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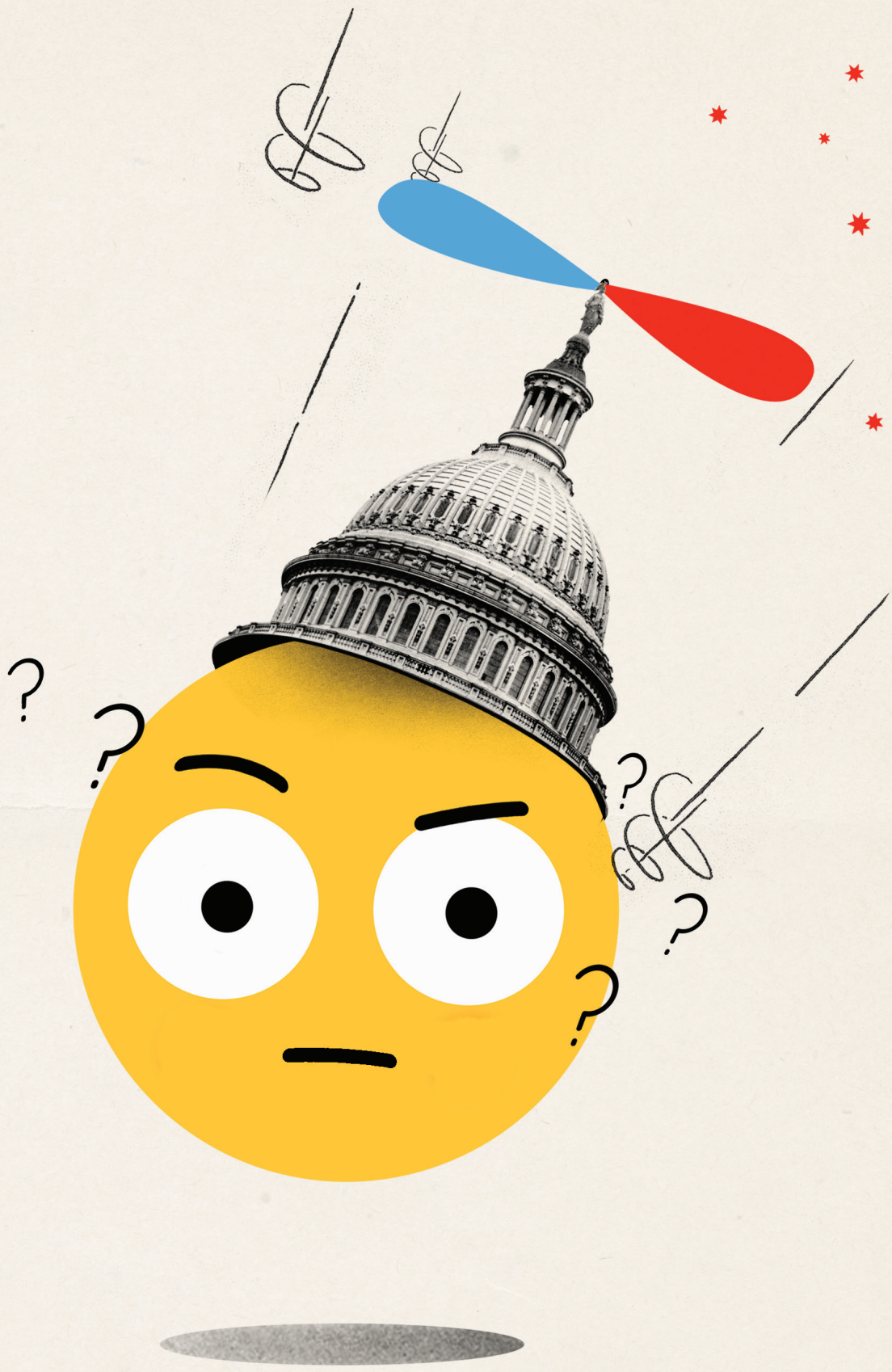
ON THE HILL

Emerging technologies are set to upend everything. U.S. lawmakers aren't ready, and those in the Valley aren't helping.

by **Tam Harbert**

Illustration by **Emmanuel Polanco**

AS TECHNOLOGY TRANSFORMS society at a breakneck pace, Silicon Valley and Washington D.C. are as far apart culturally as geographically. The only time most tech execs wear suits is when they lobby or appear before Congress, and they're skeptical of policymakers' ability to understand or regulate technology. Legislators, in turn, go open-collar when they visit the Valley but struggle to stay abreast of the innumerable tech advances emerging constantly far from the staid halls of Washington.

