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Author's Note

Some books are born out of big, abstract ideas; others start closer to home. My last book, *Makers and Takers,* came out of high-level policy conversations about the financial industry. This book, which examines the economic, political, and cognitive damage wrought by the technology industry over the past twenty years, has a wide lens. But its birth was quite intimate.

It began one afternoon in late April 2017, when I came home from work, opened my credit card bill, and got a shock: over $900 in charges I didn't recognize from Apple's App Store. First, I thought I'd been hacked. After making a few inquiries, however, I discovered that, in fact, my then ten-year-old son had racked up these charges, buying virtual players for the online soccer game he had become fond of.

His devices were summarily confiscated and passwords revoked, needless to say. But right around that time, the larger implications of this incident were beginning to consume my time and attention, albeit in a different way. I was starting a new job, as the global business columnist for the *Financial Times,* the world's largest business newspaper. My mandate was to write a weekly column about the biggest economic stories of the day. And most turned out to involve the Big Tech behemoths of our era, companies like Google, Facebook, Amazon, and, of course, Apple.

It's no secret that the concentration of market power has been rising in numerous industries over the past few decades, a trend that

has been linked to everything from growing income inequality to slower economic growth to a surge in political populism. But as I settled into my new role at the *FT* and began digging into the financial data, I discovered something rather shocking—that 80 percent of corporate wealth was now being held by just about 10 percent of companies.[1] And these weren't the firms that owned the most physical assets or commodities; they weren't the GEs or the Toyotas or the ExxonMobils. Rather, they were those that had figured out how to leverage the new "oil" of our economy—information and networks.

Many of these new superstars were technology companies. The tech industry provides the starkest illustration of the rise in monopolistic power in the world today. Ninety percent of the searches conducted everywhere on the planet are performed on a single search engine: Google.[2] Ninety-five percent of all Internet-using adults under the age of thirty are on Facebook (and/or Instagram, which Facebook acquired in 2012).[3] Millennials spend twice as much time on YouTube as they do on all other video streaming services combined.[4] Google and Facebook together receive around 90 percent of the world's new ad spending, and Google's and Apple's operating systems run on all but 1 percent of all cellphones globally.[5] Apple and Microsoft supply 95 percent of the world's desktop operating systems.[6] Amazon takes half of all U.S. e-commerce sales.[7] The list goes on and on. Everything in Big Tech goes big or it doesn't go at all—and the bigger it gets, the more likely it is to go bigger still.

And in fact, since the hardcopy version of this book came out, Big Tech has gotten bigger. The global pandemic of coronavirus has changed the way all of us work and live, and the largest tech firms have been the biggest beneficiaries of an overnight shift to all things virtual. Information technology has come to represent a quarter of the value of the S&P, with the five largest tech stocks—Facebook, Amazon, Apple, Microsoft and Google—returning 35 percent be-

tween March and June, even as the rest of the economy sunk into the worst economic crisis since the Great Depression.[8]

One of the few companies hiring was Amazon – they hired an additional 100,000 staff in the midst of the pandemic, grabbing an even greater market share and becoming unquestionably the world's most "essential" retailer.[9] Big Tech companies like Google and Apple helped governments develop contract tracing apps, pushing further into areas like healthcare. Platforms like Uber, which employ mainly gig workers rather than full time staff, were able to offload the cost of unemployment benefits to taxpayers amidst the worst labor market downturn in 75 years.[10] And while Facebook and some other tech firms came under fire for not doing more to curb President Trump's COVID-19 related misinformation[11] around public health, as well as the Black Lives Matter protests, prompting a short-lived ad boycott, they quickly regained steam. Advertisers simply decided that the power of the tech platforms outweighed any moral considerations.[12]

Before and certainly after COVID, the wealth reaped by the digital giants has been extraordinary. The market capitalizations of the five so-called FAANG companies—Facebook, Apple, Amazon, Netflix, and Google—now exceed the economy of France. Measured by users, Facebook alone is larger than the world's largest country, China.[13] But as the big have gotten bigger, the rest of the economy has suffered. Over the past two decades, as Big Tech has grown, more than half of all public firms have disappeared.[14] Our economy has become more concentrated, and both business dynamism and entrepreneurship have declined.[15]

As I wrote and reported, raising concerns about all of this in the pages of the *FT,* I felt growing unease over the things I was hearing from a broad swath of people—workers, consumers, parents, and investors—who felt that Big Tech was putting their livelihoods or even their lives (or those of people they loved) in jeopardy. There

were the mothers and fathers who struggled with tech-addicted children. The workers who'd lost jobs when their businesses went bankrupt trying to compete with Amazon. The entrepreneur who had his ideas and intellectual property stolen by a competitor and lacked the funds to bring his complaint to court. The homeowner who was denied property insurance because the provider's algorithms determined he was too high a risk. Then there were those who simply felt that the entire tech industry wasn't sharing enough of the wealth pie fairly.

