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# Forces of Change: Silicon Valley's Developing Relationship with American Government

Marissa C. Mirbach  
*Claremont McKenna College*

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Claremont McKenna College

Forces of Change: Silicon Valley's Developing Relationship with  
American Government

Submitted to  
Professor Kenneth Miller  
And  
Dean Nicholas Warner

by

Marissa Mirbach

For  
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## Introduction

Welcome to the place formerly known as The Valley of Heart's Delight. Once suffused with the scent of apricots from its bountiful orchards, the region roughly bounded by San Francisco to the North and San Jose to the South is the womb for the planet's most disruptive technologies. This is Silicon Valley.

David Howell, of the U.S. Geological Survey in Menlo Park, thinks it is the earth that is different around here. He muses, "Maybe people who come to the Valley are predisposed to be a certain way or maybe the land does something- it's a chicken-and-egg thing. But you live your life here with no sense of permanence. In the East, the Appalachians are bedrock; you were rooted in them, secure. Out here, you wake up every day knowing the whole thing could come crashing down in a moment. It produces anxiety, but also a subliminal force that drives people to keep over achieving."<sup>1</sup>

Whether it is the region's history of stunning wealth creation, its unique concentration of entrepreneurial people or the physical environment itself, there is definitely something uncanny about Silicon Valley. And whatever the difference is, it is intensifying. As the tech industry in Silicon Valley increases in population and wealth, it is also growing in influence, both nationally and globally. This influence is reaching across the plains and all the way to Washington D.C., where voices with money are always heard.

Silicon Valley's sharply increased political influence over the past decade has, for the most part, been accepted without critical academic examination. This increase

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<sup>1</sup> David A. Kaplan. *The Silicon Boys and Their Valley of Dreams*. New York City: Harper Collins, 2000, 27.

ought to be studied closely, from its earliest stages, to the blossoming it is experiencing today. I am making my contribution to what I believe should be an ongoing effort.

I aim to amalgamate what is available on the history of Silicon Valley's political development and engagement in government up until the present, and predict how it will advance. I chronicle a brief history of Silicon Valley, its evolution as an influential industry, and certain transition points in its growth to set the stage for the modern day. I then examine three key domestic issues that bring Silicon Valley and government together: education, immigration, and encryption.

I narrow my focus to these three issues so I can provide an up-close, detailed look at three facets of this multi-dimensional relationship: The Valley has the upper hand in education, because it is the master of technology that enables quality improvements and cost reductions in education. It benefits by selling education technology to schools, and even starting schools on their own. Immigration is more challenging for Silicon Valley, because the Valley's agenda to gain ultra-talented employees is bound by the larger, more contentious domain of the national immigration reform debate. In order to achieve its ideal outcome, it will need to strengthen its political presence. And because most Americans side with the tech industry regarding privacy and encryption, the issue provides an opportunity for Silicon Valley to flex its muscles and exert influence over the creation of privacy policy creation.

"Tech industry" is not entirely synonymous with "Silicon Valley"- notable companies like Amazon and Microsoft are located outside of the Bay Area. And likewise, Silicon Valley interacts with government outside of Washington D.C., on state and local levels. But politically, the tech industry's voice speaks from Silicon

Valley, and the relationship between D.C. and Silicon Valley is the most easily definable. Equating “Silicon Valley” to “tech industry” and “D.C.” to “government and politics” simplifies the discussion.

In the dramatic two-person play between D.C. and Silicon Valley, the latter comes out looking like a teenaged babysitter: earnestly taking on a new position of power and commanding obedience, without self-awareness of its own naiveté. Silicon Valley presents a fascinating mix of youthful inexperience and bravado, with equal parts self-interest and idealism.

This cocktail of conflicting goals and limited self-awareness makes the Valley more likely to impact certain issues more than others. It will continue to have a louder voice in policy creation, particularly on the type of problems that can be substantially alleviated with technological solutions, like education. And it will continue to have trouble achieving its goals in purely political areas, like immigration. As it spends more money in Washington, its interests will be more effectively represented. But it will never have as strong of a voice as it could, because Silicon Valley is too attached to its own ideology. Refusing to make long lasting alliances and remaining an independent agent is in keeping with Silicon Valley philosophy, but does not result in greater effectiveness in the arena of politics.

Every industry is self-interested, but what makes Silicon Valley unique is its duality: its belief it can create a new and better world in its own image, and serve its selfish interests at the same time.

This provides a unique challenge to the world of politics, which is accustomed to working with more one-sided industries like oil, pharmaceuticals or agriculture. As the tech industry gets bigger and richer, it will be crucial to understand the nuances of the Silicon Valley-D.C. relationship, and where it might go in the future.

## 1. A Brief History of the Tech Industry

Stories about Silicon Valley usually do not start at the beginning. Journalist David Kaplan writes, “Silicon Valley doesn’t care much for its own history, high-tech or otherwise.”<sup>2</sup> Kaplan, Tom Wolfe and others have written chronological histories of the region, but these are not considered required reading for the current generation of techies. They read *The Lean Startup* and *Jobs* instead. Ambitious young people who flock to the Valley to try their hand at the modern Gold Rush know practically nothing about the origins of the tech industry. They feel they owe nothing to their predecessors, and care not to honor them. They are here for the Next Big Thing.

