ONE

The Business Model

Data, Algorithms, and Platform Growth

Civilizations become tied to ideals. As individuals, we become obstinately committed to common and widely accepted ways of thinking; we are inherently inclined to be mentally lazy, and nothing could be lazier than subscribing to rigid social convention. But as we take such convenient routes as individuals, collectively we risk intellectual stagnation. We risk failing to see the truth that lies squarely before us. With the publication in 1962 of *The Structure of Scientific Revolutions,* Thomas Kuhn shared a bold idea that stood the academic world on its head. Seemingly overnight, Kuhn revolutionized the way we would think about the very development of knowledge for decades to come—unsettling the time-worn paradigm of knowledge cultivation and transfer in the process.

The general perception at the time was that the fields of engineering and science, particularly in academia, were the ultimate keepers of knowledge. Society contended, perhaps reasonably so, that if there was anything about the physical world we might wish to learn about, it was to academics that we should turn. In the process, we would subscribe to their methods of teaching—attending universities and signing up for their classes, for example—to entertain hopes of learning neurobiology, or theoretical physics, or accounting. Think of an economics professor who presented his or her own ideas about how the monetary system should be governed and could accept no competing theory—especially a theory projected by a thinker who did not graduate out of the liberal economics tradition largely adopted in the field.

Kuhn contends that because of this mindset, academic contributions overall—such as those made by university professors—are often necessarily minor. Scholars build on a vast body of existing knowledge, such as neuroscience or finance, by tweaking the margins of an already-published theory or experiment and discovering some minor facet of reality that is, at best, a fringe contribution as far as markets are concerned. Kuhn's theory seems to resonate today: many brilliant students claim that they choose fields outside academia because the typical academic contribution carries little impact on the world outside the academic's career progression itself. Doctoral graduates frequently opt to work in fields in which they contribute to tangible outcomes rather than pursue the academic profession—or, for that matter, make a lot more money than an academic life can offer.

Kuhn further critiqued that low-impact ideas that by their nature will not significantly advance our understanding of the physical world are in fact the kinds of work that will most likely be published by peer-reviewed journals, because journal publications typically must be endorsed by other academics. Kuhn argues that this dynamic engenders a systemic dilemma whereby big ideas that could truly challenge traditional conceptual frameworks and revolutionarily expand our understanding of the world are unlikely to win the stamp of approval from the academic community. In fact, scholars who attempt to do so as academics might be harming their careers. To survive as an academic, Kuhn suggests, one must not stray from the community's unwritten rules—at least not too far.

At a minimum, Kuhn's argument makes a great deal of sense in American academic societies and in the scientific and technological fields. Young American scholars are educated through a grade system that is based on a clear hierarchy. They enter as inexperienced high school graduates and might choose to attend college to major in neurobiology or computer science—all to land a job at a technology company or bank. Some of us might decide that a bachelor's degree is not enough and choose to enroll in a graduate degree program. This might lead to doctoral research roles and teaching. Those who choose to extend their time in academia could later opt to engage in postdoctoral study, deepening their subscription to the academic hierarchy. And those successful in finding an opportunity to start a tenure-track academic role might ultimately choose that route, climbing the difficult rungs from assistant to associate to full professor and perhaps even department chair. To successfully navigate the field, particularly in engineering and the hard sciences, scholars must typically publish in the journals and conferences deemed by the relevant academic establishment to be adequately rigorous and competitive for the sharing of new research findings. Instilled in the academic practice, particularly in technical fields, lies an intense publish-or-perish culture.

But herein lies the real question that Kuhn asks us all to ponder: Do such academic contributions and the academic hierarchy they buttress really constitute the ideas that are of greatest novelty and greatest value to society? Possibly. But it is a process that remains opaque, with purview kept exclusively to the wisdom of the academic line of succession. To Kuhn, this setup represents a regime of power not particularly different from any other, but one that carries a fundamental flaw: complacency. What if the carefully combed and curated academic representatives of engineering and science, who over time had consistently subscribed to the idea that the traditional academic way is the only path to knowledge development, were fundamentally wrong about their theories of the world? What if they were missing entirely novel ways of thinking because they could not see past traditional, accepted frameworks? And, most critically, could there be other competing paradigms that deserve attention and analysis?

At the center of Kuhn's analysis is the story of the Copernican revolution, in which Nicolaus Copernicus posited a bold new idea: the Earth was not at the center of the universe, as the ecclesiastical order and Renaissance society had contended for many centuries. His ideas were accordingly shunned by the church and academic order, which persisted with the Ptolemaic model featuring a stationary Earth at the center of the skies. Copernicus's theory only started to gain sway when it became increasingly difficult to explain away discrepancies between Ptolemy's paradigm and new instances of real observations, particularly those of Galileo Galilei, Johannes Kepler, and Isaac Newton. Only after these scientists' ideas started to come together and force a divergence from the original path through hard science could the conversation around the physics of the solar system begin to move in the direction of truth. This was the Copernican paradigm shift.

In that instance, the development of astronomical knowledge was hindered by an academic hierarchy that had previously adopted Ptolemy's description as truth. Kuhn contends this was a theme of the academic field, to such a degree that it systematically obstructed understanding of the reality of nature. The result of his analysis is the idea that the academic world—and the people who subscribed to it—was unknowingly party to a cultural paradigm that might have been slowing humanity's quest for real knowledge; that because of the learning pathway moderated by the academic community, revolutionarily new knowledge that could change the world would seldom be shared. Academia had subscribed to a paradigm that favored conservative alignment over groundbreaking inquiry and truth, leaving the vast majority of people unable or unwilling to break from the present paradigm. We were minions living in an intellectual prison.

With this strange new theory, Kuhn sent shockwaves around the world.

The Internet's Intellectual Free Riders

As we approach the fourth decade of the consumer internet, I believe our society has adopted a new paradigm—one that could slowly constrain our intellectual future.

Since the dawn of the internet, we have revered it. Through the years we have thought of it as the technology that would revolutionize global commerce, democratize all communication, and topple political backwardness throughout the world. It was the enabler of vast economic opportunity in the developing world and the facilitator that would unlock the mass commercialization of industry around the world—starting with the United States. Indeed, our written history suggests it has been just that.

The problem is that while corporate evangelists highlighted the shining veneer of the internet to project its virtues and values to the industrial world, entrepreneurs discovered new opportunities to exploit consumers and tackle markets worldwide. They rode the coattails of the image of the internet—they were the new kids on the block, the college bros, the Wall Street bankers and venture capitalists who exclusively possessed the know-how to make something of this new media platform and its underlying power. We revered them all, including Bill Gates, Brian Chesky, Eric Schmidt, Evan Spiegel, Jeff Bezos, Jerry Yang, Larry Page, Marissa Mayer, Mark Zuckerberg, Peter Thiel, Sergey Brin, Sheryl Sandberg, Steve Jobs, Tim Cook, and Travis Kalanick, as well as those in the investment community, such as Mary Meeker and John Doerr. While they consolidated markets, hoovered personal data, and leapt over the consumer interest, they inaccurately projected that they and their companies *were* what we knew as the internet—that their businesses represented the novelty and wonder of the public domain that is the internet. It was the perfect way to brand the global conquest of the century.

The reality that has since emerged in place of that imagined magnanimity and ingenuity of the internet entrepreneurs is now clear:

they were just opportunists operating in an open greenfield of unregulated space, just like any Carnegie, Mellon, Morgan, Rockefeller, or Vanderbilt of the past. There was nothing special here. The new robber barons of the web projected the commercial propaganda that their earth-shattering products were good for everyone in society, just like the underlying free infrastructure that enabled their conquest in the first place: the internet. And that is the viewpoint that has largely prevailed over the past three decades: Facebook connects everyone, Google indexes all knowledge, and Amazon enables new markets. And all for free. That is the paradigm we are living in: consumer internet firms have done amazing things for the world, giving us the tremendous gift of connectivity. And even if this aura is diminishing in elitist circles, for the vast majority of internet users, it is not.

At first, the corporate evangelists offering these perspectives may have been sincere, even benevolent. They may even have thought they were true. The consistently earnest Tim Berners-Lee—who invented the World Wide Web, the technical protocol that we as consumers typically use to access our favorite websites—had grand ideas for what the internet could, and still can, accomplish. The internet in his view is the most sophisticated communications medium the world has ever seen, a system that enables the digitized communication between two terminals anywhere in the world. Berners-Lee envisioned the internet as an open space of limited governance, a decentralized forum for new ideas and protected communication, and he knew that if humankind could effectively organize it as such, it possessed truly remarkable capabilities for the benefit of us all.