And what a pie it is. Big Tech firms are now the richest and most powerful companies on the face of the planet. The inherent desirability of their various products and platforms, coupled with the network effect, in which more users beget still more, and all the data that they harvest as a result, has allowed them to scale to unimaginable dimensions. They have used their size to crush or absorb competitors, to commandeer the personal data of their users, and—in the case of Google, Facebook, and Amazon—to leverage it for their own benefit in the form of highly targeted advertising. They and other Big Tech firms have also offshored much of their exorbitant profit—according to one estimate done by Credit Suisse in 2019, the top ten companies offshoring the most savings, including Apple, Microsoft, Oracle, Alphabet (the parent company of Google), and Qualcomm, had $600 billion sitting in overseas accounts[16]—circumventing the laws and regulations by which ordinary citizens must abide, but which the largest corporations can legally eschew. Silicon Valley has lobbied hard to preserve the tax loopholes that allow all this, bringing to mind the words of economist Mancur Olson, who warned that a civilization declines when the moneyed interests take over its politics.[17]

Certainly, many public officials I spoke with echoed my concerns. Silicon Valley was, after all, built around government—that is, taxpayer—funded innovation. Everything from GPS mapping to touch screens to the Internet itself came out of research originally done or funded by the U.S. Department of Defense, and was later

commercialized by Silicon Valley. Yet unlike many other countries, including a number of thriving free markets such as Finland and Israel, the U.S. taxpayer does not reap a penny of the profits these innovations yield.[18] Instead, these companies were offshoring both profits and labor at the very time that tech titans were asking the government to spend more money on things like educational reform to ensure that the twenty-first-century workforce would be digitally savvy. The consequences are not just economic; by fueling populist discontent with capitalism and liberal democracy, they have high-stakes political ramifications, too.

For someone who'd been tracking the financial industry closely since 2007, the parallels were fascinating. There was a new too-big-to-fail, too-complex-to-manage industry out there, one that had grown like ragweed right under our noses. It had more wealth and a bigger market capitalization than any other industry in history, yet it created fewer and fewer jobs than the behemoths of the past. It was reshaping our economy and labor force in profound ways, turning people into products via the collection and monetization of their personal data, and yet went virtually unregulated. And much like the banking system circa 2008, it was flexing its considerable political and economic muscle to ensure that things stayed that way.

As I began looking more closely at these companies, which were already under fire in the wake of revelations about the 2016 election results, a picture began to form. As we now know, the largest technology platform companies in the world, including Facebook, Google, and Twitter, were exploited by Russian actors to manipulate the results of the 2016 U.S. presidential election in favor of Donald J. Trump. These platforms were no longer just places to search for cheap airfare, post vacation photos, or connect with long-lost family and friends. Instead, they had become tools for manipulating geopolitics and swinging the fate of nations—while enriching their executives and shareholders in the process. The innocence of an earlier era was behind us.

That's an important point to remember, because when it comes

to the tech industry, it hasn't always been all about the money. In fact, Silicon Valley was heavily influenced by the counterculture movements of the sixties, with many entrepreneurs inspired by a vision of a future in which technology held the power to make the world a better, safer, and more prosperous place for everyone. The "digital utopians" preaching this vision adhered to a strict gospel: that information wanted to be free, and that the Internet would be a democratizing force, leveling the playing field for us all. There was a time when the high priests of the Internet were not cited on *Forbe*s list of the richest people on the planet; rather, they were cited across the newly created blogosphere as the creators of Linux and Wikipedia and other open-source platforms, communities built on the assumption that trust and transparency would prevail over greed and profit.

All of which raises the question: How did we get here? How did an industry that had once been scrappy, innovative, and optimistic become, in the span of just a few decades, greedy, insular, and arrogant? How did we get from a world where "information wants to be free" to one in which data exists to be monetized? How did a movement built on the goal of democratizing information come to all but destroy the very fabric of our democracy? And how did its leaders go from tinkering with motherboards in their basements to dominating our political economy?

The answer, as I soon came to believe, is that we reached a tipping point in which the interests of the largest tech firms and the customers and citizens they supposedly served were no longer aligned. Over the past twenty years, Silicon Valley has given us amazing things, from search to social media to portable devices with astounding computing power. We hold today in our pockets more computing intelligence than entire companies had access to just a generation ago. And yet, these modern conveniences have come at a steep price: twitchy technology addiction that saps our time and productivity, the spread of misinformation and hate speech, predatory algorithms targeting the weak and vulnerable, a total loss

of personal privacy, and the accumulation of more and more of the country's wealth by a smaller and smaller subset of society.