They see the success of the Valley as a product not of man, but of the entrepreneurial spirit, and fearlessness in the face of high likelihood of failure. This fearlessness can exist, in part, because techies do not keep track of what happened in the past.

To understand Silicon Valley, and the development of its unique political life, we *must* start in the past. The past began with the apricot orchards, farms and canning operations, and the top-tier university nestled between them. Leland Stanford Junior University, established in 1891, was a fledgling and growing center of engineering innovation. The first startup spawned from Stanford’s electrical engineering school was The Federal Telegraph Company. Frederick Terman was one of the most famous alumni of Federal Telegraph -- he is considered by many to be the “Father of Silicon Valley”. Graduating from Stanford in 1920 with a chemistry degree, he kept with the

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<sup>2</sup> Kaplan, 29.

California intellectual tradition of the era by going back East to MIT for his Ph.D. in electrical engineering.

While visiting the West Coast, he contracted tuberculosis, and, fortuitously for the history of the Valley, was forced to stay. He was hired in 1924 to lead a radio communications lab for the Stanford engineering department, and he spent his career nurturing young talent. Terman fought against the fact that so many of his best students left Palo Alto after graduation and went into “exile in the East”, because there were no opportunities nearby.<sup>3</sup> So he supported engineers, exposing them to local businesses, and encouraging them to start their own.”

Terman’s greatest success story involved two of his students: Bill Hewlett and David Packard. Hewlett-Packard’s history is the classic Silicon Valley startup narrative that we have grown familiar with: two cofounders, one the geeky engineer (Hewlett) and the other the salesman (Packard), who became friends, hit on a golden idea, start working out of a garage in the Bay Area, and soar to unimaginable heights. The two became friends at Stanford in the early 1930’s. Though Packard was on the football team and Hewlett was an electrical engineer, they bonded over their enthusiasm for ham radio. Terman mentored and encouraged the young men, as they discussed launching “some kind of radio business someday.”<sup>4</sup>

Both left California after graduating to live on the East Coast, but, dissatisfied, returned after a few years to go into business together. In 1939, they officially named themselves Hewlett-Packard (flipping a coin to decide whose name would be listed first) with \$538 in capital. They were contracted to make audio oscillators, mostly by

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<sup>3</sup> Kaplan, 23.

<sup>4</sup> Kaplan, 35.

customers Terman recommended. Terman invested his own money in the company, and eventually sat on HP's board of directors.

By the end of 1939, their first year, HP had already achieved profitability. They would continue to grow into one of the most successful and powerful companies in the Valley. As their company graduated from the garage, their offices and plants developed a culture that provided a stark contrast with classic East Coast formality. Their unconventional management style set the precedent for what is considered today standard procedure in the tech world. "Management by walking around" was the credo. Goals were set and individuals were left to do their jobs. HP established profit-sharing long before it was fashionable in the Valley."<sup>5</sup> This was called "The HP Way", formalized into a book on management by the two founders later in life. This new type of management encouraged innovation, collaboration and risk-taking, and created an environment where failure was not penalized.

However, the tech industry was certainly more traditional back then than the liberal bastion it is known as today. Intel and Hewlett Packard and other hardware companies, their employees all products of the 1950's, were still "conservative, nine to five Republicans."<sup>6</sup> People who worked in Silicon Valley had moved away from some East Coast values, but not all.

Silicon Valley's developmental momentum, set off by the success of HP, continued in the aftermath of World War II. Terman sought government defense contracts for the region. Varian Associates, IBM, G.E., and NASA all set up offices and research labs nearby in the newly created Stanford Industrial Park. These tech

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<sup>5</sup> Kaplan, 33.

<sup>6</sup> Kaplan, 93.

giants all settled next to each other, mostly in Mountain View or Palo Alto in the Industrial Park.

The physical proximity created a culture of collaboration as well as intense competition, and employees moving from company to company were not uncommon. The HP Way spread from employee to manager, office to office, until it became the foundation of a new type of company culture. In Silicon Valley's phrasebook, number one is "fail fast, fail often." This sense of doggedness and urgency is the lifeblood of the region, both at work and in the community.

The next generation of tech leaders, that of the famous Homebrew Computer Club and Steve Jobs and Steve Wozniak, sparked a new wave of change in the Valley. The Homebrew Computer Club was a collection of hobbyists, using microprocessors to build their own personal computers. Jim Warren, one of the early Homebrew members says, "The main characteristic of [members] was a willingness to share with each other -- standing on each other's shoulders rather than each other's toes. We were part of the late 1960's -- hippies, anti-war, members of the Free Speech Movement that was going to fix all the problems of the world, even if it took a year or two."<sup>7</sup>

Steve Jobs and Steve Wozniak were members of the Homebrew Computer Club, and it was there that they unveiled their first Apple Computer. They were both eccentric: Wozniak was a geeky prankster, and Jobs was a vegetarian, Reed College dropout who had wandered around India before coming home to Palo Alto to work in technology. They followed in Hewlett and Packard's footsteps, starting their company in a suburban garage and eventually going public in 1980 with, "the most spectacular

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<sup>7</sup> Kaplan, 93.

high-tech IPO since God took Earth public.”<sup>8</sup> Jobs, Wozniak and their contemporaries are the closest ancestors to the ambitious idealists that are satirized and admired today.

