificial intelligence to develop a computing platform for self-driving cars. The platform will include cloud-based high-definition maps.

The announcement, made by Nvidia CEO Jen-Hsun Huang at the Baidu World Conference, will bring together two companies that see vast potential in artificial intelligence. It also comes on the heels of Baidu receiving approval from the California Department of Motor Vehicle to test autonomous vehicles on public roads in the state. Baidu is the 15th company to receive a permit to test autonomous vehicles in California.

“We’re going to bring together the technical capabilities and the expertise in AI and the scale of two world-class AI companies to build the self-driving car architecture from end-to-end, from top-to-bottom, from the cloud to the car,” Huang said.

This platform will be used by Baidu to offer self-driving taxi services in China, though it could be adopted by other companies. Baidu and Nvidia are making this an open platform to encourage major automakers to use it to deploy their own autonomous vehicles.

Nvidia’s existing architecture for self-driving cars involves three components: an AI supercomputer called Drive PX that’s powerful enough to process data coming in from the vehicle’s cameras and sensors; an AI algorithm-based operating system; and a cloud-based high-definition 3D map that constantly updates.

Nvidia introduced Drive PX two years ago at CES, an annual consumer electronics show held every January in Las Vegas. One year later, Huang introduced a more powerful next generation computer—called Drive PX 2—as well as a suite of software tools and libraries aimed at accelerating the deployment of self-driving vehicles. Volvo is using the Drive PX 2 computer in a fleet of a self-driving test vehicles.

Meanwhile, Baidu has been doing its own work on deploying self-driving cars in China. The company announced in December it had completed a fully autonomous test around a 30-kilometer (18.6-mile) route. Since then, the company has said it wants to introduce autonomous vehicles in 10 Chinese cities within three years. Baidu also has plans to have a self-driving shuttle on Chinese public roads by the end of 2018.

In June, a senior Baidu executive said the company will [mass produce autonomous vehicles in five years](#) and is open to partnering with ride-sharing companies. The plan is to launch its self-

driving cars in multiple countries at once, senior vice president Wang Jing said at the Converge technology conference in June.

Baidu also has considerable expertise in data mapping and artificial intelligence—both of which are used to develop self-driving car software. Much of that work is done at the company's Silicon Valley office in Sunnyvale, Calif., which is led by artificial intelligence scientist Andrew Ng, the co-founder of online-learning company Coursera who conducted groundbreaking research at Stanford and helped create the [Google Brain](#) project.

Baidu has also made a number of investments related to self-driving cars, including a [\\$75 million injection of capital into Velodyne LiDAR](#), the leading supplier of technology that lets self-driving cars see and avoid what's around them. [Ford](#) also invested \$75 million in Velodyne.

[\[Tech Crunch\] Baidu gets approval to test self-driving cars in California](#)

By Darrell Etherington August 31, 2016

<https://techcrunch.com/2016/08/31/baidu-gets-approval-to-test-self-driving-cars-in-california/>

Baidu received an Autonomous Vehicle Testing Permit from the California DMV, the company revealed today. This paves the way for Baidu USA to begin testing its self-driving car technologies on public roads in California, which it says it will do soon. The Baidu autonomous driving research team in the U.S. was announced earlier this year, saying it was targeting reaching a 100-person research team in Silicon Valley.

Baidu also recently invested with [Ford a total of \\$150 million in Velodyne](#), a supplier of key LiDAR components used in autonomous driving systems. The investment was designed to help improve the cost and yield of LiDAR components, which are currently expensive to make at scale, in the volumes you'd need for a proper production launch of self-driving vehicles.

While Baidu does say that it's going to "start testing... autonomous driving technologies on public roads very soon in California," according to a statement by Baidu SVP Jing Wang, it doesn't say how far it's progressed in its Silicon Valley recruitment drive, but getting permission to start road testing in California should help its efforts overall.

Baidu will still face the same requirements as other companies testing autonomous driving vehicles in the state, which currently means there must be a driver and driving controls present in the testing cars.

Artificial Intelligence

[NY Times] How Tech Giants Are Devising Real Ethics for Artificial Intelligence

By John Markoff September 1, 2016

<http://www.nytimes.com/2016/09/02/technology/artificial-intelligence-ethics.html?ref=technology&r=0>

SAN FRANCISCO — For years, science-fiction moviemakers have been making us fear the bad things that artificially intelligent machines might do to their human creators. But for the next decade or two, our biggest concern is more likely to be that robots will take away our jobs or bump into us on the highway.