This inspirational view was eventually subsumed by the businesspeople of the internet. What started out as a crude college dating service became for Mark Zuckerberg a new way to connect people around the world and allow friends to communicate with one another in the most seamless way imaginable—Facebook. For Eric Schmidt, the longtime head of Google, his company was the world's literal answer to collecting, analyzing, and presenting all of humanity's knowledge. Jeff Bezos's

Amazon had tremendous potential impact in its creator's view: it could and should become a meeting place for all of the world's merchants and customers looking for deals on anything from jumper cables to luxury cars. In each of these cases of corporations that over time have overtaken large segments of the global economy through cutthroat enterprise, the chief executive projected and perhaps even believed that he was creating something that was morally desirable and would benefit and uplift the consumer masses—all fundamentally incapable of stumbling on the exploitative business model at the core of the consumer internet.

Clearly, the case of Tim Berners-Lee is different from that of Mark Zuckerberg, Jeff Bezos, and Eric Schmidt. Berners-Lee is a scientist. The others are businesspeople. For Berners-Lee, the personal motivation to argue that the internet is a positive democratizing force comes from a place of intellectual integrity: it is the genuine sentiment of a rigorous thinker who earnestly considers the trade-offs that are inherent in such an intellectual position. For the others, there is a business interest arguing that the internet will be the world's panacea—and that it will be their companies over others that will resolve the world's problems. This disparity exists for the trajectory of the internet's broader conceptualization, too. We were once excited about its unique potential to connect two people on opposite sides of the world. It was an unbiased public space that carried an international brand of openness, optimism, and hope, where anything was possible and interaction truly had the ultimate opportunity for democratization, whether one was operating an oil rig off the coast of Bahrain or sitting in a basement in Sacramento or figuring out how to conduct personal finances in Tanzania. This was the opportunity Berners-Lee and his cohort of designers of the internet espoused—and it is the societal paradigm that Zuckerberg, Schmidt, and Bezos free rode, exploiting the open image and nature of the internet by projecting that their companies constituted a democratizing force, just as the internet itself does.

But the real consumer internet does not have such a profound or socially good purpose at its core. That is not to suggest that business leaders' remarks are necessarily insidious or disingenuous. But in this case, aligning his company's mission with the inspirational construct presented by Tim Berners-Lee supports Eric Schmidt's business interests. Google thereby fed off the public perception that the internet at large was a glorious gift to humankind—and it still does.

And now, like a stubborn weed snaking around the ankles of democracy, it has become the general view that internet companies promote society's good no matter the protocol or platform or business incentive in question. This is the active social paradigm proliferated and perpetuated by the internet barons. We, the public, have been duped.

Ecce Homos: The New Thomas Kuhns

Enter the Thomas Kuhns of the internet—the new thinkers working to dispel the virulent and misleading notion that Silicon Valley executives wish only to promote the public's interest. Since the 2016 presidential election, a series of bold ideas advanced by a cadre of emerging intellectuals has reshaped policy thinking concerning the internet.

There is Roger McNamee, the investor and adviser to senior technology executives, who asserts that he introduced Mark Zuckerberg and Sheryl Sandberg, Facebook's CEO and COO, respectively. McNamee has put forth the idea that despite his ongoing investments in firms throughout Silicon Valley, some of the leading internet properties—particularly Facebook—have imposed serious and systemic damage to democracies around the world.[1]

There is Shoshana Zuboff, the Harvard academic, who has eloquently written about how the emergence of surveillance capitalism has torn at the heels of major internet companies and who has depicted the capitalistically fluid nature of the companies' business.[2]

There is Tristan Harris, the former ethicist and designer at Google, who has cultivated the compelling narrative that because of the way social feeds on modern social media systems are designed, users are forced to sustain deep psychological harms. To relieve us of them, he argues, we must encourage companies like Facebook, Google, and Twitter to reorient their systems to ensure that time spent on their platforms is "time well spent."[3]

There are Zeynep Tufecki and Tim Wu, both brilliant professors and contributors to the *New York Times*, who have raised some of the most critical questions concerning the commercial nature of internet firms and their executive decisionmaking and have proposed that new policies must be developed to better protect competition and privacy, among other policy measures.[4]

And there is Barry Lynn, the competition policy expert who is head of the Open Markets Institute and formerly senior fellow at the New America Foundation, the influential Washington, D.C.–based public policy think tank that acrimoniously ousted him (and at which I have served as a fellow). Lynn, a thoughtful and pragmatic expert on market concentration and the public policy measures that can be taken to limit it, has for the past several years led a contingent of like-minded activists and intellectuals who have put forward a number of interesting ideas to diminish the monopolization of industries that the Open Markets Institute argues has plagued American consumers for so long.[5]

Over time, the public policy concerns around the businesses that operate over the internet have changed completely; the tone and tenor of the way we talk about the internet in the media has become increasingly incendiary. What was once considered a positive medium for sharing and collaboration, the public domain that could connect smart new ideas and people no matter who or where they might be, is now seen as a medium that bears countless social harms. From the spread of hateful messages that have led to mass killings to the coordination of ad campaigns that have prompted systemic and automated bias against marginalized classes, we have now seen it all—and thanks to academics and advocates such as Harris, Zuboff, Lynn, and countless others, the common conception among policymakers is that something must be done to improve the situation of internet consumers.

The ideas that have been presented by this striking band of thinkers have encouraged many others. Traditional internet and consumer advocates—hard-liners who for many years have advocated the need for progressive changes to the way we regulate the internet—have found a new ledge to stand on. Whereas in the past some might have found it difficult to argue that the internet is causing harm and that regulation is necessary, there is a newfound zeal and courage among the ranks of American advocates—particularly those that have in recent years maintained closer relations with the industry, such as the Center for Democracy and Technology and the Open Technology Institute. Even organizations that have purposefully been kept at more of an arm's length from the industry—such as the Open Markets Institute, Public Knowledge, the Electronic Privacy Information Center, and the Center for Digital Democracy—have found a new voice because of the stark resolution of anti-industry advocacy. Thanks to the Thomas Kuhns of the internet, we have entered new intellectual territory.

This new school of thought has furthermore encouraged a palpable revolt among the individuals who actually deliver value in Silicon Valley—developers and engineers. Hardly a day passes that we do not see a new perspective offered by a former employee of Facebook or Google who is willing to speak out about how the industry is actively encouraging societal harms. Sandy Parakilas might be the best example from recent years. Featured in a *60 Minutes* exposé of Facebook, Parakilas insinuated that, despite his personal outcry, the company actively encouraged privacy-invading practices by using personal data in seemingly insidious ways.[6] There are many more examples now. Chamath Palihapitiya, formerly a vice president at Facebook, commented in 2017 that the "short-term, dopamine-driven feedback loops that we have created are destroying how society works. No civil discourse, no cooperation, misinformation, mistruth. . . . This is not about Russian ads. This is a global problem. It is eroding the core foundations of how people behave by and between each other. . . . I can't control them. I can control my decision, which is that I don't use that shit."[7] Palihapitiya has since moderated some of these statements, but his original sentiments are clear.[8] Guillaume Chaslot, the former Google engineer who has designed a technical system that attempts to enable study of the YouTube recommendation algorithm, has noted that the system "isn't built to help you get what you want—it's built to get you addicted to YouTube."[9]

Beyond the many critics of the consumer internet business model are new groups of employees who feel increasingly comfortable in holding their employers accountable on fundamental social concerns. Google presents the most visible example: employee groups have led protests at the company on many counts, including the company's potential engagement with U.S. Customs and Border Protection, the federal agency within the U.S. Department of Homeland Security that is responsible for securing America's international borders. Some 600 Google employees petitioned, noting that they "refuse to be complicit. It is unconscionable that Google, or any other tech company, would support agencies engaged in caging and torturing vulnerable people." As Cat Zakrzewski noted in the *Washington Post*:

> The Trump era has sparked a Catch-22 for the company as criticism surges across the political spectrum. The search giant is trying to appease liberal employees who are increasingly taking their beef with the company's positions public, while simultaneously weathering accusations from Republicans—including the president—who say the company is politically biased against conservatives. . . . Yet taking a strong stance against working with the Trump administration's immigration agencies could strain an already tense relationship between Google and the Trump administration.[10]

All this outcry is forcing a much-needed impact on the public's perception of the consumer internet industry's overall contribution to American society. About that, there can be no doubt.