In the 1990’s, responding to the impetus of the growth of the Internet, the tech industry took off in an even more dramatic way than its earlier inflections. Joint Ventures Silicon Valley, a research institute that tracks growth in the area, published the staggering numbers: From 1992 to 1996, the tech industry added 3,100 new businesses, 230,000 new jobs, and \$2.7 billion of venture capital was pumped through the area. The biggest IPO of the era was Netscape, which increased its value from nothing to \$2.2 billion overnight.<sup>9</sup> Journalist Sara Miles writes that these seismic shifts in the tech industry gave birth to the Internet Era. “Newsweek would crown 1995 ‘the Year of the Internet,’ and over the next five years the Web would transform not just computer technology but banking and finance, Wall Street, the media, retail shopping and, inevitably if more slowly, politics.”<sup>10</sup>

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<sup>8</sup> Kaplan, 100.

<sup>9</sup> *2015 Silicon Valley Index*. Joint Venture Silicon Valley: Silicon Valley Institute for Regional Studies. Jointventure.org. January 2016. <https://www.jointventure.org/images/stories/pdf/index2015.pdf>.

<sup>10</sup> Sara Miles. *How to Hack a Party Line: The Democrats and Silicon Valley*. New York: Farrar, Straus and Giroux, 2001, 9.

## **2. The Place Without a Past: Silicon Valley Today**

Names like Terman, Hewlett, Packard, Noyce, Jobs and Wozniak shaped Silicon Valley's cultural and industrial geography, but what does the world that they created look like today?

Numbers published by Silicon Valley Institute for Regional Studies in their annual Silicon Valley Index illustrates that, as the report describes, "The world's hottest regional economy keeps getting hotter."<sup>11</sup> Its growth has not ceased, but that growth puts a burden on existing systems, not built to withstand the increasing weight of today's population size, diversity, wealth and income disparity. "This kind of growth," writes Russell Hancock, President and CEO of the Institute in the Index's introduction, "is a thing to celebrate, surely. But there are perils associated with prosperity, and anybody trying to navigate their way around the region feels it... Most vexing of all, the growth is uneven."<sup>12</sup>

### ***Who Lives in Silicon Valley?***

The technology industry shapes the population of the Valley in fundamental ways. The direction is to a global, well paid and increasingly tightly packed population. Today, Silicon Valley is home to 2.97 million people, of whom 1.8 million are adults earning an average of \$116,033 annually, about double the national average of \$53,657.<sup>13</sup> 17,693 immigrants moved to the area in 2015 alone. These immigrants come from mostly Mexico (21%), China (14%), other parts of Asia (12%) and the Philippines, Vietnam and India (11% each). Silicon Valley has an almost

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<sup>11</sup> 2015 Silicon Valley Index, 3.

<sup>12</sup> Ibid.

<sup>13</sup> Luhby, Tami. "Typical American Family Earned \$53,657 Last Year." CNNMoney. September 16, 2015. Accessed April 12, 2016. <http://money.cnn.com/2015/09/16/news/economy/census-poverty-income/>.

three times higher population of foreign-born residents at 36.8% versus the country's overall 13.1%. The population self-identifies as 36% white, 31% Asian, 26.5% Hispanic and Latino, 2.5% Black, and 4% Multiple or Other.<sup>14</sup>

As the tech industry has grown, the wage gap across gender and racial lines has steepened inequality levels. White workers continue to earn \$40,000 more annually than black employees and \$44,000 more than Latino employees. And even in one of the wealthiest, highest educated regions in the world, only 59% of 3rd graders scored proficient in reading, and 54% of 8th graders scored proficient in Algebra in 2013.<sup>15</sup> The inequality that exists in the backyard of the tech industry undermines its claims of meritocracy and opportunity creation.

### *Defining the Tech Industry within the Valley*

What *is* the tech industry? Peter Thiel, Silicon Valley visionary and co-founder of PayPal, says, "Technology, boiled down, is that which is changing. When the radio was first developed, the radio was technology. When cars and airplanes were developed, those were technology too. Today, technology is defined narrowly as information technology."<sup>16</sup> The Merriam-Webster Dictionary defines information technology (IT) as, "The technology involving the development, maintenance, and use of computer systems, software, and networks for the processing and distribution of data."<sup>17</sup> Broadly speaking, this is the type of technology that drives the Valley, and it is still developing and changing rapidly.

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<sup>14</sup> 2015 Silicon Valley Index, 11.

<sup>15</sup> Henton, Kaiser and Helm.

<sup>16</sup> Peter Thiel. "A Conversation about Entrepreneurship and Education." Lecture, A A Conversation about Entrepreneurship and Education, Claremont McKenna College Athenaeum, Claremont, California, March 11, 2016.

<sup>17</sup> Gove, Philip Babcock. *Webster's Third New International Dictionary of the English Language, Unabridged: A Merriam-Webster*. Springfield, MA: G. & C. Merriam, 1961.