Now five of the world's largest tech companies are trying to create a standard of ethics around the creation of artificial intelligence. While science fiction has focused on the existential threat of A.I. to humans, researchers at Google's parent company, Alphabet, and those from Amazon, Facebook, IBM and Microsoft have been meeting to discuss more tangible issues, such as the impact of A.I. on jobs, transportation and even warfare.

Tech companies have long overpromised what artificially intelligent machines can do. In recent years, however, the A.I. field has made rapid advances in a range of areas, from self-driving cars and machines that understand speech, like Amazon's Echo device, to a new generation of weapons systems that threaten to automate combat.

The specifics of what the industry group will do or say — even its name — have yet to be hashed out. But the basic intention is clear: to ensure that A.I. research is focused on benefiting people, not hurting them, according to four people involved in the creation of the industry partnership who are not authorized to speak about it publicly.

The importance of the industry effort is underscored in a report issued on Thursday by a Stanford University group funded by Eric Horvitz, a Microsoft researcher who is one of the executives in the industry discussions. The Stanford project, called the One Hundred Year Study on Artificial Intelligence, lays out a plan to produce a detailed report on the impact of A.I. on society every five years for the next century.

One main concern for people in the tech industry would be if regulators jumped in to create rules around their A.I. work. So they are trying to create a framework for a self-policing organization, though it is not clear yet how that will function.

"We're not saying that there should be no regulation," said Peter Stone, a computer scientist at the University of Texas at Austin and one of the authors of the Stanford report. "We're saying that there is a right way and a wrong way."

While the tech industry is known for being competitive, there have been instances when companies have worked together when it was in their best interests. In the 1990s, for example, tech companies agreed on a standard method for encrypting e-commerce transactions, laying the groundwork for two decades of growth in internet business.

The authors of the Stanford report, which is titled “Artificial Intelligence and Life in 2030,” argue that it will be impossible to regulate A.I. “The study panel’s consensus is that attempts to regulate A.I. in general would be misguided, since there is no clear definition of A.I. (it isn’t any one thing), and the risks and considerations are very different in different domains,” the report says.

One recommendation in the report is to raise the awareness of and expertise about artificial intelligence at all levels of government, Dr. Stone said. It also calls for increased public and private spending on A.I.

“There is a role for government and we respect that,” said David Kenny, general manager for IBM’s Watson artificial intelligence division. The challenge, he said, is “a lot of times policies lag the technologies.”

A memorandum is being circulated among the five companies with a tentative plan to announce the new organization in the middle of September. One of the unresolved issues is that Google DeepMind, an Alphabet subsidiary, has asked to participate separately, according to a person involved in the negotiations.

The A.I. industry group is modeled on a similar human rights effort known as the Global Network Initiative, in which corporations and nongovernmental organizations are focused on freedom of expression and privacy rights, according to someone briefed by the industry organizers but not authorized to speak about it publicly.

Separately, Reid Hoffman, a founder of LinkedIn who has a background in artificial intelligence, is in discussions with the Massachusetts Institute of Technology Media Lab to fund a project exploring the social and economic effects of artificial intelligence.

Both the M.I.T. effort and the industry partnership are trying to link technology advances more closely to social and economic policy issues. The M.I.T. group has been discussing the idea of designing new A.I. and robotic systems with “society in the loop.”

The phrase is a reference to the long-running debate about designing computer and robotic systems that still require interaction with humans. For example, the Pentagon has recently begun articulating a military strategy that calls for using A.I. in which humans continue to control killing decisions, rather than delegating that responsibility to machines.

“The key thing that I would point out is computer scientists have not been good at interacting with the social scientists and the philosophers,” said Joichi Ito, the director of the MIT Media Lab

and a member of the board of directors of The New York Times. “What we want to do is support and reinforce the social scientists who are doing research which will play a role in setting policies.”

The Stanford report attempts to define the issues that citizens of a typical North American city will face in computers and robotic systems that mimic human capabilities. The authors explore eight aspects of modern life, including health care, education, entertainment and employment, but specifically do not look at the issue of warfare. They said that military A.I. applications were outside their current scope and expertise, but they did not rule out focusing on weapons in the future.