What's more, all of these problems—while often spoken about in isolation—are intertwined. There was a single, inescapable problem: a business model based largely on keeping people online as long as possible, and monetizing their attention. That's something that many people in the Valley didn't want to acknowledge. The "attention merchants," as Columbia University academic Tim Wu has labeled Big Tech firms, use behavioral persuasion, troves of personal data, and network effects to achieve monopoly power, which ultimately affords them political power, which in turn helps them hold on to their monopolies.

In the past, Facebook, Google, and Amazon have been given regulatory get-out-of-jail-free cards. After all, the logic goes, Google provides its searches for "free." Facebook is "free" to join. And Amazon cuts prices and gives away products for free. Isn't that *good* for consumers? The problem is that "free" isn't actually free. We don't pay for most digital services in dollars—but we do pay dearly, with our data and our attention. *People* are the resource that's being monetized. We think we are the consumers. In fact, we are the product.

Of course, these are problems many leaders in Silicon Valley don't much want us to land on. Too many powerful people there remain in a cognitive bubble, reluctant to engage fully and transparently with legitimate public concerns, including safeguarding our data, whether artificial intelligence and automation will take too many jobs, our loss of privacy as our location is tracked on a second-by-second basis by thousands of apps, election manipulation, and even what the shiny devices that permeate every aspect of our lives today are doing to our brains. When I ask most techies about these concerns, reactions tend to range from defensive to naïve to clueless or, the worst of all, a patronizing smile or exasperated look that says "You're not a tech insider, and thus you just don't get it."

But it may be the tech executives themselves who don't get it. As John Battelle, who helped launch *Wired* magazine, once put it to me, "The tech community doesn't have a good perspective on itself. We aren't humanists or philosophers. We are engineers. To Google and Facebook, people are algorithms."[19]

It all seems too familiar. I am old enough to have lived through one big boom-and-bust tech cycle, having worked for a high-tech incubator in London from 1999 to 2000, an experience I'll describe in a later chapter of this book. Then, as now, the industry was talking mainly to itself. The hubris we see today has reached levels we haven't seen since the years leading up to the dot-com collapse— only this time around, it's more pernicious, given that companies like Amazon and Apple have become mainstays in just about every household in America. Like the big Wall Street banks, they hold vast amounts of money and power and even greater troves of data. Yet, unlike Goldman Sachs chief executive Lloyd Blankfein, they are not joking when they claim to be doing God's work. Attend any tech conference and you'll quickly learn that many in Silicon Valley still subscribe to the notion that they have made the world more free and open, despite plenty of evidence to the contrary.

The Valley has clearly moved away from its hippie, entrepreneurial roots. Big Tech chief executives are as rapaciously capitalist as any financier, but often with an added libertarian bent. Theirs is a worldview in which anything and everything—government, politics, civic society, and law—can and should be disrupted. As Big Tech critic Jonathan Taplin once put it to me, "Demos—society itself—is often viewed as being 'in the way.' "[20]

So why haven't our political leaders imposed any sensible regulations to hold such instincts in check? Follow the money. Not for nothing that Big Tech now vies with Wall Street and Big Pharma as one of the top spenders on political lobbying. Just as, in the years before the 2008 financial crisis, the world's top bankers dispatched surrogates to Washington, London, and Brussels to live among and lobby the legislators in charge of regulating them, so Silicon Valley

faces have become the most familiar ones in these capitals over the past decade—with Google dispatching so many emissaries to Washington that they needed office space as large as the White House to hold them all.[21]

But despite the efforts of scores of Silicon Valley lobbyists and PR teams, the public worries about the economic and social effects of technology, and those worries are not going away.[22] In fact, they are increasing, as the technology itself spreads more deeply into our economy, politics, and culture. Big Tech has become the new Wall Street, and as such, is the prime target for a populist backlash in a world increasingly bifurcated, economically and socially.

We got a first taste of that last summer, in the midst of the pandemic, as the CEOs of Amazon, Apple, Facebook and Google took the hotseat in the most important and high-profile public hearings around antitrust since the Microsoft case of the 1990s. Led by Democratic representative David Cicilline, and featuring experts like Lina Khan—one of the young antitrust activists featured in this book— the House judiciary antitrust subcommittee hearings provided even more new and damning evidence about some of the problems that I lay out in these chapters. The question now is whether Big Tech will be able to fight this rising tide of concern.[23]

The changes Big Tech has wrought have become one of the most pressing economic issues of our time. Harvard Business School professor emerita Shoshana Zuboff and other scholars have decried the rise of "surveillance capitalism," which is, as Zuboff defines it, "a new economic order that claims human experience as free raw material for hidden commercial practices of extraction, prediction and sales," as well as "a parasitic economic logic in which the production of goods and services is subordinated to a new global architecture of behavioral modification" via digital surveillance technologies.[24] She believes (and I would agree) that surveillance capitalism represents a significant threat to our economic and political systems, as well as a potential instrument for social control.[25] I've also come to believe that curbing Silicon Valley's nefarious side effects will

become "the signature economic issue [for lawmakers] over the next five years, especially as automation increases and they make investments into other areas of the economy," as one staffer for an influential senior Democratic senator has put it to me.