The numbers paint the picture of the industry's hold on the Valley: 26% of jobs and 33% of regional output in 2014 came from "innovation industries", according to The Silicon Valley Competitiveness and Innovation Project Report. Innovation industries, defined by the Project, are "comprised of companies that research, develop and/or scale new technologies, uses and processes, or support the development of startup companies." Though a little less than one third of the regional population is directly employed in the technology industry, the report estimates that five service jobs are created elsewhere in the economy for every individual tech job (two out of five in skilled service jobs like doctors, dentists and teachers, and three out of five requiring less than Bachelor's education, like cab drivers, waiters and landscaping crews.)<sup>18</sup> Nowhere in the country comes close to the saturation of tech jobs than Silicon Valley at 26% -- the next highest runners-up are at 18% (Boston), 16.5% (Seattle), 16.4% (Austin) and 15% (Southern California).

The pervasiveness of IT gives the region distinctive culture that reflects the day-to-day reality of working with technology. The heart-poundingly fast pace of work life reflects how quickly technology products themselves change. As Peter Thiel describes it, one of the most appealing aspects of the Valley is that it is one of the last places where "the frontier still exists."<sup>19</sup> The heights technology can reach are still nowhere in sight, which creates an environment of heady excitement and commitment to progress at any cost.

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<sup>18</sup> Doug Henton, Janine Kaiser, and Kim Held. *Silicon Valley Competitiveness and Innovation Project*. Silicon Valley Leadership Group and Silicon Valley Community Foundation. Silicon Valley Competitiveness and Innovation Project. January 1, 2015. Accessed March 5, 2016. [http://svcip.com/files/SVCIP\\_2015.pdf](http://svcip.com/files/SVCIP_2015.pdf),10.

<sup>19</sup> Thiel.

Because progress feels so attainable and constant, Silicon Valley technology workers are entirely immersed in their jobs. Thiel says, “One of the best parts of Silicon Valley is the focus on substance. People are thinking about how they can solve very specific problems, rather than creating their identity.” In other words, people in Silicon Valley come to define themselves by what they are making, what they are working on, rather than an intangible sense of identity.

Tech workers often wax poetic about the way that the tech industry mentality will solve America’s problems. An evangelical tone is endemic in Silicon Valley rhetoric. John Doerr, senior partner at Kleiner Perkins Caufield Byers (KPCB), a major venture capital firm in Palo Alto, often speaks about the New Economy. “You hear the conventional wisdom across the country that the American dream is over,” he preaches. “I have a problem with that. Look at the four pillars of the New Economy—microchips, PCs, the Net, genomics. Forty percent of GDP growth is from technology in the Valley. We have unemployment under 3 percent, high wages, every segment is moving up!” He says, “Silicon Valley is a state of mind,” which Doerr believes can be exported around the country and the globe.<sup>20</sup>

Google’s motto, “Do no evil”, and Facebook’s “Move Fast and Break Things,” sound more like Bible verses than the mission statements of competitive for-profit companies. Certainly, wealth creation, increased productivity, better communication between people, and improvements to banal aspects of daily life can be considered, with some stipulations, as positive contributions to the global economy and society. But Silicon Valley takes it farther than that, often considering itself the answer to the world’s greatest problems.

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<sup>20</sup> Kaplan, 191.

Those within the community celebrate lofty idealism as a means to make the world *even* better than it has already made it, and continue on a positive trajectory. The HBO show *Silicon Valley*, mocking the tech community's obsession with "changing the world," features a satirized version of the TechCrunch Disrupt competition, where fledgling startups present their ideas for a chance to win funding. The scene includes clip after clip of presentations by startups that are going to revolutionize... everything. "We're here to revolutionize the way you report bugs on your mobile device!" says one. "We're making the world a better place through [our] algorithms," says the next. "We're making the world a better place through software designed algorithms for cloud storage,"<sup>21</sup> says the next. And so on

One of the wealthiest men in the Valley and tech's playboy, Larry Ellison, founder of Oracle, is very frank about his motivations for "changing the world." "Of course I'm doing this for myself," he says. "I have a hard time with all the hypocrisy here -- everybody's doing everything for the other guy, there's no self-interest. It strains credulity." What is his motivation for supporting philanthropic initiatives to provide computers to children? "That would mean I changed the world. It would say something about *me*. I do everything for my own happiness, but the best way to pursue happiness is to do something for others. It's this nasty little trick."<sup>22</sup> Whatever the motivation, the altruistic undercurrent runs deep in the Valley's philosophy.

Author of *To Save Everything, Click Here: The Folly of Technological Solutionism*, Evgeny Morozov highlights non-economic cracks in the foundation of Silicon Valley's change-the-world mentality. In his view, technologists are Machiavellian -- treating people like rats in a maze, valuing the "greater good" over

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<sup>21</sup> Clay Tarver and Mike Judge, writers. "Proof of Concept." In *Silicon Valley*. HBO. May 18, 2014.