"In the same way that government doesn't know what it doesn't know about technology, the tech sector doesn't know what it doesn't know about government," says Travis Moore, former legislative director for Rep. Henry Waxman (D-CA), who has created fellowships for congressional offices to help bridge the divide.

The two groups even speak different languages. The technology industry talks about innovation and disruption, while the government is based on checks and balances of power, Moore says. "Government has in fact been designed to be not disrupt-able. Another word for disruption is 'coup,'" he says.

The need for common cause has never been greater; technology is upending every corner of society, for both good and bad, and a new wave of revolutionary innovations is poised to change the world and every industry. At the same time, a handful of monopolistic tech giants operate with impunity and sometimes heedlessness, crisscrossing national borders. Compounding the challenge of bridging the gaps, public trust of both groups has never been lower.

Mutual misunderstanding leads to poor public policy that may endanger lives, undermine civil liberties and democratic process, and pose grave threats to national security. It also can squelch market competition and diminish innovation. Without a nuanced understanding of emerging technologies, how will government ensure the safety of autonomous vehicles, guard against massive job disruptions from artificial intelligence and robotics, and defend against increasing cyber threats from state actors? And how will it brace society for massive shifts in financial markets caused by technologies including blockchain and cryptocurrencies?

Misunderstanding, ignorance, and missteps plague every part of government:

• **Congress:** Hearings in 2018 highlighted extensive gaps in legislators' understanding of tech. During Facebook CEO Mark Zuckerberg's testimony about Cambridge Analytica getting data from millions of Facebook users, for example, Senator Orrin G. Hatch, (R-Utah) seemed not to know that Facebook's business is based on selling advertising. "How do you sustain a business model in which users don't pay for your service?" he asked Zuckerberg, in a moment that

has been widely ridiculed.

• **Federal agencies:** Even the most technical government agencies don't always understand the technology they are supposed to regulate. Last year, in a letter to Congress and in public comments on net neutrality, dozens of internet pioneers including Google's Vint Cerf argued that the U.S. Federal Communications Commission misunderstood the internet. "We are concerned that the FCC…appears to lack a fundamental understanding of…how the internet actually works, which entities in the internet ecosystem provide which services, and what the similarities and differences are between the internet and other telecommunications systems," says a comment filed with the FCC and signed by 200 experts, aimed at preventing the agency from reversing its earlier stance in favor of "net neutrality." (The FCC did so anyway in December 2017.)

• **Executive branch:** The Trump

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administration shows little respect for science and technology, often choosing agency heads based on political considerations rather than their qualifications. Several Trump appointees have sought to remove basic scientific language (such as "evidence-based") from reports. It took Trump longer than any other modern president—more than 18 months—to pick a formal science adviser.

The problems are exacerbated by the tech industry itself, which has given government plenty of reasons to think about greater regulation and doesn't seem to know much about

what has been politicians' core operating principle: compromise.

Rush Holt, a physicist and former congressman from New Jersey who is now CEO of the American Association for the Advancement of Science (AAAS), says the tech industry doesn't understand that public policy requires balancing competing interests. Technologists almost universally prefer to "self-regulate." That, combined with legislators' typically poor understanding of technology, leaves public policy at the mercy of special interests and partisan politics.

Outright hostility toward the tech industry is growing, as tech's own short-sightedness, self-interest, or displays of arrogance make it an easy target. In August, tech became the target of presidential tweets, with President Trump echoing widespread conservative complaints that Google was elevating news stories critical of him while suppressing conservative supporters. Trump says tech compa-

nies including Google, Facebook and Twitter were "treading on very, very troubling territory...They better be careful because you can't do that to people."
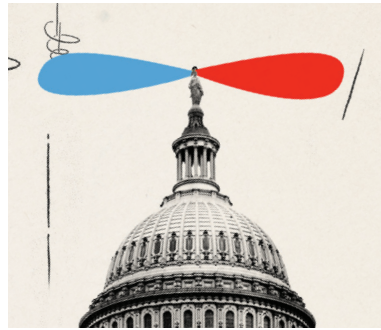
Alongside that is a growing disregard for facts. "America's traditional reverence for evidence and understanding of science and technology is eroding badly," says Holt. "This disrespect is dangerous. It's bad for our democracy."