Yet this isn't just a story for the business pages. In fact, Big Tech is at the center of nearly every story in the news today, ranking second only to stories about Donald Trump in the press. Yet while the president will leave us eventually, Big Tech is forever, transforming our existence a little more every day, as the technology itself spreads more deeply into our economy, politics, and culture. It's an alchemy that is just beginning. As amazing as the changes of the past twenty years have been, they are only the first stages of a multi-decade transition to a digital economy that will rival the industrial revolution in terms of transformative power. And by the time it is complete, the consequences are likely to be even more sweeping, changing the nature of liberal democracy, of capitalism, and even of humanity itself.

What Big Tech is doing is, in a word, big. And while I've been critical of many aspects of this digital transformation, there is no denying the tremendous upside as well. Silicon Valley has been the single greatest creator of corporate wealth in history. It has connected the world, helped spark revolutions against oppressive governments (even as it has also facilitated repression), and created entirely new paradigms for invention and innovation. Platform technologies allow many of us to work remotely, maintain distant relationships, develop new talents, market our businesses, and share our views, our creative expression, and/or our products with a global audience. Big Tech has given us the tools to call up a variety of goods and services—from transportation to food to medical treatment—on demand, and generally live in a way that is more convenient and efficient than ever before.

In these and many other senses, the digital revolution is a miraculous and welcome development. But in order to ultimately reap the benefits of technology in a broad way, we need a level playing

field, so that the next generation of innovators is allowed to thrive. We don't yet live in that world. Big Tech has reshaped labor markets, exacerbated income inequality, and pushed us into filter bubbles in which we get only the information that confirms the opinions we already have. But it hasn't provided solutions for these problems. Instead of enlightening us, it is narrowing our view; instead of bringing us together, it is tearing us apart.

With each buzz and beep of our phones, each automatically downloaded video, each new contact popping up in our digital networks, we get just a glimmer of a vast new world that is, frankly, beyond most people's understanding, a bizarre land of information and misinformation, of trends and tweets, and of high-speed surveillance technology that has become the new normal. Just think: Russian election-hacking; hate-mongering Twitter feeds; identity theft; big data; fake news; online scams; digital addiction; self-driving car crashes; the rise of the robots; creepy facial recognition technology; Alexa eavesdropping on our every conversation; algorithms that watch us work, play, and sleep; and companies and governments that control them. The list of technology-driven social disruption is endless—and all of it has appeared in just the past few years. Individually, each item is just a speck in the eye, but collectively it makes for a sleet storm, a freezing whiteout that yields a foggy numbness, the anxious haze of the modern age.

The issue is that periods of great technological change are also characterized by great disruption, which needs to be managed for the sake of society as a whole. Otherwise, you end up with events like the religious wars of the sixteenth and seventeenth centuries, which, as historian Niall Ferguson has outlined in his book *The Square and the Tower,* might not have happened without the advent of major new technologies like the printing press, which eventually brought with it the Age of Enlightenment, but not before it upset old orders in the same way that the Internet and social media have upended society today.[26]

No one can hold back technology—nor should they. But disruption can and should be better managed than it has been in the past.

We have the tools to do so. The challenge for us today is figuring out how to put boundaries around a technology industry that has become more powerful than many individual countries. If we can create a framework for fostering innovation and sharing the prosperity in a much broader way, while also protecting people from the dark side of digital technologies, then the next few decades could be a golden era of global growth.

This book is an attempt to shine a light on the things about Big Tech that should worry us, and what we can do to fix them. I hope that it will serve as a wake-up call, not just for executives and policy makers but for anyone who believes in a future in which the benefits of innovation and progress outweigh the costs to individuals and to society. It's in everyone's interest to believe that we can create that kind of future. Because as we've come to understand all too clearly over the past few years, once people stop believing that a system is good for them, the system falls apart.

Don't Be Evil

A Summary of the Case

"**D**on't be evil" is the famous first line of Google's original Code of Conduct, what seems today like a quaint relic of the company's early days, when the crayon colors of the Google logo still conveyed the cheerful, idealistic spirit of the enterprise. How long ago that feels. Of course, it would be unfair to accuse Google of being actively evil. But evil is as evil does, and some of the things that Google and other Big Tech firms have done in recent years have not been very nice.