<sup>22</sup> Kaplan, 150.

the individual. He discusses some of the new methods that technologists are employing to solve social problems like obesity or recycling, including “gamification”-- sharing activities and staging competitions within social networks -- and sensors that turn all of our devices into “smart” devices (smart forks that can track if we are eating too quickly, smart umbrellas that warn us if it might rain, and so on.) He says, “It used to be that we wanted people to engage in behaviors like recycling because we thought that that was part of global citizenship... Now, with the proliferation of this new thing I call problem-solving infrastructure, it became possible to bypass that moral register and appeal to people as consumers and gamers... and basically bypass the moral and ethical considerations all together.”<sup>23</sup>

On another level, he says, this becomes an easy out for policy-makers, who have begun to allow tech companies to “solve problems” in this way, without tending to the causes of a particular problem. “It’s one thing to tell citizens that they need to walk more, and now we have the kind of self-tracking apps to monitor whether they are walking more or not. It’s a very different kind of intervention to actually go and investigate why they are not walking more. It might be that they are not walking because there is nowhere to go except for the mall and the highway, because the infrastructure is missing.”<sup>24</sup>

Technology can create solutions for people to self-regulate and can be very effective given the right conditions. But as Morozov points out, Silicon Valley style solutions are often un-nuanced. The availability of big data allows problem solvers to

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<sup>23</sup> “To Save Everything, Click Here: The Folly of Technological Absolutism.” Interview by Joanne J. Myers and Evgeny Morozov. Carnegie Council for Ethics in International Affairs. April 24, 2013. Accessed October 1, 2015.

[https://www.carnegiecouncil.org/studio/multimedia/20130412/transcript.html/\\_res/id=sa\\_File1/To\\_Save\\_Everything\\_Click\\_Here.pdf](https://www.carnegiecouncil.org/studio/multimedia/20130412/transcript.html/_res/id=sa_File1/To_Save_Everything_Click_Here.pdf).

<sup>24</sup>Ibid.

look at correlations and ignore causalities, but it is often the causalities that must be examined in order to solve major social issues. This theme emerges throughout Silicon Valley's involvement in policy-making. The solutions presented often treat problems without completely understanding the foundational issues that create the problems in the first place.

Regardless of whether or not one approves of the peculiar culture of Silicon Valley, one cannot deny that its influence on the world is significant and growing. The 2016 US Tech Overview Report shows just how financially and behaviorally significant: the tech industry makes up approximately 7.1% of the overall GDP, and 11.6% of the private sector payroll. In 2015, it added 200,000 jobs, and employs more than 6.7 million people.<sup>25</sup> 85% of American households own computers, and only 15% of Americans do not use the internet (mostly those 65 and older).<sup>26</sup>

The country cares about Silicon Valley, and what it collectively desires and believes, more than it ever has before. That's because now, all American lives are touched by technology. So much so that people in other economic sectors strive to emulate the tech industry's success by expropriating some of its unique style. Silicon Valley continues to grow in wealth and centrality to the way the country and the world operate, becoming a part of the nervous system of our society. As a result, its general well-being and sustained performance becomes more vital for the rest of the country to maintain. And this is the point at which Silicon Valley and D.C. intersect.

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<sup>25</sup> "Cyberstates 2016." CompTIA. March 1, 2016. Accessed April 11, 2016. <https://www.comptia.org/resources/cyberstates-2016>.

<sup>26</sup> Monica Anderson and Andrew Perrin. "15% of Americans Don't Use the Internet. Who Are They?" Pew Research Center RSS. July 28, 2015. Accessed April 16, 2016. <http://www.pewresearch.org/fact-tank/2015/07/28/15-of-americans-dont-use-the-internet-who-are-they/>.

### 3. The Valley and Government

Words like “red-tape”, “bureaucracy”, “inefficiency”, “hierarchy”, “tradeoffs” and “rules” are practically swear words in Silicon Valley. These are also words used to describe our government. The tech industry has traditionally been turned off by D.C.’s pace and values, and has avoided interaction as much as possible (except for when they are selling products to the government). But as the tech industry has become more and more profitable and influential, and as its desire to influence domestic issues grows, its interactions with government have increased by necessity. Though the level of engagement in politics has been increasing steadily since the dawn of the microprocessor, over the past few years in particular, one can observe a distinct uptick in awareness of and interest in politics based on the amount of money spent.

The thriving Silicon Valley economy has attracted attention and scrutiny worldwide, and the government has noticed. Over the past decade, tech industry has been the subject of more regulations by the federal government -- Bradley Tusk, “regulatory fixer” (consultant) for Uber and other tech companies says, “The amount of legal battles is going to increase every year because every company is tech enabled in some way.”<sup>27</sup> Forbes writer Alex Konrad distills Tusk’s message to the tech industry in 2016: “You can’t keep eating the world without pissing people off.”<sup>28</sup>

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<sup>27</sup> Konrad, Alex. Forbes. December 22, 2015. Accessed April 13, 2016.  
<http://www.forbes.com/sites/alexkonrad/2015/12/22/top-10-regulatory-battles-in-tech-for-2016/#2ad7b918557f>.

<sup>28</sup> Ibid.

In the past decade, the amount of federal legislation related to technology regulation has grown, and Microsoft, Apple, Google, Amazon, Apple, Intel, Adobe, Intuit and many others have all been subject to antitrust cases. The negative attention it is receiving prompts the tech industry to work harder to protect its own interests in government by increasing its presence in D.C.