The report also does not consider the belief of some computer specialists about the possibility of a “singularity” that might lead to machines that are more intelligent and possibly threaten humans.

“It was a conscious decision not to give credence to this in the report,” Dr. Stone said.

The Hill

Treasury Secretary: EU targeting US companies with Apple ruling

By Ali Breland August 31, 2016

<http://thehill.com/policy/technology/293950-treasury-secretary-eu-targeting-us-companies-with-apple-ruling>

Treasury Secretary Jack Lew said on Wednesday that the European Union (EU) is targeting U.S. companies after the European Commission ruled against Apple in a case over the tech giant’s tax dealings with Ireland.

"I have been concerned that it reflected an attempt to reach into the U.S. tax base to tax income that ought to be taxed in the United States," Lew said in response to the decision, Reuters is reporting.

The commission on Tuesday ordered that Apple to pay Ireland \$14.5 billion in back taxes after it decided that the country had granted the tech company unfair state aid that violated EU regulations.

Apple and Ireland have said they will appeal the ruling.

The EU has also ordered Starbucks to pay more taxes to the Netherlands. Amazon and McDonald’s both have cases pending with the Commission over potentially underpaying taxes as well.

A report released earlier in August had previously questioned the European Union’s motivations in the tax cases, citing Lew’s comments that the “investigations appear ‘to be targeting U.S. companies disproportionately.’”

Prior to the decision, both Lew and U.S. legislators said that these cases call into question “bilateral tax treaties negotiated with EU Member States,” and that the cases “could undermine U.S. tax treaties with EU Member States.”

[Ireland’s appeal of Apple tax judgment could be delayed](#)

By Ali Breland August 31, 2016

<http://thehill.com/policy/technology/293934-irelands-appeal-of-apple-tax-judgment-could-be-delayed>

Efforts in Ireland to appeal the European Commission's tax judgment against Apple could be held up by group of independent lawmakers.

The Independent Alliance, a coalition of independent Irish legislators, said it is reviewing the Commission’s ruling and wants to speak further with tax officials, experts and Irish Finance Minister Michael Noonan before deciding whether to support an appeal, Reuters reports.

On Tuesday, the European Commission ordered Apple to pay over \$14.5 billion that it deemed the company owed after it set up tax agreements with Ireland in violation of European Union regulations.

Noonan said in a statement on Tuesday that an appeal of the decision “is necessary to defend the integrity of our tax system; to provide tax certainty to business; and to challenge the encroachment of EU state aid rules into the sovereign Member State competence of taxation.”

The Independent Alliance’s support is necessary to get the needed support in Irish Parliament for the country to be able to appeal.

The left-wing party Sinn Fein criticized Noonan’s party, Fine Gael, and their primary rival, Fianna Fáil, for attempts to appeal the decision. They said that the government should accept the Commission’s ruling for Apple to pay back taxes.

“It’s time for the independent members of government to put the interests of Irish taxpayers above their own personal careers,” the party said in a statement. “They should oppose any appeal and insist that the correct tax bill is paid by Apple.”

Should the country move forward with the appeal they, instead of Apple, would have to front the tax bill while the appeal is pending; however, the money can be held in an escrow until the case is finished.

[Wireless lobby reassures critics on demand for spectrum sale](#)

By David McCabe August 31, 2016

<http://thehill.com/policy/technology/293949-wireless-lobby-reassures-on-spectrum-sale>

A major Washington wireless trade group on Wednesday said that participation in the first part of an historic spectrum sale had been robust, even though it did not hit a key target.

Bidding ended late Tuesday in the first stage of an auction of wireless spectrum by the Federal Communications Commission (FCC) — the frequencies that carry data to mobile devices from broadcast stations to mobile providers and other buyers.

Bidders, including major carriers like AT&T and Verizon, failed to hit the high \$88.3 billion price target set during the broadcaster section of the sale.

The National Association of Broadcasters used the results from the first round to cast doubt on wireless industry claims of the sale's necessity, with executive Dennis Wharton saying the group was “surprised by the modest participation by wireless carriers.”

“Perhaps the notion of a ‘spectrum crisis’ pedaled in Washington for the last seven years is not as acute as policymakers were led to believe,” he said in a statement.

But wireless trade group CTIA Vice President for Regulatory Affairs Scott Bergmann painted the more than \$20 billion that was bid as a victory.