When Larry Page and Sergey Brin first dreamed up the idea for Google as Stanford graduate students, they probably didn't imagine that the shiny apple of knowledge that was their search engine would ever get anyone expelled from paradise (as many Google executives have been over a variety of scandals in recent years). Nor could they have predicted the many embarrassments that would emanate from the Googleplex: Google doctoring its algorithms in ways that would deep-six rivals off the crucial first page of its search results. Google's YouTube hosting instructional videos on how to build a bomb. Google selling ads to Russian agents, granting them use of the platform to spread misinformation and manipulate the 2016 U.S. presidential election. Google working on a potential search engine for China—one that would be compliant with the

regime's efforts to censor unwelcome results. Former Google CEO Eric Schmidt leaving his position as executive chairman of Google's parent company, Alphabet, a few months after *The New York Times* revealed he'd been unduly influencing antitrust policy work at a think tank that both his family foundation and Google itself supported, going so far as to push for the firing of a policy analyst who dared to speculate about whether Google might be engaging in anti-competitive practices (something that Schmidt has denied). In May 2019, Schmidt announced he would be stepping down from the Alphabet board as well.[1]

All of this may not exactly be evil, but it certainly is worrisome.

Google's true sin, like that of many Silicon Valley behemoths, may simply be hubris. The company's top brass always wanted it to be big enough to set its own rules, and that has been its downfall, just as it has been for so many Big Tech firms. But this is not a book about Google alone. It is a book about how today's most powerful companies are bifurcating our economy, corrupting our political process, and fogging our minds. While Google will often stand as the poster child for the industry more generally, this book will also cover the other four FAANGs—Facebook, Apple, Amazon, and Netflix—as well as a number of additional platform giants, like Uber, that have come to dominate their respective spaces in the technology industry. I'll also touch on the ways that a variety of older companies, from IBM to GM, are evolving in response to these new challengers. And I will look at the rise of a new generation of Chinese tech giants that is going where even the FAANGs don't dare.

While there are plenty of companies both in Silicon Valley and elsewhere that illustrate the upsides and the downsides of digital transformation, the big technology platform firms have been the chief beneficiaries of the epic digital transformation we're undergoing. They have replaced the industrialism of the nineteenth and twentieth centuries with the information-based economy that has come to define the twenty-first.

The implications are myriad, and I will track many of them,

often via the Google narrative, which has been the marker for larger industry-wide shifts. Google has, after all, been the pioneer of big data, targeted advertising, and the type of surveillance capitalism that this book will cover. It was following the "move fast and break things" ethos long before Facebook.[2]

I've been following the company for over twenty years, and I first encountered the celebrated Google founders, Page and Brin, not in the Valley, but in Davos, the Swiss gathering spot of the global power elite, where they'd taken over a small chalet to meet with a select group of media.[3] The year was 2007. The company had just purchased YouTube a few months back, and it seemed eager to convince skeptical journalists that this acquisition wasn't yet another death blow to copyright, paid content creation, and the viability of the news publications for which we worked.

Unlike the buttoned-up consulting types from McKinsey and BCG, or the suited executives from the old guard multinational corporations that roamed the promenades of Davos, their tasseled loafers slipping on the icy paths, the Googlers were the cool bunch. They wore fashionable sneakers, and their chalet was sleek, white, and stark, with giant cubes masquerading as chairs in a space that looked as though it had been repurposed that morning by designers flown in from the Valley. In fact, it may have been, and if so, Google wouldn't have been alone in such excess. I remember attending a party once in Davos, hosted by Napster founder and former Facebook president Sean Parker, that featured giant taxidermy bears and a musical performance by John Legend.

Back in the Google chalet, Brin and Page projected a youthful earnestness as they explained the company's involvement in authoritarian China, and insisted they'd never be like Microsoft, which was considered the corporate bully and monopolist of the time. What about the future of news, we wanted to know. After admitting that Page read only free news online whereas Brin often bought the Sunday *New York Times* in print ("It's nice!" he said, cheerfully), the duo affirmed exactly what we journalists wanted to hear:

Google, they assured us, would never threaten our livelihoods. Yes, advertisers were indeed migrating en masse from our publications to the Web, where they could target consumers with a level of precision that the print world could barely imagine. But not to worry. Google would generously retool our business model so we, too, could thrive in the new digital world.

I was much younger then, and not yet the (admittedly) cynical business journalist that I have become, and yet I still listened to that happy "future of news" lecture with some skepticism. Whether Google actually intended to develop some brilliant new revenue model or not, what alarmed me was that none of us were asking a far more important question. Sitting toward the back of the room, somewhat conscious of my relatively junior status, I hesitated, waiting until the final moments of the meeting before raising my hand.