As British Prime Minister Harold Wilson once noted, a week is a long time in politics. Silicon Valley once stood untouchable. But the recent criticism of the consumer internet industry's business model has encouraged even national political leaders in the United States to issue sharp rhetoric—and in some cases back it up with action. Policymaker concerns regarding perceived overreaches of Silicon Valley start with the president himself. Whatever one might think of the genuineness of his intentions, President Donald Trump has seemingly plucked lines directly from Barry Lynn's Open Markets Institute team, noting that the likes of Google, Facebook, and Amazon present a "very antitrust situation."[11] He pulls at conservative heartstrings to formulate his argument, proclaiming that the algorithms developed and used by these companies fail to offer the user politically balanced perspectives when it comes to American politics or his presidency itself, as his Twitter posts demonstrate:

> Google search results for "Trump News" shows only the viewing/reporting of Fake News Media. In other words, they have it RIGGED, for me & others, so that almost all stories & news is BAD. Fake CNN is prominent. Republican/Conservative & Fair Media is shut out. Illegal? 96% of results on "Trump News" are from National Left-Wing Media, very dangerous. Google & others are suppressing voices of Conservatives and hiding information and news that is good. They are controlling what we can & cannot see. This is a very serious situation—will be addressed![12]

> Something is happening with those groups of folks that are running Facebook and Google and Twitter, and I do think we have to get to the bottom of it. It's collusive, and it's very, very fair to say we have to do something about it.[13]

> Wow, Report Just Out! Google manipulated from 2.6 million to 16 million votes for Hillary Clinton in 2016 Election! This

> was put out by a Clinton supporter, not a Trump Supporter! Google should be sued. My victory was even bigger than thought! @JudicialWatch.[14]

Trump's concerns fueled a major inquiry by former U.S. attorney general Jeff Sessions, who issued a broad invitation to state attorneys general to convene with him and discuss the possibility of driving greater transparency into the ways in which the content-prioritization algorithms used by these companies are developed, to the end of determining whether the president's broader implications of bias against conservatives might actually be true.[15] To date, all three branches of the federal government have raised new antitrust inquiries, with investigations led by the Justice Department[16] and Federal Trade Commission,[17] the House Judiciary's Subcommittee on Antitrust, Commercial, and Administrative Law,[18] and an expansive group of state attorneys general.[19]

This is an illustrative bellwether of the kind of regulatory comeuppance we may see over the coming years. These inquiries and related inquiries are still under development, and whether any regulatory results will emerge remains unclear. The feelings underlying such efforts persist and have seeped into the heart of American politics—including the U.S. Senate. Senator Ted Cruz (R-TX) presaged Trump's inquiry, asking Mark Zuckerberg during his April 2018 congressional testimony whether Facebook represents "a First Amendment speaker expressing your views or . . . a neutral public forum allowing everyone to speak?" Senator Cruz added in the same hearing that "there are a great many Americans who I would say are deeply concerned that Facebook and other tech companies are engaged in a pervasive pattern of bias and political censorship."[20] The allegation that these companies have organized among themselves inordinate amounts of power, so much so that they can negatively influence the social welfare, was overtly made by Senator Lindsey Graham (R-SC), who asked Zuckerberg point blank whether he believed his company was a monopoly.[21]

The inquiries have stretched across the aisle; in fact, most Democrats would quite likely contend that it was they who initially fueled the ongoing techlash. Senator Mark Warner (D-VA) has been on record since the presidential election in 2016 about the need to force changes to the way internet commerce works and in October 2017 proposed the Honest Ads Act to the Senate.[22] Joined by Senator Amy Klobuchar (D-MN) and the late–Arizona Senator John McCain (a Republican who was later replaced in cosponsorship by Senator Graham), Warner has been the most vocal advocate for political ad transparency and consumer privacy, among other matters of technology and telecommunications regulation.[23] Senator Elizabeth Warren (D-MA), from the 2020 presidential campaign trail, expressed great concern about growing market concentration across various sectors[24]—very much in line with the perspective of the Open Markets Institute, which has outlined how dozens of industries have significantly increased in market concentration in recent years. Representative David Cicilline (D-RI), having shared novel legislative and regulatory ideas with his congressional colleagues through his leadership of the House Subcommittee on Antitrust, Commercial, and Administrative Law, has shown tremendous thought leadership and political courage in attempting to address the overreaches of the technology industry with action.[25] Senator Ron Wyden (D-OR), meanwhile, has suggested that Mark Zuckerberg should potentially face a prison term because he has "repeatedly lied to the American people about privacy" and "ought to be held personally accountable."[26]

This political rhetoric is not exclusive to the United States. Other jurisdictions have already taken far more strident steps. The European Union, long a bastion of individual privacy rights and the maintenance of the economic strength and intellectual independence of the individual, has laid out a number of innovative rules and regulations that will significantly impact internet commerce if they are upheld to the word. This starts with the EU's General Data Protection Regulation (GDPR), the novel regime pertaining to the collection and use of data associated with EU citizens that went into effect in May 2018.[27] The United Kingdom, on the heels of Brexit, followed suit with a scathing parliamentary committee report on Facebook and the disinformation problem, describing the actions of the firm and its chief executive as those of "digital gangsters" and suggesting that Zuckerberg will be held in contempt should he set foot in the United Kingdom as long as he fails to respond to Parliament's many inquiries about his company's actions.[28] The unprecedented joint International Grand Committee on Disinformation and Fake News, chaired by Canadian Member of Parliament Bob Zimmer and composed of high-ranking officials from many nations, has called for the senior leaders at Facebook—not its local staffers or lower-ranking policy officials—to show up and testify before the committee.[29] The United Nations Conference on Trade and Development convened expansive meetings in 2019, in reference to which Secretary-General Dr. Mukhisa Kituyi noted that "Digitalization . . . has led to winner-take-all dynamics in digital markets," and that "economies of scale and network effects have led to single dominant firms in e-commerce, online search, online advertising, and social networking," which has "given these firms significant control over consumer data."[30]

The Commission nationale de l'informatique et des libertés (CNIL), the French office responsible for data regulation, has conducted numerous investigations and levied fines against the industry, including a fine of €50 million against Google "for lack of transparency, inadequate information, and the lack of valid consent regarding the ads personalization."[31] Australia's commercial regulatory agency, the Australian Consumer and Competition Commission (ACCC), has suggested that the internet industry has visited tremendous harm on consumers; the agency has made rigorous new proposals to advance technology regulation.[32] Japan has opened discussions around new legislation to regulate digital giants, which are perceived in the country to have harmed market competition.[33] It has also set up committees to explore the potential impact of Facebook's Libra cryptocurrency on monetary policy and financial regulation.[34] Singapore and Germany have proposed stringent new content policy standards targeting hate speech disseminated over social media platforms.[35] In Belgium, a Brussels court ruled that Facebook had broken privacy laws and ordered the company to delete the illegal data, although Facebook has challenged those claims.[36] The Italian privacy authority (Garante per la protezione dei dati personali) has charged Facebook with misleading users and mishandling data.[37] The Dutch Data Protection Authority (Autoriteit Persoonsgegevens) fined Google in 2014 for breaches of privacy policy and since then has investigated the industry on other counts.[38] Brazil and Argentina have updated their privacy laws and regulatory regimes in recent years, putting the internet firms on watch.[39] The list goes on and on.

The inquiries have reached a local level in the United States, too. California has passed a much-anticipated privacy law, lauded as the most stringent in the country.[40] Illinois has attempted to enforce a powerful new biometric privacy law targeting Facebook's facial-recognition technology.[41] New York City has convened an expert group to examine how algorithmic transparency and interpretability are critical to maintaining fairness for residents (though questions have been raised about those efforts).[42] Hawaii, Maryland, Massachusetts, Mississippi, and many other states have either taken similar action or are expected to follow suit over the next few years.[43]

The commercial engine underlying Silicon Valley appears to be under attack.

The Consumer Internet: A New Paradigm

And so a new paradigm shift—riding the wave of the techlash—is in full swing. The world is descending on the consumer internet industry. People are angry, politicians are taking swings, and governments loom. The internet, once a forum for positive sharing, now carries the brand of promoting an industry of cutthroat capitalists who nip at the heels of American democracy. We have developed and adopted a powerful new theory of the case, just as Copernicus once did: The leading internet firms are not God's gift to the world. They can cause grave harm just as past industries have. At their heart of hearts, their nature is defined by profit-seeking in a manner that lacks any nonmarket-driven accountability to the public.

But this new condition raises a question: Given our sorry political circumstances, can anything really happen? Particularly if it is in the realm of polarized partisanship where economic regulation squarely sits? Will the full weight of our federal legislative and regulatory powers really be brought to bear on what is now the world's most profitable and powerful industry—especially in a period of gridlock in which the U.S. Senate cannot even execute a politically independent impeachment trial?