Going in the other direction, east to West, more politicians have also begun attempting to ally themselves with the region, making Silicon Valley a must-visit spot on the campaign trail. This is demonstrated by the rising amount of political contributions that tech companies have made. The Internet industry specifically spent \$11.1 million in 2014 for the midterm elections; more than triple what it spent in 2010. The electronics manufacturing and equipment industry, too, upped their political donations, from around \$10 million from 1994 to 1996, to \$29.6 million in 2014.<sup>29</sup>

### ***Political Ideology***

The growth of the tech industry's presence in Washington poses a challenge to the Silicon Valley's large collective ego. All industries are self-interested, but few seem as universally self-important and smug as the tech industry. Journalist David Kaplan compares the way that Hollywood and the tech industry interact with government: "Sure, *Titanic* taught us 'timeless lessons about human nature...' but unless you're James Cameron, you know it's just a movie. In Silicon Valley, things are a bit more grandiloquent... There are the giddy comparisons to the Mesopotamia of antiquity, Florence in the fifteenth century, Paris in the Twenties..."<sup>30</sup> More so than other industries, when tech comes to the table, Kaplan writes, they expect politicians

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<sup>29</sup> "Electronics Manufacturing & Equipment." Opensecrets RSS - Center for Responsive Politics. Accessed April 13, 2016. <https://www.opensecrets.org/industries/background.php?ind=B12>.

<sup>30</sup> Kaplan, 16

to recognize the importance of their issues, and prioritize their needs. This ego-based expectation cuts both ways -- it makes Valley players feel they can do anything, fix anything and simultaneously can fuel disillusionment with political participation, with a resulting preference for avoiding government wherever possible.

Silicon Valley at times appears to believe that it is God's gift to fill-in-the-blank: the economy, politics, the transportation industry, the dating world, etc. It forgets that it is competing with other interests that have a stake in political negotiations. And it is not always as welcome to take a seat at the political table as it expects to be. It is shocking for those immersed in the tech world to realize that not everyone believes that technology, and the Silicon Valley way of life, will be the answer to all of the world's problems. George Packer, New Yorker journalist, writes: "When financiers say that they're doing God's work by providing cheap credit, and oilmen claim to be patriots who are making the country energy-independent, no one takes them too seriously—it's a given that their motivation is profit. But when technology entrepreneurs describe their lofty goals there's no smirk or wink." He quotes one young entrepreneur describing his peers, saying that, "many see their social responsibility fulfilled by their businesses, not by social or political action... It's remarkably convenient that they can achieve all their goals just by doing their start-up.... It isn't cynicism—it's arrogance and ignorance."<sup>31</sup>

Packer continues with an anecdote about when Barack Obama visited a high tech company, and one employee declined to leave his desk to see the President speak. He explained, "I'm making more of a difference than anyone in government could possibly make."<sup>32</sup>

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<sup>31</sup> Packer, George. "Change the World." *The New Yorker*. May 27, 2013. Accessed April 16, 2016. <http://www.newyorker.com/magazine/2013/05/27/change-the-world>.

<sup>32</sup> *Ibid.*

Despite the disdainful view that the tech world takes of politics, Silicon Valley has never been *truly* apolitical. Collaboration with the federal government defined a part of the ethos in the early days of the Valley. The fact that the government was Silicon Valley's biggest customer is an often forgotten fact. Steve Blank, entrepreneur, Stanford professor and creator of the *Secret History of Silicon Valley* blog, says that though most people in the Valley believe in a "creation myth in which the semiconductor fabs sprang from orchards in one rapid evolutionary swoop," most of the early tech companies' original seed funding came from the CIA and the military<sup>33</sup>. This alliance prevented the tech industry from ever being truly apolitical. And it was not notably liberal, either, until the advent of venture capital investing in the late 1950's and 1960's.

Some observers attempt, inaccurately, to characterize tech's political participation by examining and extending the industry's general philosophies. Peter Thiel says, "Philosophically, the default in Silicon Valley is libertarian. We trust people to act independently."<sup>34</sup> The Valley values a hands-off approach, particularly amongst its own. It strongly emphasizes both the importance of competition and growth, and a deep disdain for regulation. The libertarian approach to business management gives Silicon Valley a reputation for having libertarian political preferences. But the region's dedication to certain social and environmental issues muddles its true political leanings, making it a hybrid of left and right ideologies.

Thiel himself does not actually vote Libertarian -- though he says we should aspire as a society to the ideal of libertarianism, he believes that, realistically, humans are not rational actors. According to Thiel, the existence of bubbles and totalitarian

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<sup>33</sup> Eric Schurenberg. "The Inconvenient History of Silicon Valley." Inc.com. May 30, 2012. Accessed April 16, 2016. <http://www.inc.com/eric-schurenberg/inconvenient-history-of-silicon-valley.html>.