"Excuse me," I said. "We're talking about all this like journalism is the only thing that matters, but isn't this really about . . . democracy?" If newspapers and magazines are all driven out of business by Google or companies like it, I asked, how are people going to find out what's going on?

Larry Page looked at me with an odd expression, as if he was surprised that someone should be asking such a naïve question. "Oh, yes. We've got a lot of people thinking about that."

Not to worry, his tone seemed to say. Google had the engineers working on that "democracy" problem. Next question?

Well, it turns out that we did have to worry about democracy, and since November 2016, we have had to worry about it a lot more. And it's impossible to ignore the obvious: As tech firms have become inexorably more powerful, our democracy has become more precarious. Newspapers and magazines have been hollowed out by Google and Facebook, which in 2018 together took 60 percent of the Internet advertising market.[4] This is a key reason for the shuttering of some 1,800 newspapers between 2004 and 2018, a process that has left 200 counties with no paper at all,[5] restricting the supply of reliable information that is the oxygen of democracy.

And given that digital advertising surpassed TV ads in 2017, it's clear that TV news will be the next to go.[6] While cable news may have gotten a "Trump bump" in recent years, the longer term trend line is clear—TV will ultimately be disintermediated by Big Tech just the way print media has been.

But the trouble with Big Tech isn't just an economic and business issue; it has political and cognitive implications as well. Often, these trends are written about in isolation, but in fact they are deeply intertwined. In this book, my goal is to connect the dots—to tell the whole story, which is far bigger than the sum of its parts.

Things Fall Apart: The Political Impact of Big Tech

After it was revealed that the largest technology platforms in the world were exploited by Russian state actors and their private proxies to swing the 2016 U.S. presidential election, it was Facebook, not Google, who took most of the heat. CEO Mark Zuckerberg insistently denied the possibility that nefarious foreign actors could have hacked the platform, which, of course, is exactly what was revealed to have happened. As *The New York Times* later reported, both he and COO Sheryl Sandberg had enlisted a shadowy right-wing PR firm that used underhanded techniques to discredit the Big Tech critic and financier George Soros.

But Google was only marginally more responsive to those first signs of election manipulation in the wake of 2016, and it turned out to have played a major role as well. Its subsidiary YouTube was a host to much of the pre-election hate that was stirred up by actors both abroad (including the same Russian agents that were active on Facebook) and at home.[7]

The 2016 election, Brexit, and the continued role that Russia plays in online disinformation underscore the fact that the very cohesion of society is at stake in this new digital revolution. We are experiencing a crisis of trust in this country; we've lost faith in our institutions, our leaders, and the very systems by which society is

governed. As tempting as it might be to point a finger straight at the White House, this is not all about the current administration. For one, research shows that the declining trust in liberal democracy has coincided with the rise of social media.[8] Part of this has to do with the fake news problem—which academic studies have found is 70 percent more likely to be shared than real news.[9] But the fall in trust also has to do with a sense that the game is rigged, and that there is now an even wider social and economic chasm dividing the haves and have-nots, a divide created not just by Wall Street, but by Silicon Valley, too.[10] In 2008, Washington bailed out the largest and most powerful banks and left ordinary homeowners to take losses. We can argue about the economic rationale for this, but the political result was the emergence of a narrative that the system had been captured by a small group of rich and powerful people. It drove voters on both ends of the spectrum away from the Republican and Democratic centers as a result.

Now, just as the public fury at Wall Street after the 2008 crisis contributed to the populist backlash that led to Donald Trump, the sense that Silicon Valley is building robots instead of factories, and creating paper billionaires instead of jobs, is now fueling extremism on both ends of the political spectrum: from the rise of fascism among white men in red states, to socialism among angry young millennials in the blue states (feelings that are, of course, aired and fanned on the very technology platforms that have helped to fuel them). When you stop to think about it, it's not so surprising that a growing number of experts believe that it was tech-based disruption as much as trade that pushed the American Rust Belt toward Donald Trump.[11]

There is no question that the tech sector has spawned incredible economic bifurcation. A 2016 report by the Economic Innovation Group revealed that a mere 75 of America's 3,000-plus counties make up 50 percent of all new job growth. These are the places where Big Tech looms large: San Francisco, Austin, Palo Alto, and so on. The cities where the large tech firms locate create wealth, but

often become walled gardens.[12] Witness the protests over housing bubbles in San Francisco that have left even the middle class unable to afford homes.

Then there's the fact that election manipulation via platform technology continues to be a huge problem around the world, with Google and Facebook being used to oppress entire populations or even support genocide and murder in countries from Myanmar to Cameroon.[13] There are some who believe technology is making us more vulnerable to fascism.[14] This is one of the reasons that financier George Soros, founder of the Open Society, has now made the study of Big Tech a key area of his philanthropic work.