Consider the Zuckerberg hearings, as well as those over the past three years that have involved the other major consumer internet companies. Despite all of the public anticipation leading up to those congressional inquiries, all we got in the end were some memes of members fumbling as they confusedly questioned the industry. Recall, for instance, Senator Brian Schatz (D-HI), who asked a question about sending e-mails over WhatsApp, or Senator Orrin Hatch (R-UT), who asked about how Facebook makes money.[44] Since the hearings, these interactions have been explained away with rationalizations. Senator Schatz says that his was an earnest misstatement,[45] and Senator Hatch's office has fairly indicated that he simply meant to underscore earlier discussion from the hearing,[46] both of which are likely true but nevertheless have influenced the public attitude concerning Congress's ability to regulate the industry according to its economic merits.[47]

The underlying question remains: will these hearings and all of the accompanying congressional scrutiny over the industry have lasting impact? The first of these hearings, in late 2017, explored possible interference in the 2016 U.S. presidential election. Consider what new material was actually learned during its course. The lawyers representing Sean Edgett, Richard Salgado, and Colin Stretch—the legal executives at Twitter, Google, and Facebook, respectively[48]—effectively served their clients by not revealing anything that might encourage regulatory ardor and suggesting that their companies had simply been caught off guard by the Russians.

I continue to have faith in the political process—and as my colleagues Gene Kimmelman, Phil Verveer, and Tom Wheeler have suggested in the past, we need more congressional hearings.[49] The congressional forum and its lines of inquiry are the only way to force the industry to defend its practices—or accede to regulation. We need only to design more effectively the right hearings at the right time and in the process bring in the right people and ask the right questions—particularly about the nature of the companies' business practices and whether and how those practices tread on the American interest.

In the meantime, I would encourage a thorough intellectual reassessment of everything we think we know and understand about the causes of the harms against democracy that have been systematically perpetrated by this industry. Such an assessment must begin with the business model at the heart of the consumer internet.

Grounding an Analysis of the Modern Internet

Numerous industry officials, policy experts, and legal scholars have written about the business models of internet companies in varied contexts, but much of this analysis lacks depth. For instance, some have suggested that for internet firms, or more specifically social media companies, "the business model is targeted advertising." Indeed, these are the terms in which Zuckerberg describes how his company makes money, as he quipped in response to Orrin Hatch: "Senator, we run ads."[50] But the way Facebook truly operates is far more complex. Zuckerberg did not go into close enough detail to depict the business model in the resolution necessary for Congress to begin to address the internet industry's root problems.

Building on his judgment that the industry simply runs off ads, some have additionally argued that internet companies should be encouraged (or forced) to make their services available for some subscription fee as an alternative to their current business model premised on advertising. Yet if Facebook were to convert all of its "free" users into paying subscribers, relieving them of targeted advertisements and content curation in their social feeds, then perhaps we could effectively blunt the formation of polarized filter bubbles and diminish the disinformation problem.[51] But the idea that Facebook should simply switch to a subscription model to protect American democracy, as Roger McNamee, Jared Lanier, and others have suggested, carries deep flaws.[52] If subscription were a requirement for all users, the number of people using the platform would fall so drastically—especially in developing countries—that the benefits of social media would be severely diminished. Such wellsprings of free thought and expression over Facebook that prompted the Arab Spring would be stopped in their tracks, if all of the people who participated in the Arab Spring were suddenly required to pay $100 a year for Facebook access.

Even if users were given a choice between the continuation of targeted ads and content curation in their news feeds and having to pay a steady subscription fee, none of the problems that our democracy is currently facing would be earnestly addressed; they simply would be ignored. Imagine the entire American social media market being presented the opportunity to subscribe. How would users respond? At the rate of $100—or anything within that order of magnitude—not nearly enough people would switch. This leaves aside the question of users in developing nations that might feature greater political instability. Indeed, it is perhaps the people who would be most unwilling to make the payments for social media subscriptions whose news feeds we should worry most about. (Another option exists, too: a scheme whereby Facebook assesses your wealth—having inferred it through analysis of your personal information—and offers you a price-discriminating fee that by design is valued proportional to your spending ability. We can throw this option out the window, though. It remains highly unrealistic at this stage, as large-scale internet firms are not poised to take such a discriminating approach because of the obvious public outcry that would rise against the brand.)

Overall, replacing advertising revenue with subscription fees would be insufficient to meaningfully address the negative externalities perpetrated by Twitter, for example. This analysis leaves aside additional critical questions we would eventually need to answer. For instance, should subscription be a voluntary industry measure or regulated by the government? If the latter, should regulators impose the subscription restrictions only on large internet companies such as Twitter, or should they pull small start-ups into the regulation as well? If they choose not to regulate smaller companies, would users move to newer platforms that do not maintain the subscription requirement? And how much should companies charge for the subscription in the first place? Academics in the United States have estimated both the amount a typical consumer is willing to pay to use social media and a user's worth in annual dollar terms to the social media companies. But if Twitter were to charge the same flat rate for everyone, much larger proportions of people in developed economies would be able to pay for it, but not those in developing ones (unless the company pursued price discrimination programs)—effectively creating an imbalance in access. What would such a situation say of the world that we want to create?

A final concern about the subscription proposal: if all of the major companies were to enable the option due to regulatory requirement, how would consumers react? Each of the firms might potentially attempt to establish its own network effect given the new economic regime and as such might attempt to undercut rivals and attract users to its own platforms. Facebook, for example, might undercut prices set by Twitter, which might drive users off Twitter. It makes little sense to pay for a service that is more expensive, especially if Facebook can establish the one-to-many design through a new service that subsumes Twitter's business. Creating such a requirement might thus prompt further unwanted anticompetitive effects in the internet market. If consumers decide it only makes sense for them to pay subscription fees for one social media service, could there be deleterious effects for the consumer market overall? It is difficult to say.

Still others claim that the business of social media and the internet is all about data.[53] This, too, is an oversimplification of the problems at hand. Yes, the firms that sit at the center of the consumer internet collect inordinate amounts of data on the individual—more so than any other corporate entity or government in the history of humankind. Data collection must be a significant contributor to their businesses, otherwise they would not undertake it. But such collection of data has happened to varying degrees in other industries for decades. While the data-collection practices in other industries have never been as extensive as that of a company such as Google, the business model of Google cannot end there. How does it actually make money from those data? Why does it collect so much data? And why cannot other companies themselves make profits at the margins Google appreciates from such rich data collection? (Google was among the companies with the most cash in reserve at the height of the coronavirus outbreak in the United States.)

These are critical questions that need to be addressed on our way to defining the consumer internet business model and designing a remedy to contend with its overreaches.

The Contours of the Consumer Internet

Given the noise injected into the public's conceptualization of the consumer internet's business model, it is important to first define the contours of the consumer internet, which I believe democratic societies more broadly are most concerned with.

In recent years, these public concerns have become laser focused on a series of harms that have gravitated into the crosshairs of public outcry: the spread of hate speech, the disinformation problem, foreign election interference, algorithmic discrimination, terrorist recruitment, incitement to violence, and anticonservative bias. One could ask the pertinent question: Are these the harms that are indeed the most important to society when it comes to thinking about what the consumer internet has foisted on us? At one level, I think they absolutely are. They represent the uppermost layer—the externally observable symptoms—that is associated with a much deeper problem. They are the "here and now" that the people of Paris, Jakarta, Bombay, Christchurch, and Charleston care about today. They influence our national politics and the direction of our social countenance.

At a more critical level, however, is the business model of the consumer internet itself—the precise expression and manifestation of the commercial desires of the largest firms that occupy the center of the consumer internet splayed out against the theoretical economic and regulatory boundaries that the U.S. government has set for them—along with the commercial appendages and entities that the firms bring along in support of their core business, including the data brokers and ad exchanges. At the very center of the consumer internet—beyond the superficial manifestations of harm such as the disinformation problem or the spread of hate speech or the encouragement of persistent algorithmic bias—is a silent mechanism that works against the will of the very people whose attention, desires, and aspirations it systematically manipulates with cold technological precision.

This machine is principally responsible for the proliferation of society's concerns about the technology industry, including the terrible symptoms of disinformation and hateful conduct that we experience at the surface of the internet. And it is this machine that should be the subject of our policy analysis.

But how can we manage—or even begin to address—such a wide variety of problems engendered by a business model that is so staunchly defended by the robber barons of the internet behind the closed doors of Congress itself? We will need to incisively cut past the noisy exterior of the industry's advocacy about its self-proclaimed positive impacts on society and pry through the engineered spiderwebs into the heart of the problem. If we fail in this—if we fail to consider that the central business model of the consumer internet is so clearly responsible for all of these harms in the first place—then we will ultimately fail American consumers and citizens.