<sup>34</sup> Thiel.

governments prove the necessity of some strength when it comes to central government. Most Silicon Valley voters agree. Libertarian candidates tend to be disappointed when they visit Silicon Valley; though they may be Libertarian in principle, techies are less so in practice. Rand Paul, when he visited San Francisco for a campaign speech, attempted to rally the pro-free-market coalition to his side by demanding, “Who’s a part of the leave-me-alone coalition?” An uncomfortable silence ensued, with a flutter of half-hearted claps from three audience members.<sup>35</sup>

The true political leaning of the region is nuanced and difficult to define. It is a mix of libertarianism and liberalism -- the men and women of the tech industry seem to visualize themselves as superheroes that will save the world, while ardently working to protect and keep what is theirs. Gregory Ferenstein, a tech journalist, writes that the political mentality of the Valley is often misunderstood, and called it “quasi-libertarian” or “peer-progressivism.”<sup>36</sup> He writes, “Silicon Valley is home to a unique political and moral ideology: a pro-business liberalism that often gets mistaken as libertarianism. Philosophically, people who found Internet startups (“founders”) are best described as idealists: They believe that there is always a better solution to problems, a solution that benefits most people and reduces conflict.”

The founders that Ferenstein surveyed also believe that most problems are “information problems”, which can be solved through innovation. They tend to believe that government should run more like a business. Ferenstein interviewed one founder who said, “If [government organizations] were run in more of a private

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<sup>35</sup> Paul Clips. Rand Paul. September 3, 2013. <https://www.youtube.com/watch?v=NZDN7qw6mHE>.

<sup>36</sup> Gregory Ferenstein. "The Politics of Silicon Valley." Fast Company. November 08, 2015. Accessed April 16, 2016. <http://www.fastcompany.com/3053318/the-politics-of-silicon-valley>.

market environment like startups, they could have better ROI and deliver better service for all. Competition is a healthy way to encourage that.”<sup>37</sup>

### *Party Affiliation*

“Silicon Valley, donations-wise and voting-wise, has always been very leftward leaning...” says Mason Harrison, political director of Crowdpac, a startup in Menlo Park that tracks state and federal election data.<sup>38</sup> Silicon Valley is a solid blue block -- in 2012, 83% of employee donations from top tech firms supported Obama for president. They tend to be extremely socially liberal as well. But to define the tech industry as totally on-board with the establishment Democratic Party would be a simplification, as it is the enemy of labor unions on many fronts including high skilled immigration, the taxi industry, and ardent support of union-free charter schools.<sup>39</sup>

Republicans in the Bay Area do exist, though they tend to hide any conservative tendencies related to social or environmental issues. Sean Spicer, the RNC’s chief strategist, said in January 2016, “I think there’s a bit of a perception gap...when you start talking to folks in Silicon Valley it’s really interesting how often you’ll have someone whisper in your ear, “Hey, I’m a Republican.” He says that conservatism is stigmatized in the Bay Area, but that really, the Republican Party aligns much more closely with the tech industry’s position on economics than the Democratic Party.<sup>40</sup> Conservatism is often punished in the tech industry -- in 2014, Mozilla CEO Brendan Eich resigned after he was publicly shamed and ostracized for

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<sup>37</sup> Ibid.

<sup>38</sup> Leah M. Goodman "Who's Silicon Valley Backing for President?" October 26, 2015. Accessed April 16, 2016. <http://www.newsweek.com/clinton-sanders-google-hewlett-packard-rubio-fiorina-387001>.

<sup>39</sup> Gregory Ferenstein. "Silicon Valley Represents An Entirely New Political Category Now - ReadWrite." ReadWrite. November 06, 2015. Accessed April 16, 2016. <http://readwrite.com/2015/11/06/silicon-valley-politics>.

<sup>40</sup> Andrew Keen. "Are Republicans The Party Of Silicon Valley?" TechCrunch. January 7, 2016. Accessed April 16, 2016. <http://techcrunch.com/2016/01/07/are-republicans-the-party-of-silicon-valley/>.

a donation he made in support of Proposition 8, which made gay marriage illegal in California.<sup>41</sup>

Because Silicon Valley is so deeply business-centered, and the region is home to so many millionaires and billionaires, it may seem counterintuitive that the tech industry maintains its liberal ideology. Ferenstein writes that this is because the tech industry actually *thrives* with big government, rather than being stifled by it like Conservative pundits always claim. He explains, “The Internet began in a Defense Department lab, public universities educate a skilled workforce and environmental policies benefit high-tech green industries. The CEO of Uber, Travis Kalanick, is a fan of Obamacare, which helps his entrepreneurial drivers keep their health insurance as they transition between jobs.”<sup>42</sup>

Overall, though they consistently vote Democratic, the citizens of the tech industry are reluctant to side with one party or the other. They prefer to take stances on particular issues and find individual politicians to align with. Mark Zuckerberg has been quoted saying, “I think it’s hard to identify as a Democrat or a Republican, I’m pro-knowledge economy.”<sup>43</sup> This could be considered a naive way of interacting with government. But it could also be a strategic move on the part of the industry as it flexes its political muscles: both parties have a shot at allying themselves with the

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<sup>41</sup>Jon Swaine. "Mozilla CEO Brendan Eich Resigns in Wake of Backlash to Prop 8." The Guardian. April 03, 2014. Accessed April 16, 2016. <http://www.theguardian.com/technology/2014/apr/03/mozilla-ceo-brendan-eich-resigns-prop-8>.