“As we turn the page on Stage 1, it is notable that forward auction bidders have already produced the second-highest bidding total in FCC auction history, totaling \$23.1 billion,” he said in a Wednesday blog post.

“This is already bigger than the last low-band auction of 700 MHz (\$18.96 billion) that was heralded at the time by the FCC as a ‘history-making auction.’ ”

The auction represents the FCC’s attempt to meet the high demand for spectrum generated by smartphone usage. Earlier this year, broadcasters agreed to give up their space on the dial — for a price. Now the FCC is attempting to repackage that spectrum and sell it to a pool of bidders including the major wireless carriers and Comcast and T-Mobile.

Since the first stage of the auction failed to meet the \$88.3 billion figure, the FCC will now move to a second stage in which it attempts to transfer a smaller amount of spectrum. The broadcast section of the second stage will begin Sept. 13, the agency said Wednesday.

Bergmann sought to tamp down any concerns that moving to a second round was abnormal.

“It was widely anticipated, if not fully expected, that the auction would not close after the first round,” said Bergmann. “This is how the Incentive Auction was designed to work.”

The FCC has set high expectations for the auction, opting to choose the highest possible clearing target for the start of the sale. FCC Chairman Tom Wheeler has also predicted that the sale will be a “spectrum extravaganza.”

Civil Rights, tech groups sound the alarm about 'predictive policing'

By David McCabe August 31, 2016

<http://thehill.com/policy/technology/294020-civil-rights-tech-groups-lay-out-predictive-policing-concerns>

Major civil rights and technology organizations on Wednesday said they are worried about emerging technology that identifies potential perpetrators of crimes, fearing it could fuel racial bias in law enforcement.

Predictive policing technology is designed to highlight areas where crime may occur. The algorithms also attempt to spot people who are more likely to commit crimes.

Civil rights groups said dangers lurk in the use of the data.

"Automated predictions based on such biased data — although they may seem objective or neutral — will further intensify unwarranted discrepancies in enforcement," the group said. They also argued that the veneer of dispassionate technology could hide the threat of discrimination at law enforcement agencies.

"Predictive policing tools threaten to provide a misleading and undeserved imprimatur of impartiality for an institution that desperately needs fundamental change," they said.

The groups questioned whether predictions from the systems might lead to unconstitutional searches and expressed broad fears that there is not enough transparency. The group also questioned why police departments were not using predictive technology to spot patterns of troubling behavior among their officers.

The message was led by the Leadership Conference on Civil & Human Rights and signed by organizations including the NAACP, the American Civil Liberties Union and the Electronic Frontier Foundation. It accompanies a report from the tech policy consultancy Upturn on predictive policing practices.

The pushback against predictive policing comes at a time when many have begun to consider the ways that algorithms may yield biased results against certain groups. The Leadership Conference previously released principles for using big data without violating civil rights.

The debate over biases in algorithms also ties into a broader conversation over diversity in tech. Many advocates argue that computer systems embedded with bias are heavily linked to workforces at tech companies that are overwhelmingly made up of white, male and Asian employees.

WIRED

[Airport Panics will keep happening. The Place to calm them is Online](#)

By Marcus Wohlsen September 1, 2016

<http://www.wired.com/2016/09/airport-panics-will-keep-happening-place-calm-online/>

THE TWEETS CAME in fast and hot: an active shooter at John F. Kennedy Airport. In my Twitter feed, the disparate folks I follow—techies, politicians, my friend's mom—all started to converge on the same breaking story. It would soon have commandeered the whole world's attention, if it were true. But, just like what happened this week at Los Angeles International Airport, it wasn't.

The bad social media smell started to rise early. All-caps tweets about coming face-to-face with the perpetrator. Passively voiced reports that the presence of a JFK shooter "can't be confirmed". It was narrative chaos locked into a destructive feedback loop with the bedlam on the ground. Frightened passengers rushed for exits, pushed their way onto the tarmac, and cowered in terror as police flooded the scene. All along the way, travelers tweeted, streamed, and Instagrammed their distress, an online panic that generated its own kind of terror despite the non-existent physical threat.