A Walk through Silicon Valley Today

What is the business model of the consumer internet? What do we mean by the "consumer internet"? And what separates it from other segments of the digital economy? Let us first examine a list of the biggest internet companies in the United States by revenue:[54]

	Revenue (US$ billions)	FY
Amazon	253.9	2018
Google	120.8	2018
Facebook	55.01	2018
Netflix^	15.8	2018
Booking^	12.7	2017
eBay^	10.75	2018
Salesforce*	10.5	2018
Expedia^	10.1	2017
Uber^	7.5	2017
Groupon^	2.8	2018
Twitter	2.44	2017
Airbnb^	1.7	2016
Workday*	1.56	2017

A number of observations can be drawn from this list. Missing are some major Silicon Valley firms that have been in the news recently—Apple among them. I have excluded companies such as Apple, Dell, Hewlett-Packard, and Intel because they are not primarily internet businesses. While elements of their businesses surely touch the internet—not to mention certain business practices they undertake that effectively impact consumers and citizens—the main portion of their revenues does not derive from operating services that run over the internet.

Apple's economic strength comes from its sale of electronic consumer-device technologies along with its hegemony over closed-source mobile-software technologies operated exclusively over its devices—including iOS, the App Store, and the bundled ties established between its many other services—that it has developed over the past twenty years. Some of these companies will be the subject of inspection in various respects in my analysis, but they do not constitute the central part of the internet economy; they did not inflict public harms such as the disinformation problem that have been of concern in recent years.

The list also excludes another set of well-known software companies—Microsoft, IBM, Oracle, and SAP among them. These companies, too, do not make the bulk of their revenue from operating internet services. Instead, they sell software, be it to consumers directly or, as is more often the case with these four firms, to other businesses. This combined focus on software and so-called B2B services disqualifies them from direct inspection here. Again, there is no doubt that some of them operate key consumer services over the open web, Microsoft's Bing search engine being perhaps the most visible example. But these services are as a general matter neither a core functionality nor a key contributor to the firm's global revenues and, more important, they are not the commercial engine of these companies. By corollary, these ancillary services do not "matter" as much to the respective company. Glancing at the angles of advocacy pursued by these firms suggests as much. Microsoft, for example, has long been a proponent of privacy regulation, far more so than Facebook or Google, since the company does not make its lion's share of profit off data and advertising.

Some of the companies listed above are primarily B2B businesses that simply operate over the internet. (These firms are marked with an asterisk.) They are apparently doing little harm to democracies overall, particularly since their interaction with individual users is minimal. Thus I exclude them, too, from the core analysis here.

Finally, of the remaining companies on the list, some interact with the individual user far less than others do. Airbnb, Expedia, and Uber fall into this category and are marked with a caret symbol in the list above. These companies might set cookies on your browser to infer where you live, what kind of internet connection you have, what sort of computer, mobile phone, and browser you are using, and what business or vacation destinations you search for over their platforms—all to the end of determining some measure of your propensity to spend money on their respective hotel, rental, travel, and housing services.

But they do not compare with the platforms operated by firms like Facebook, Google, and Twitter in the level of individual interaction with the consumer. In every sense, these three companies are a world apart; they are highly dialogical with consumers, in that they participate in intelligent back-and-forth engagements in real time. The consumer scrolls through feeds, repeatedly hovering over certain links, engaging with certain posted videos, clicking through to view certain news articles, watching ads, and interacting with friends, colleagues, acquaintances, journalists, thought leaders, celebrities, and politicians. Meanwhile, the platform collects information about the consumer's viewing habits or interactions. As much as Expedia might want to employ such practices to increase its ability to monetize the user's experience with the company, it simply cannot compete on this front with the likes of Facebook. It has less material with which to engage with the end consumer and less of a platform over which to foster sophisticated dialogue through content curation, so attempting to do so would carry it so far away from its primary business that the firm's core value proposition would suffer from the unwanted distraction of attempted individual engagement.

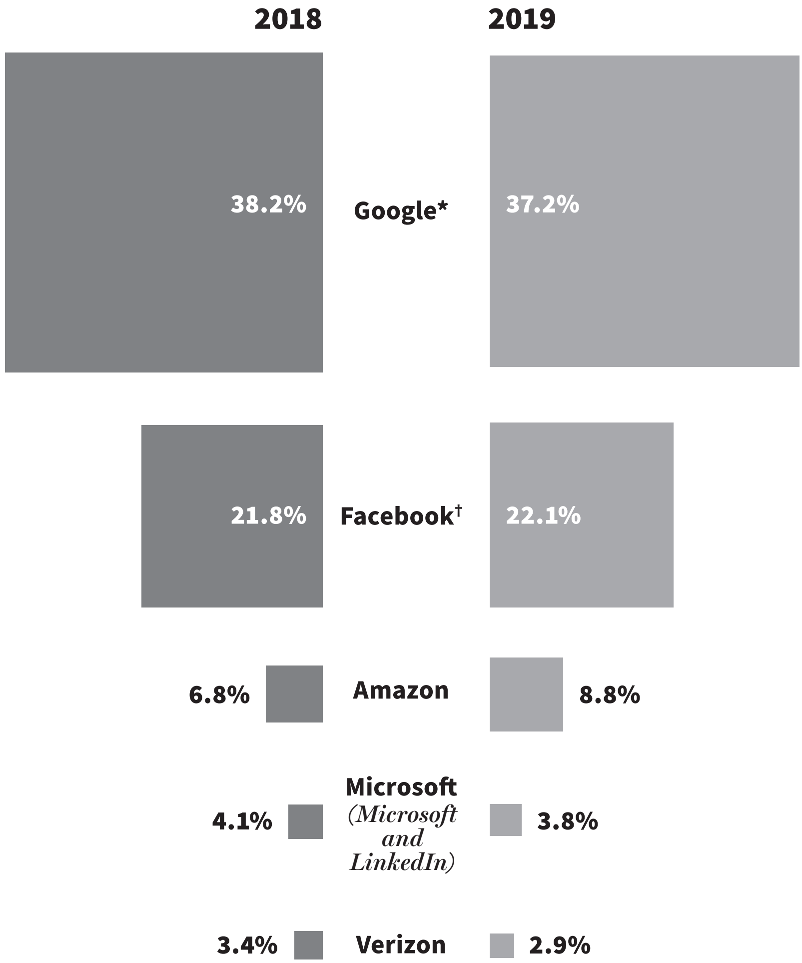
Something important links the remaining firms in the list—specifically Facebook, Google, and Twitter—to one another. Yes, they are more dialogical with the user. But why? It is primarily because they enable any individual user to upload digital content that other users can see—they are, in other words, social media firms. They have outsize capacity to infer the nature of the user's personality and to monetize that capability.

What of the other firm in that list, sitting above all the rest: Amazon? It is a complex business and, strictly speaking, a combination of various of the preceding company types. Historically, it has operated more like Airbnb, in that it has operated services over the internet but largely has not engaged with the user in dialogue as YouTube or Facebook do. That, however, is changing. In 2018, Amazon broke away from the pack of firms that were orders of magnitude behind Facebook and Google in digital advertising revenue. It now sits in a clear third place, with more than 7 percent of the market.[55] Reading between the lines, it must be that a corporate strategy of Amazon's in recent years has been to infer users' personal desires and preferences by showing the user appropriate ads—making the firm much like Facebook and Google in certain respects. On Amazon consumers engage with products and services that others (or Amazon itself) have posted, and in doing so consumers reveal details concerning their interests, which Amazon can then use to operate a robust ad-targeting platform. And while this is not the prime revenue stream for Amazon—a firm that, among other lines of business, operates Amazon Web Services, the most popular American cloud-service provider, ahead of Microsoft Azure and Google Cloud[56]—its ad-targeting platform represents a major presence in the consumer internet industry.

These are only my perspectives. Some might contend that I am incorrect about the boundaries of the "consumer internet industry" in certain respects. Others might suggest I have grouped various firms in the wrong way, that certain of them belong in another group, and so on. But there is an easy test of this: examine the policy advocacy objectives of the various firms, which can reveal a company's underlying profitmaking interests in explicit terms. And there is no better way to examine this sort of advocacy than to look at the chief executives' statements. American technology chief executives enjoy an admired and rarefied existence with the public, but when push comes to shove, they are also the company's first and foremost corporate advocate. On behalf of their shareholders, they have to be. Mark Zuckerberg, Sheryl Sandberg,

Top Five Companies, Ranked by U.S. Digital Ad Revenue Share, 2018 and 2019

% of total ad spending



Note: U.S. total digital ad spending in 2019 = $129.34 billion; includes advertising that appears on desktop and laptop computers as well as mobile phones, tablets, and other internet-connected devices; includes all of the various formats of advertising on the platforms; net ad revenues after companies pay traffic acquisition costs to partner sites; *includes YouTube advertising revenues; †includes Instagram advertising revenues.