Born in Hungary, Soros is acutely sensitive to the political implications of this technical revolution, seeing in it the potential for an authoritarian state to harvest our private data and put the knowledge to nefarious uses of the sort predicted in George Orwell's *1984*. In a speech at Davos in January 2018, he noted that Big Tech was divesting people of their autonomy, explaining that "it takes a real effort to assert and defend what John Stuart Mill called 'the freedom of mind.' There is a possibility," Soros said, "that once lost, people who grow up in the digital age will have difficulty in regaining it." He feared the risk of "alliances between authoritarian states and these large, data-rich IT monopolies that would bring together nascent systems of corporate surveillance with an already developed system of state-sponsored surveillance."[15]

He's right to be fearful. China has its own FAANGs, known as the "BATs"—Baidu, Alibaba, and Tencent—that routinely monitor the Chinese people in "smart cities," a deceptively innocent moniker for 24/7 surveillance areas that are wired up with sensors (in fact, Soros gave his 2019 Davos speech on the dangers posed by the Chinese surveillance state).[16] And the technology that powers these cities, it's worth noting, is produced and installed not only by Chinese firms such as Huawei, but also by American companies like Cisco. The resulting information is, of course, part of the Chinese government's own efforts to move ahead in areas like artificial intelligence

that depend on massive amounts of data, or used in the Middle Kingdom's creepy system of "social credits," in which citizens are monitored and given scores that can influence everything from their ability to get loans to where they can live. What isn't garnered from Chinese companies has been taken via partnerships with companies like Facebook (which was, in 2018, revealed to be allowing Huawei and other Chinese firms access to users' nonpublic data).[17]

All of which makes it particularly rich that some Big Tech firms have responded to the growing public concern about privacy and anticompetitive business practices by playing to a long-standing American fear: It's us versus China. Companies like Google and Facebook are increasingly trying to portray themselves to regulators and politicians as national champions, fighting to preserve America's first-place standing in a video-game-like, winner-take-all battle for the future against the evil Middle Kingdom. In the spring of 2018, when Mark Zuckerberg was grilled in front of the U.S. Senate about his company's involvement in election manipulation, an Associated Press reporter managed to take a picture of Zuckerberg's notes, which revealed that if he was asked about Facebook's monopoly power, he had planned to answer that if the company were broken up, America would be at a competitive disadvantage against Chinese tech giants.

As congressional staffers and politicos in Washington have told me, Google has played the national security card, too, quietly using the "U.S. versus China" argument to push back against proposed antitrust action. Yet Google also has a research facility in Beijing, and has contemplated starting a censored version of its search engine to comply with local rules (something that has been put "on hold," as one PR representative put it to me, following an internal revolt among its own engineers, as well as political pushback from the White House and Congress).[18]

Apple doesn't seem to have many qualms about China's "local rules," either. The company may have been protective of user data in the United States, refusing to help the FBI break in to a locked

iPhone during investigations of the 2015 San Bernardino terrorist attack, but in China, things are different. When Beijing forced the company to move all of its iCloud data centers for Chinese customers to the mainland, where they would be run by a local company that doesn't need to comply with U.S. laws about data protection, Apple quickly acquiesced, showing that there are limits to its philosophy of preserving civil liberties when there are true threats to its business model in key markets.[19] Even Netflix, which is in some ways the Teflon FAANG, one that comes in for less criticism because of a subscription business model focused on less sensitive data about our entertainment preferences, has bowed to foreign censors. In early January 2019, it emerged that Netflix had pulled an episode of its popular comedy show *Patriot Act* in Saudi Arabia, after government officials complained about one of the actors on the show criticizing Crown Prince Mohammed bin Salman for his role in the murder of Saudi dissident Jamal Khashoggi and for the Saudi war atrocities in Yemen.[20]

Meanwhile, Big Tech is taking on the role of Big Brother right here in the United States, working with local, state, and national authorities to create what is starting to look a lot like a surveillance nation. Amazon sells facial recognition technology to the police. Palantir, the big data firm cofounded by PayPal entrepreneur Peter Thiel, works with the LAPD to target citizens in an alarming manner that might have been drawn from the dystopian thriller *Minority Report*.[21,22] What else that data might be used for is anyone's guess; the clandestine nature of it all makes it nearly impossible to track. But the result is that, little by little, American democracy has ceded a bit more ground to Big Tech.

REGULATORS ARE FINALLY beginning to turn their attention to these issues. In the summer of 2019, Google, Facebook, Amazon, and Apple came under investigation by the Department of Justice and the Federal Trade Commission. The House of Representatives

antitrust subcommittee is taking action, too, with their anti-trust hearings on Big Tech.[23] But I doubt that the problems will be resolved in time for the 2020 elections—if at all. Despite their professed (and politicized) outrage about Google and Facebook allegedly manipulating their algorithms in favor of liberal politicians, most Republicans are reluctant to take on issues of corporate power. Democrats are split on the issues, and in the wake of COVID-19, the tech industry – and the tech lobby – has gained more economic and political power.