And who would have done otherwise? Responsible journalists know they have to confirm the news before reporting it; that obligation becomes all the more paramount when the news has the potential to spur a stampede. But when everyone with a phone can broadcast their version of events to the world as they happen, the story will get out before the facts do. On Sunday, just two weeks after the JFK incident, the same social media-fueled pandemonium engulfed LAX. Like a misheard meme gone viral, an eccentric in a Zorro costume and a few loud noises morphed in the collective imaginations of LAX passengers and law enforcement alike into a potential mass killer. The Federal Aviation Administration grounded flights to the airport as travelers spilled onto the airfield. Never mind that no one had ever fired a shot. Americans today now reasonably measure the time between massacres in months. And that fear, combined with social media's sweeping immediacy, also makes weaponizing bad information all too easy.

"We're in new territory with socially driven panic," says Joshua Marks, executive vice president of aviation connectivity at Global Eagle Entertainment. The Transportation Security Administration has procedures in place for clearing the terminal when someone breaches checkpoint security, he says. "When passengers decide on their own that there's a security issue, there's no playbook for that."

Controlling the Narrative

Social media, like any media, facilitates storytelling. The problem at JFK and LAX was that the story had no author. Or everyone was the author, which amounts to the same thing. Because no voice of authority cut through the noise, everyone in those terminals followed their own signal.

One prevailing theory of the JFK panic is that people somehow misheard a noisy celebration of Usain Bolt's Olympic victory as an outbreak of violence. (Side note: Are you kidding me?) From there, bad information spread faster than the Jamaican sprinter himself. The story even leapt terminals. One Port Authority official told The New York Times that reports ricocheting across social media platforms may have misled others into believing the purported shooter was in Terminal 1, not Terminal 8, where the false rumor apparently first flared up.

Watching the JFK fact-free panic unfold from the comfort of my couch across the country, as so many others did, was like watching a fog roll across San Francisco Bay—unstoppable and all-obscuring. Yes, as the Times reports, the incident gave airport officials the opportunity to see the flaws in their own security procedures that left them ill-equipped to separate the facts from the freakout. The police, it

seems, found themselves caught in as much confusion as travelers on the ground or anyone else looking at Twitter. Maybe now they can develop a system to counteract that.

But even if the authorities themselves had come to a quicker consensus about a possible threat, the information infrastructure simply isn't in place to quell the fires of panic stoked by so much social media FUD. Twitter, Facebook, Instagram, Snapchat, and WhatsApp have become default ways information flows in public spaces. (Ever notice how many people are on their phones at the airport?) But in so many cases, authorities haven't figured out how to use those platforms to cut through the morass of misinformation—that is, to exert guidance over the narrative.

Airports need to rethink how they handle such incidents, Marks says, and he believes the recent LAX panic will serve as a case study. Airport operators need to work with the TSA and airlines to coordinate a response when the problem isn't on the ground but online. Counterintuitively, that means having more online first responders closer to the real-world action. Airlines have centralized social media hubs that in many cases have become skilled and efficient at handling customer complaints. But to act as authoritative arbiters of information, they also need to build up decentralized networks of social media-empowered employees in the airports closer to what's really happening.

In New York, Governor Andrew Cuomo has ordered a review of the JFK incident that should provide the definitive account of that night. Undoubtedly it will take months. But narratives today take shape in seconds. To combat panic at a time when law enforcement jargon like "active shooter" has become a part of everyday speech, people need a counter-narrative they know they can trust and act on in the moment. Authorities must move as swiftly and convincingly online as the bad information itself. They can't hope that social media will simply fade as other fads might, an irritating obligation to "get on Twitter." Communicating effectively in an information-saturated environment isn't easy. But if protecting public safety is the goal, the savvy wielding of facts is key to keeping the peace.

Bloomberg

Explosion Rocks SpaceX Launch Site in Florida During Test

By AP (Marcia Dunn) September 1, 2016

<http://www.bloomberg.com/news/articles/2016-09-01/urgent-explosion-rocks-spacex-launch-site-in-florida-during-test>

Cape Canaveral, Fla. (AP) -- An explosion rocked a SpaceX launch site Thursday during a routine rocket test.

SpaceX was conducting a test firing of its unmanned rocket when the blast occurred shortly after 9 a.m., according to NASA. The test was in advance of a planned Saturday launch from Cape Canaveral Air Force Station, which is next to NASA's Kennedy Space Center.

Buildings several miles away shook from the blast, and multiple explosions continued for several minutes. Dark smoke filled the overcast sky. A half-hour later, a black cloud hung low across the eastern horizon.