Source: eMarketer, February 2019.

Sundar Pichai, and Brad Smith—their voices project their companies' perspectives faster and further than any registered lobbyist ever could.[57]

It is useful to test the boundaries I have suggested thus far by examining some of this corporate messaging, and what better place to start than with the statements of some of the chief executives of these firms? Perhaps the name that springs to most people's minds as Exhibit A is Tim Cook. Over the past two years, Cook, the chief executive officer of Apple, has proclaimed that he and his company stand for consumer privacy and that the firm does not use the personal information pertaining to its customers to such an extent that some internet and technology companies have done. In fact, he is even more explicit about this: he notes that monetizing the consumer's personal data should have no place in the business objectives of Silicon Valley internet and technology firms. This should serve as our first critical data point: because Cook does not hesitate to reprimand Google's ubiquitous collection of data, we should expect that Apple's data-gathering practices would be far more acceptable to users and that it is not in Apple's plans to craft a digital advertising network that would compete at the level of Facebook and Google.[58]

This makes sense: Apple may wish to concentrate on its principal consumer devices and closed-source software ecosystem businesses. Nonetheless, Cook's attacks against his internet-based competitors—made variously in op-eds, media interviews, speeches, and other forums—deserve deep inspection. Is he speaking from a place of earnestness as a business leader who cares about the typical Apple user so much so that he is willing to stand up for that individual's privacy more than other corporate executives would? Or could it be that Cook has a distinct commercial incentive to make such statements?

I would strongly suggest the latter.

It is clearly not within Apple's business interest to monetize consumer data to the extent that companies like Facebook have done. While Apple does collect inordinate amounts of data—particularly through its customers' use of popular devices such iPhones, iMacs, laptops, and

Apple watches, not to mention the firm's proprietary software, including all of the Apple apps, such as Maps and Mail—Cook's point is that his firm does not use that information to make money.[59] Or, stated more precisely, Apple does not make money off this data by directing targeted ads to customers, although collecting the data itself is still in Apple's business interests to monitor and improve the company's product offerings. Given this, we can conclude that Apple is not a key member of the consumer internet industry.

Thus it is clear we cannot interpret Cook's withering critiques as some modern form of *noblesse oblige*; indeed, it is quite the opposite. What is less clear, though, is why Cook is attacking his Silicon Valley counterparts. Is it to stand up for the American consumer? Or is it to contend that his firm has a more compassionate heart than others? Why would his firm not use customer data for advertising if there were a commercial path to doing so at a profit? That is, after all, Apple's *raison d'être* as a matter of economics—simply put, to maximize profits in the long-term interests of the shareholders. The conclusion must be that he has decided that, all things considered—which could include current regulatory standards, additional forthcoming regulation, the ongoing techlash, the inability to innovate or compete, the opportunity to throw the competition under the bus, and the chance to demonize rival chief executives while highlighting his own sensitivity—it is actually in Apple's commercial interests to have its chief executive project the idea that Apple cares more about your personal privacy than Facebook and Google do, while leaving the immediate revenues to be had from targeted advertising on the table. Apple's braggadocio concerning its privacy standards benefits the Apple shareholder.

After all, when was the last time an American business leader stood up primarily for the benefit of the American people as a general matter? That is not a feature of our economic system; our country has cultivated an economic design over three centuries that favors the ingenuity of industry in such a manner that encourages industry leaders to be adventurous and daring, take investment risk, and develop the innovations that Americans will buy tomorrow. Under this regime, American society itself has suggested that business should not first think of regulatory boundaries but rather the theoretical economic space in which it can operate to be a vast, open space of opportunity. The first firm that can invade and occupy that vacuum can perhaps even achieve monopoly, at least for a time.

In effect, and taken with this economic environment in mind, that Apple has chosen not to pursue the monetization of certain forms of consumer data (at least, to date) should not be seen as a signal of its commitment to consumer rights. Apple has concertedly chosen not to use personal data simply because it is not in the company's best interests to do so. It is, in other words, a strategic decision. This is how the public should view these statements. They are nothing more, and nothing less.

If any doubts over this might linger, consider that Apple does not hesitate to compromise common conceptions of human rights should such oversteps be in the firm's favor to undertake. Take, for example, Apple's activities in China. In May 2017, the Chinese government issued a draconian data-security regulation, one that was particularly stringent against internet and technology firms, especially American ones.[60]

The much-anticipated regulation was loud and clear. A foreign company that serves Chinese nationals and wishes to collect and maintain data on Chinese citizens must engage in an extreme form of what is known as "data localization": the data must be stored on the Chinese national storage system in China. More questionably, foreign firms that maintain data on Chinese nationals must partner with a Chinese cloud-computing firm to build and maintain their Chinese data centers. Any data stored in China are subject to inspection by the Chinese government should it wish to investigate any matter, without exceptions. Finally, should the firm wish to transmit or transfer any data outside of China for any reason, the transmittal would be, per the regulation, subject to review and potential blockage by the Chinese security authorities. In a country that offers little transparency into the actions or motivations of a national government that has openly and consistently committed human rights violations, particularly against those thought leaders and activists who have tried to expose how the Chinese government has perpetrated these intense privacy violations against its own people, a data-security regulation such as this one should give pause to any multinational American firm—let alone a chief executive from Silicon Valley who preaches that other corporations should consider the position of the consumers' right to privacy.

Not so for Apple. Here was the ultimate chance to express resistance to the nature of the Chinese data-security regulation, but mere days after it went into effect, the firm disclosed—through a brief press release that failed to receive much scrutiny from the American media—that it had secured a deal to open a new data center in Guizhou in partnership with a Chinese cloud-security firm.[61] Apple quite likely decided, quickly, to comply with the Chinese regulation principally for three reasons. The first is that the firm wishes to protect its existing market share and customer base in China. China is a massive consumer market for Apple, perhaps its biggest projecting into the future, and if it were to choose to disregard the data-security regulations, the government could well choose to oust Apple from the market.[62] Second, Apple's primary manufacturing base is in China. It exploits the relatively inexpensive but talented Chinese labor pool available to its commercial advantage.[63] Third, Apple wishes to maintain a working relationship with the Chinese government so that it can maintain its Chinese market share and manufacturing base.[64]

With that cool calculation, Apple quietly subscribed to a Chinese regime that is never shy in silencing those who protest its policies and practices—whether through harassment, confinement, or torture.[65] Apple knows that very well and in complying with the regulation it basically shrugged and said to itself, "Well, that's fine." And it is likely—perhaps even inevitable—that some among Apple's ranks would have questioned the firm's decision given China's skullduggery. But these independent voices, if they exist, never became public. In this situation, then, all the public has to assess Apple's care for the world is the company's overt decisionmaking in the marketplace. Where, then, does that leave Tim Cook's statements that superficially juxtapose Apple's commitment to consumer privacy with the lack thereof with other companies? And what of the impression that he tries so hard to cultivate, that he and his company have attempted to cultivate around their emotive care about individual rights and global progress? Does it matter that Apple, at least in practice even if not in functional morality or philosophy, uses American customers' data for monetization less overtly than Facebook does but simultaneously submits to the Chinese government in the name of corporate growth?