There is growing sentiment that the tech industry needs to be regulated. This summer, Senator Mark Warner (D- VA) circulated a paper with 20 proposals for reining in the big social media platforms. Warner, who made his fortune running a telecommunications company, understands the technical issues as well as the limitations of regulatory solutions. His understanding of technology is rare in Congress.

"It's clear that Congress really has to raise its game in a number of technical areas," says Rep. Bill Foster (D-IL), who holds a Ph.D. in physics and is one of only a small handful of members of Congress with a science or engineering background. He is among a group of some 40 members of the House pushing to restart the Office of Technology Assessment (OTA), which was established in 1972 to provide unbiased scientific and technological advice to Congress, but saw its funding eliminated in 1995 by the Congress led by Newt Gingrich. "What's needed is something like the Congressional Budget Office, which studies legislative proposals to see if they make fiscal sense," he says. "We need voices in the room with the technical experience to evaluate what's going to work and what isn't."

In the meantime, technical capability varies widely from one congressional office to another, says Maurice Turner, a cybersecurity expert. Turner is a senior technologist at the Center for Democracy & Technology, a Washington, D.C., nonprofit that focuses on tech policy. "Congress is like 535 independent small businesses," he says. "They all operate differently and have varying levels of tech sophistication."

Fellowships aiming to bring tech-

nical expertise into government have been around for decades. The American Association for the Advancement of Science has placed technologists and scientists in government for 45 years. More recent are programs like the public interest technology fellowship from the New America Foundation think tank and the Presidential Innovation Fellows program started by President Obama in 2012.

Moore's fellowship program, TechCongress, is among the most recent. While working in Rep. Waxman's office on a cybersecurity bill in 2012, Moore found himself overwhelmed by the technology. "I was trying to understand things like PII (personally identifiable information) and data anonymization," he explains. "What I found was there were no people in Congress who could answer those questions for me." Of some 3,500 legislative staff in Congress, only seven had meaningful technical training or experience, he learned. Technology companies were happy to give him information, of course, but it typically came with a specific point of view.

Moore wants to see a technology expert involved at every stage of policymaking. "Every committee in Congress should have a chief technologist, in the same way it has a chief counsel," he says. TechCongress fellows have worked on privacy, cybersecurity, electronic health record interoperability, defense acquisition reform, and gene therapy. Slow progress is better than no progress, Moore says. "The Senate has gone from having zero legislative staff with meaningful tech background to two."

Congress can feel like the stone age

to technologists. Turner was shocked when he was given a Blackberry at the beginning of his fellowship in a congressional office last year. "I hadn't used a phone with buttons in 10 years," he says.

This lack of technological sophistication and technical expertise is sometimes laughable, sometimes dangerous. Even offices like the Committee on House Administration, which manages daily administrative and technical operations for the House of Representatives, don't have enough technical support, says Moore. In an age when state actors are trying to hack government systems, that's alarming. Take the Russia investigation. "On the House and Senate Intelligence Committee there is not a single staffer that has a technical background—no one who understands computer forensics or algorithms," says Moore.

What's more, technology is moving so fast that experts often don't understand technologies beyond their niche, says Vivek Wadhwa, a former Silicon Valley entrepreneur and co-author of *The Driver in the Driverless Car*, among other books. And the tech industry is often blind to the negative aspects of its own technologies, he says.

"Facebook, if you give them the benefit of the doubt, was blindsided by Cambridge Analytica," Wadhwa says. "They didn't understand how their platform could be used for nefarious purposes." (See article on page 16.)

While the tech industry is feeling consumer backlash, particularly around privacy and security, there seems little concern among voters about the government's lack of tech understanding. "Scientists and technologists bemoan that there are no science advisers in the cabinet offices or the White House, but that's not the real problem," says former congressman Holt of the Association for the Advancement of Science. "The real problem is that the public doesn't know and doesn't care."

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