Additional details were not immediately available. There was no immediate word on any injuries; the launch pad usually is cleared before a test firing of a SpaceX Falcon rocket.

SpaceX spokesman, John Taylor, said he could not comment as he worked to gather information. NASA — SpaceX's major customer — said the explosion occurred at Launch Complex 40 at the Air Force station, and Kennedy emergency staff was on standby. At the same time, personnel were monitoring the air for any toxic fumes.

The rocket was supposed to hoist an Israeli communications satellite this weekend.

The initial blast sounded like lightning, but was followed by the sounds of more explosions. SpaceX is one of two companies shipping supplies to the space station for NASA. It's also working on a crew capsule to ferry station U.S. astronauts; that first flight was supposed to come as early as next year.

Two NASA astronauts were conducting a spacewalk 250 miles up, outside the International Space Station, when the explosion occurred. Mission Control did not immediately advise them of the accident.

The explosion is a setback for SpaceX. The California-based company, led by billionaire Elon Musk, had been ramping up with frequent launches to make up for a backlog created by a launch accident in June 2015. SpaceX was leasing the pad from the Air Force for its Falcon launches.

The company is also redoing a former shuttle pad at Kennedy for future manned flights for NASA.

Elon Musk is Pushing Tesla Hard

By Dana Hull September 1, 2016

<http://www.bloomberg.com/news/articles/2016-09-01/elon-musk-is-pushing-tesla-hard>

Tesla Motors Chief Executive Officer Elon Musk stunned investors in May when he announced that, thanks to phenomenal demand for the forthcoming Model 3, he was accelerating the company's already aggressive build plan by two full years. Instead of increasing production to 500,000 cars in 2020, he wants to reach that level by 2018. To put that into perspective, Tesla delivered just 50,658 cars in 2015 and is projecting 80,000 this year. The company acknowledged the scale of the challenge in an Aug. 5 Securities and Exchange Commission filing: "We have no experience to date in manufacturing vehicles at the high volumes that we anticipate for Model 3, and to be successful, we will need to develop efficient, automated, low-cost manufacturing capabilities, processes, and supply chains necessary to support such volumes."

Musk has referred to his factories—the auto plant in Fremont, Calif., and one for batteries going up in Reno, Nev.—as the "machine that builds the machine." But with only 10 months to go before the self-imposed July 1, 2017, deadline for the start of Model 3 mass production, the machine that will build the new car is still being built. About 373,000 customers have already paid \$1,000 to preorder the electric sedan.

The Fremont factory employs more than 5,000 workers and, like most auto plants, has four main shops: stamping, body, paint, and general assembly. A stamping die is a precision tool that cuts and forms metals into car parts such as door panels, hoods, fenders, and roofs. All the stamped parts for the Model S and Model X are made in Fremont. The Model 3 stamping line will be entirely new but hasn't been installed yet.

The new body line, where the stamped pieces are welded together, hasn't materialized either. Japan-based Hokuto is one of the builders. "We understand what Elon is saying and are trying to do it right now," Tomoyuki Mori, Hokuto's global business development manager, said in an e-mail.

Much of the work on the body line will be performed by robots. The Japanese company Fanuc, the world's largest maker of industrial robots, already has about 600 robots at Tesla's Fremont plant, a number that will grow for Model 3 production. Rob Kuphal, director for sales at Fanuc America, says he

and his team “will work as hard as we can to support an on-time Model 3 startup.” He adds: “It’s tight timing, but it’s attainable with a lot of work between now and then.”

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Tesla has vowed not to repeat the mistakes it made with the Model X, which featured complex elements such as “falcon wing” doors that open vertically. In April the company blamed its own “hubris in adding far too much new technology” to the car, contributing to delays in deliveries. In contrast, the Model 3 “is well-designed for manufacturing,” says Peter Hochholdinger, who spent two decades at Audi before joining Tesla in May as vice president for vehicle production. “We’re avoiding the production complexities of the Model X, and we’re doing more pre-assembly,” he says. The company is also bringing more of the parts production in-house. For instance, it now makes all Model X seats itself.

Musk has put suppliers and employees on notice that he won’t tolerate much slippage. “I don’t expect us to be at full production on July 1,” he said during an August earnings call. “But I have to drive all suppliers and internal efforts to that date, knowing that some will fall short. And those that fall short will be cut out of the picture.”