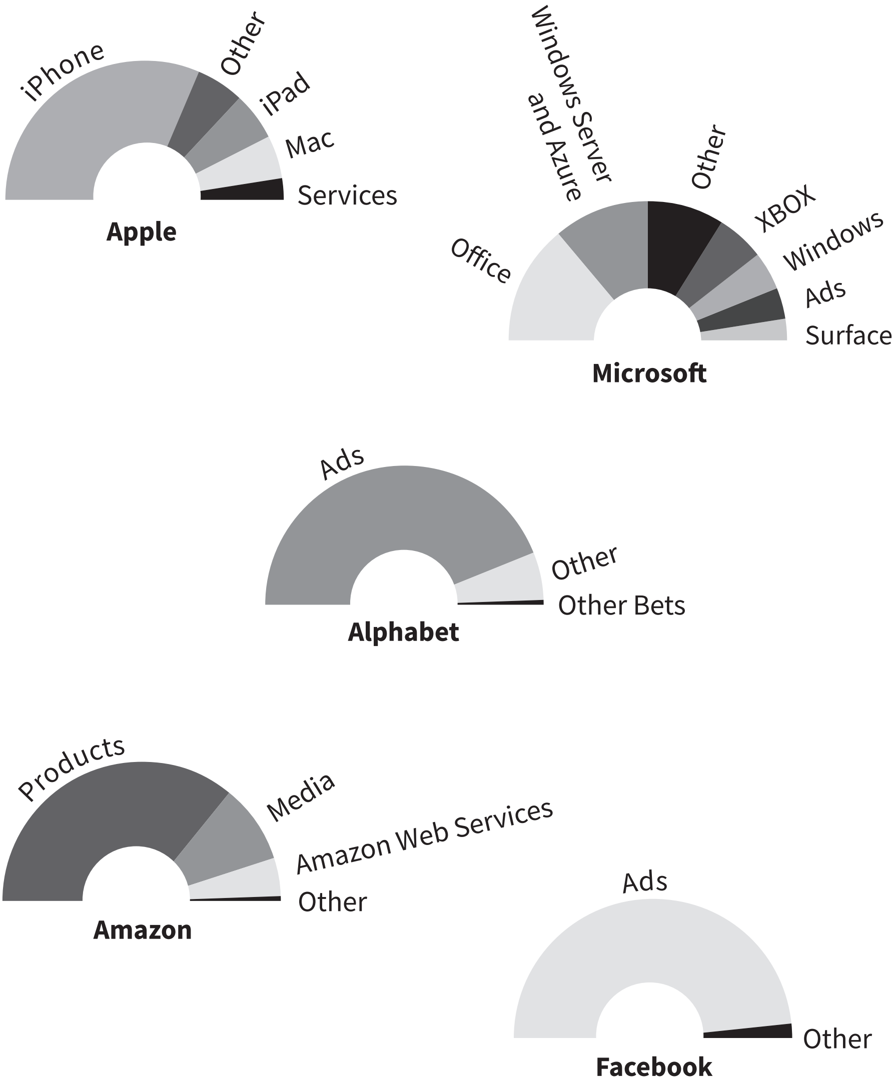
I do not think it should. Cook's histrionics are so clearly designed for strategic reasons that I am quite surprised that the media continues to engage his calls for the regulation of social media (for instance, in the case of his calls for a federal privacy bill).[66] That is not to say that social media should not be regulated—it of course should be. But where social media firms should be regulated for their breaches of human rights, Apple, too, should be regulated—or at the very least adequately scrutinized by independent parties—for its disregard for the civil liberties of the 1.4 billion people of China.

To our earlier point, these facts should clarify why Apple does not qualify as a consumer internet firm, at least in the formulation offered here. Otherwise, Tim Cook would not without provocation assert that Facebook and Google should be regulated for the collection and use of consumer data. Additionally, I would suggest that as we are deeply inspective of Cook's false hubris, we similarly scrutinize the statements of other executives. One example is Marc Benioff, the founder and chief executive of Salesforce, who has suggested that "Facebook is the new cigarettes. . . . It's addictive. It's not good for you. There [are] people trying to get you to use it that even you don't understand what's going on. The government needs to step in. The government needs to really regulate what's happening."[67] Benioff is absolutely right in expressing concerns about how the use of social media triggers a response of addiction in many users, especially among children.[68] But like Apple, Salesforce is not a consumer internet firm; it does not benefit from the monetization of consumer data to the extent that Facebook and Google do, given its core function of serving as an online-enterprise service platform for business clients.

Microsoft presents yet another example. The *New York Times* noted in a review of Brad Smith's book that the company "has positioned itself as the tech sector's leading advocate on public policy matters like protecting consumer privacy and establishing ethical guidelines for artificial intelligence." In response, professor David Yoffie of the Harvard Business School precisely summarizes the company's motive: "Microsoft can afford to be more self-righteous on some of those social issues because of its business model."[69] Smith's perspective that when "your technology changes the world, you bear a responsibility to help address the world that you have helped create," and furthermore that government needs "to move faster and start to catch up with the pace of technology," is motivated by strategic positioning; it aids Microsoft to attack a business model that it does not pursue but that Facebook and Google do. Microsoft did not voluntarily suggest it bears a responsibility to the public when it settled charges with the U.S. government after an antitrust investigation into the company's alleged anticompetitive practices.

It is not that Tim Cook, Brad Smith, and Marc Benioff make these statements aimed at the negative space of their respective firms' core business models principally because they feel the need to opine as public intellectuals. Rather, I would suggest that their issuing these statements—and, in the process, fueling the inspection of the true consumer internet firms—actually favors the long-term business interests of Apple, Microsoft, and Salesforce alike. This is true not only in the sense that their statements make these executives appear to care about economic equity and individual rights. In fact, unless they are stopped in some way, Google and Facebook will increasingly squeeze profit margins for most other major technology firms into the future. This is because Google and Facebook enjoy extraordinarily high profit margins yielding huge sums of cash—cash that they have smartly reinvested not

The Revenue Streams of the Leading Technology Firms Principally Determine the Statements Their Executives Make in the Media



Source: Jeff Dunn, "The Tech Industry Is Dominated by 5 Big Companies—Here's How Each Makes Its Money," *Business Insider*, May 26, 2017.

only in their untouchable advertising regimes but also in younger side businesses that will increasingly challenge the likes of Apple, Microsoft, and Salesforce. In fact, the more that Facebook and Google profit from the consumer internet business model that they exhibit more than any other firm, the more they can invest in the development of ancillary products that will potentially subvert the other firms' leadership in their subsectors. Facebook's Workplace service, for example, is a major new investment for the company in the enterprise software market that Salesforce currently leads, and it will probably begin to threaten Salesforce's competitive edge. Google is making similar investments, and its foray over the past ten years into the consumer-device technology space—including cellular phones and home gadgets—may increasingly threaten Apple. And Google Docs, Google Sheets, and Google Slides directly challenge Microsoft's hegemony in enterprise software. This dynamic reinforces the idea that these various firms occupy different industries—and that firms like Apple, Microsoft, and Salesforce should not be considered consumer internet firms in the way that Facebook and Google are.

A New Perspective on the Economic Logic behind the Open Web

With a clearer picture of the firms that sit at the center of the consumer internet—including Facebook, Google, Twitter, and Amazon, in addition to second-order companies such as Pinterest and Snapchat—we can now analyze what makes their businesses tick. Let us start with the company that has been in the news the most—the one that puts up the big blue app, whose founder Mark Zuckerberg and Chief Operating Officer Sheryl Sandberg have been forced onto American television screens over the past three years.

Facebook makes the vast majority of its revenue from digital advertising—but if we were to stop there, we would be addressing just the superficial and leaving aside the full truth behind the company's operation. The Silicon Valley business model directs Facebook to create compelling services, harvest personal data used to create consumer profiles, and develop algorithms for content curation and ad targeting. These three pillars together define the vaunted institution that everyone in the digital industry venerates: Facebook's commercial engine. The first of these pillars, designing captivating apps that effectively engage consumers and win their attention over other competing services—is simple to understand but difficult to achieve. In fact, some economic experts might contend that only a big player in the consumer internet—perhaps one of the few biggest platform companies in the sector—can possess such engaging services.[70]

Consider Facebook's key offerings: the news feed that users scroll through to see a curated and ranked social feed of updates from across their network, the Messenger internet-based text-messaging service, the WhatsApp encrypted text-messaging service, and the picture-sharing service Instagram. These are the core services that are principally responsible for Facebook's perpetual growth around the world. It is difficult to imagine another competing service surviving in any of these market siloes under our current regulatory regime. Facebook's services have each claimed their respective markets by moving into them aggressively and establishing an extraordinarily powerful network effect that limits the capacity for would-be rivals to compete. Facebook's services benefit by raising barriers to entry; the competition's digital and physical infrastructures—extravagant capital expenditures—would have to be built up from scratch to reach the level of sophistication required to compete with Facebook. The highly vertically integrated nature of Facebook's business practices today—driven by the company's focus on the sequence of tracking user data, targeting ads at users, disseminating those ads over monopoly platforms, owning much of the infrastructure that enables those platforms to sustain themselves, and maintaining strong commercial relationships with vendors up and down the technology stack—represent a Goliath that not even the most enterprising David could overthrow.

Consumer internet firms have a stranglehold on the market for attention because of how engaging they are. YouTube's video recommendation algorithm, for instance, is engineered to capture users' attention and keep them watching—and inject a few targeted ads that might engage them as well. There is no other goal for YouTube; the only incentive is maximizing ad revenue. This is no public square. It is the dominion of a profit-seeking firm. And this is precisely where things get messy for the company: there are some especially violent types of videos—shootings, bombings, terrorist speech, exploitation—that many of the platform's users find highly engaging. YouTube does not know any better than to simply up-rank such videos and attempt to capitalize on the expected engagement they generate. Despite the unmatched commercial power of its parent (Google), and despite its powerful fleet of private servers around the world, YouTube simply does not have the incentive to deal earnestly with the problems it has created. And without appropriate legal exposure, it never will.