Meanwhile, the titans of Big Tech—who are often accused of being disproportionately liberal (they are really more libertarian)—are busy throwing support to whichever party will best serve their interests. Former Google CEO Eric Schmidt, for example, gives to Democrats and Republicans, is friendly with the Trump administration, and sat on the Department of Defense Innovation Board under both the Obama and Trump presidencies. Schmidt was also a key adviser in digital efforts for both the Obama and Hillary Clinton campaigns, using Google's might to help the former get elected, and exerting policy influence afterward that is worrisome, to say the least.[24]

While this obviously isn't problematic in the same way that allowing the Trump campaign to spread racist dog whistles and fake news during the 2016 elections was, it underscores the point that these companies hold undue influence over our political system as a whole, in ways that undermine public trust.[25] Schmidt is certainly not alone in playing both sides of the political fence. Take a look at the first meeting of Silicon Valley's tech titans with Donald Trump in 2017, and you'll see Sheryl Sandberg, Tim Cook, and many other avowed Democrats leaning in to the president, literally. Despite Amazon CEO Jeff Bezos's ownership of *The Washington Post,* which is often critical of the president, Amazon pushed its facial recognition technology to ICE, the U.S. Department of Homeland Security's Immigration and Customs Enforcement division—the very one that was keeping children in cages at the Mexican border.[26]

Most Democrats and an increasing number of Republicans have been bought out by Big Tech's extensive lobbying. Silicon Valley is onto a good thing, and, naturally enough, they want to keep it going—which is why they've been silently upping their lobbying presence in Washington, both overtly and covertly. If you combine IT, electronics, and platform technologies, Big Tech is now the second largest lobbying group in our nation's capital, right behind Big Pharma, with Google's parent company Alphabet frequently weighing in as the single largest individual corporate lobbyist in Washington.[27]

Google emerged as the most influential corporate lobbyist—and the one to get more face time from the White House than any other corporate entity—during Barack Obama's second term, just as Big Tech was emerging as what criminal investigators term a "subject of interest." That's when Google, Facebook, and other Big Tech firms began to blanket an unlikely assortment of interest groups with money. The American Library Association, the American Association of People with Disabilities, the National Hispanic Media Coalition, and the Center for American Progress, for example, may not seem like natural allies of the tech revolution, but they have supported some of the regulatory loopholes that Big Tech firms enjoy, including rules that shield them from liability for what users say and do online.[28]

These groups might have reason to object to these tech behemoths on various policy issues, but the heavy donations from their Silicon Valley benefactors often garner tacit support, and sometimes outright endorsement. The ALA, for example, unlike many other groups that represent authors or publishers,[29] supported Google in its fight for the right to scan all the world's books,[30] and while it's true that librarians generally support free speech and want books to be widely accessible, it's also true that Google gives the ALA money and has worked closely with them on various indexing and coding projects. Google has even wormed its way into academia, funding numerous research projects that deal with high-tech issues, and in

turn winning favorable commentary from academics who might otherwise be skeptical.[31] In reporting on these issues, I've found it quite difficult to locate completely independent voices on the topics—most experts are funded in some way by either Big Tech firms or their corporate opponents, which goes to show just how thoroughly monied interests have captured the civic debate in the United States. Technologists want to have conversations about economic, political, and social issues on their own terms, or not at all.

The bottom line is that these companies have manipulated the system to ensure that they can continue to operate freely, without the burden of pesky government intervention. The result is that they all too often exist in a universe of their own, not just outside of national borders, but somehow transcending borders altogether. It is in this spirit that Palantir's Peter Thiel and other powerful tech entrepreneurs and investors have suggested that California secede from the Union; Thiel once funded a plan for a network of floating islands that would operate outside of U.S. government jurisdiction, while he and other tech billionaires maintain hideaways in New Zealand.

IN THE MEANTIME, Big Tech itself—like Big Finance before it—has controlled the narrative, using complexity to obfuscate. I cannot tell you how many conversations I have had with fast-talking technologists who try to throw as much jargon against the wall as possible to see what sticks. Yet the simplest questions are often the ones they have the most trouble with. I continue to await a clear answer to the fundamental questions: "Are you playing by the same rules as everyone else? And if not, why not?"

Silicon Valley has always had a core Ayn Rand libertarianism underneath its hippie patina: It justifies their sense of freedom from any costly social responsibility for the downsides of their products and services. As Jonathan Taplin, Jaron Lanier, and other Silicon Valley critics have written, the tech titans may tend to vote left, but