Tristan Harris has described the manner in which these firms capitalize on biological weaknesses in the human psychology, exploiting the dopamine-delivering effects that the platforms have on our thinking about the world. Harris and his colleagues appear to be correct in their analysis: these services are designed to be addictive. This propensity to addict the consumer to social media can cause great harm.

The second pillar—the collection of data to the end of creating and maintaining a behavioral profile on the individual user—feeds off the first pillar's effectiveness in engaging the individual. Consumers passively generate a great deal of exhaust in the form of personal behavioral data as they use internet platforms such as YouTube. Time spent viewing a given video, areas over which a user might have hovered the cursor or tapped the screen, the time of day and device type, the user's location, the browser and internet connection used to communicate with YouTube—all of these data are readily collected by the platforms to understand who users are and to target ads to them.

Without the collection of these data, such personalization is impossible. This marks a noteworthy distinction between the internet and media formats of the past. The ability for the most important modern media corporations—internet platform companies—to define the content users will personally see, the amalgamation of which is increasingly unique to the user over time, is a departure from the broadcast, television, radio, and initial internet communication regimes of the past. Harvard professor Cass Sunstein notes that such personalization can corrode the democratic process. The inability of an individual to have a clear conception of what the broader public consumes over internet platforms—unlike consumption of the more traditional media formats of broadcast television or radio—redefines the interaction between citizens and society in potentially harmful ways that have not yet been fully addressed or even witnessed.

The third pillar—the development of algorithms that curate our social feeds and target us with ads—feeds off the second pillar and fuels the first, completing the vicious feedback loop that has lit a fire at the feet of the American democracy itself. As data are collected on us, they are used in highly sophisticated machine-learning algorithms to understand who we are over time and algorithmically rank our social feeds in the manner these firms believe can maximize our engagement.

That, in short, is how the consumer internet makes money.[71]

The Subject of Our Analysis

Facebook, Google, and Twitter have each acknowledged that foreign agents did indeed engage in activities during the 2016 presidential election cycle that constituted nefarious "infiltration" of their platforms.[72] Throughout the subsequent official inquiry on this matter, the public has suffered one shellshock after another from a series of staggered revelations as to how Russian disinformation operators developed and disseminated politically charged content on the key internet platforms owned and operated by the three companies. For its part, Facebook has disclosed that up to 126 million users may have been targeted with

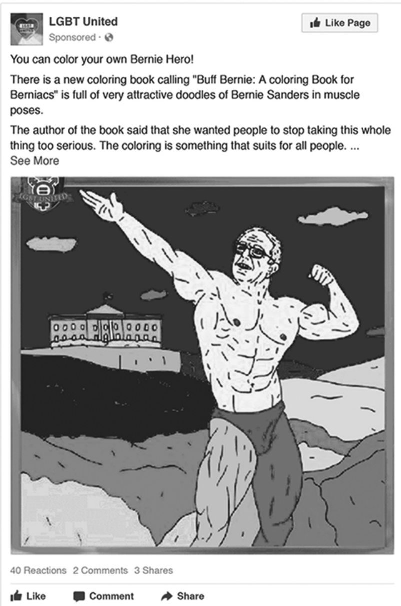
Russian disinformation.[73] The drumbeat of bad news appears so steady that the expectation now is that it will never cease to flow from the industry.[74]

The Russians' intent was most likely to interfere in the American electoral process and help elect Donald Trump to serve in the nation's highest office—and in the process, perpetuate chaos in the American political sphere. President Trump's win was accordingly celebrated throughout the halls of power in Moscow not because it represented better potential for strong diplomatic relations with Vladimir Putin but rather because Russian leaders believed his takeover of the Oval Office represented a bleak future for Moscow's sworn Cold War enemy—or at the least, a bleaker future than Hillary Clinton could have ensured.[75]

For Senator Dianne Feinstein (D-CA), the Russian activity constituted "cyber-warfare"—suggesting, she rightly believes, that the United States government must do whatever it can to defend the American people from the nefarious actions of foreign enemies.[76] For quite some time after the 2016 election, Americans pondered how our media ecosystem—the very medium to which our society had over time grown so addictively attached—could have been responsible for so much harm to the principles underpinning our democracy. Only a smattering of corporate forensics, industry analysis, academic research, and public inquiry could uncover what really happened: the Russians had figured out a way to infiltrate our beloved internet platforms and shower us with fake news to such a degree that many Americans would go on to manifest their collective, misinformed psyche inside the ballot booth, voting for the man who the Kremlin was desperate to see in power.[77]

But despite the intense scrutiny of internet firms by policymakers and the American people alike, few have implicated the business model underlying the consumer internet itself. This makes sense; it is a nonintuitive conclusion to suggest that the leading internet companies' business models themselves could have in part been responsible for promoting such insidious behavior, particularly given the corporate hoodwinking that industry executives have achieved in the face of national

Instances of Russian Disinformation Operations in the Lead-Up to the 2016 Presidential Election



Posted on: LGBT United group on Facebook

Created: March 2016

Targeted: People ages 18 to 65+ in the United States who like "LGBT United"

Results: 848 impressions, 54 clicks

Ad spend: 111.49 rubles (US$1.92)

Posted on: Instagram

Created: April 2016

Targeted: People ages 13 to 65+ who are interested in the Tea Party or Donald Trump

Results: 108,433 impressions, 857 clicks

Ad spend: 17,306 rubles (US$297)

Source: Social Media Advertisements, Permanent Select Committee on Intelligence, U.S. House of Representatives, November 2017.

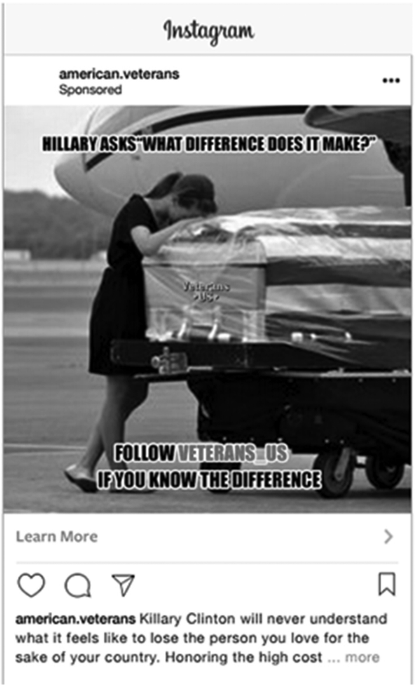
Posted on: Facebook

Created: October 2016

Targeted: People ages 18 to 65+ interested in Christianity, Jesus, God, Ron Paul, and media personalities such as Laura Ingraham, Rush Limbaugh, Bill O'Reilly, and Mike Savage, among other topics

Results: 71 impressions, 14 clicks

Ad spend: 64 rubles (US$1.10)



Posted on: Instagram

Created: August 2016

Targeted: People ages 18 to 65+ interested in military veterans, including those who fought in Iraq, Afghanistan, and Vietnam

Results: 17,654 impressions, 517 clicks

Ad spend: 3,083 rubles (US$53)

policymakers and the broader public. After all, the internet was meant to be an incredible democratizing force, not a new vector for subversion of good and protective order—and that is a brand that industry executives have readily appropriated for their commercial purposes. I believe, however, that it is time to scrutinize the industry much more harshly.

It may be that this depiction of the business model at play in the consumer internet is to some extent a simplification. If so, I suggest that it is not an unfair one. We cannot doubt that there are numerous appendages, exceptions, and parallel businesses that exist within consumer internet firms. For instance, Google might argue that its parent company Alphabet earns revenue from Google Cloud, Google Nest, and Google Assistant. Facebook might argue that much of its growth over the next ten years will center on new investments like the Oculus business, which does not necessarily align with the economic logic described here. And each of the companies that are the subject of the analysis in the following chapters might suggest that they are not the sole culprits engaging in the uninhibited collection of personal information or the acquisition of would-be rival internet media properties. All of this may well be true. But these ancillary issues are not the matter of central concern because they are not critical to the core issue that is at hand: it is the central business model of the consumer internet that is chiefly responsible for the harms perpetrated against democracies around the world. We must be laser focused on this troubling condition. We cannot allow extraneous information to muddy our independent perspective.

We need to revolutionize the regulatory regime that sits behind the consumer internet itself. Without doing so we cannot begin to address the harms perpetrated by the internet. My purpose in the following chapters is to comprehensively explore the three pillars of the consumer internet's business model to inform and ultimately to help determine what our democracy must do to combat the overreaches of the business model at the heart of the internet.