<sup>42</sup>Gregory Ferenstein. "A Lot of Billionaires Are Giving to Democrats. Here's a Data-Driven Look at Their Agenda." Forbes. February 26, 2016. Accessed April 16, 2016. <http://www.forbes.com/sites/gregoryferenstein/2016/02/26/a-lot-of-billionaires-are-giving-to-democrats-heres-a-data-driven-look-at-their-agenda/2/#360e613d6fad>.

<sup>43</sup>Nitasha Tiku. "Why Zuck's "Pro-Knowledge" Politics Are Just More Corporate Bullshit." Valleywag. September 19, 2013. Accessed April 17, 2016. <http://valleywag.gawker.com/ive-always-been-confused-are-people-afraid-to-identify-1350629211>.

Valley's leaders and being touched by its immense wealth. Republicans and Democrats both try to deliver on tech industry requests.

*Increasing Engagement over the Past Decade*

Silicon Valley's first big contemporary thrust into politics came by necessity, when proposed policies threatened the profit-making abilities of the tech industry's public companies. Sarah Miles described the issue in 1996: "Securities-litigation reform isn't generally thought of as an especially burning interest, except for the groups to whom it means everything... Trial lawyers who favored making it easier to sue pitted themselves against executives who feared being held personally responsible if their companies' stock lost value."<sup>44</sup>

The president of the American Trial Lawyers Association, Bill Lerach, put an initiative on the ballot in California in November of 1996, called Proposition 211, which would prevent companies from "indemnifying officers or directors who were found personally liable in investor fraud suits- which directly threatened the personal fortunes of venture capitalists sitting on high tech boards."<sup>45</sup>

Proposition 211 sent John Doerr on the warpath -- "[Lerach] won't get away with this," he said to one of his KPCB partners. "We'll crush him." In Silicon Valley, when Doerr wants something to happen, it happens. But, "in the parallel universe of politics, Doerr's discontent about Proposition 211 didn't even seem to register. A tantrum at Kleiner Perkins meant nothing to the California Democratic Party, which endorsed Lerach's initiative." Doerr's impotence in the political realm shook Silicon Valley awake to the necessity of a more unified political voice.

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<sup>44</sup> Miles, 28.

<sup>45</sup> Ibid.

The fear of Prop 211 led to the creation of the Valley's first ever PAC, the California Technology Alliance. The CTA raised \$40 million (breaking records for the most money spent on a single ballot-initiative campaign) and Proposition 211 was defeated. This had an immensely galvanizing effect on the tech community leadership, who for the first time saw the power and influence that they could have on government. John Doerr announced victoriously after the news broke, "A year ago, Silicon Valley was naive and uninvolved. This community is now politically awake, politically energized and politically concerned."<sup>46</sup>

Doerr may have spoken a bit too soon- the win did create a bump in Silicon Valley's political engagement, but it did not magically transform the region into a major player in D.C.

Michael Miller, former editor-in-chief of *PC Magazine*, says that Prop 211, as a state rather than federal issue, was not nearly as galvanizing as an event four years later: the 2000 antitrust law case *United States v. Microsoft Corporation*.<sup>47</sup> The trouble first started for Microsoft in 1990 when the Federal Trade Commission began investigating the company's possible collusion with IBM in the PC software market. The Justice Department took over the investigation in 1993, and after years of back and forth, filed an antitrust suit against the company in 1998 for violating a 1994 consent decree, abusing its market power to beat out Netscape, its competition in the web browser sphere. Microsoft had been antagonizing Silicon Valley companies like Sun Microsystems and Apple for years from its outpost in Washington State, and Bay

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<sup>46</sup> Tom Abate. "Leaders Say Win Makes Silicon Valley an Emerging Force in State Politics." SFGate. November 6, 1996. Accessed April 16, 2016. <http://www.sfgate.com/news/article/Leaders-say-win-makes-Silicon-Valley-an-emerging-3114819.php>.

<sup>47</sup>Michael Miller. "History of Silicon Valley." Telephone interview by author. April 4, 2016.

Area software companies thoroughly enjoyed the chance to fight their shared enemy with the Federal government on their side.

Miller says, “Prop 211 took place on a state level, but this showed Silicon Valley what the stakes really are when you have D.C. on your side. Microsoft used to be one of those ‘Eh, leave me alone’ companies. This was the turning point, after which tech industry lobbying started to really explode.” Microsoft was not, in the end, broken up by the Federal government, and Netscape did fail, but the case has had a lasting effect on the Valley. It was yet more evidence that the ability to influence politics gave the tech industry an edge.

The deepening relationship between Silicon Valley and D.C. continued over the following decade, particularly in the lead ups to the 2008 and 2012 election cycles. In 2010, POLITICO announced that a “trek to Silicon Valley has become a must-do for D.C. lawmakers seeking to stress their business and tech bonafides...”<sup>48</sup> And on tech’s part, more mid-size companies establishing their own D.C. presence: Netflix’s spending on lobbying went from \$20,000 in 2009 to \$1 million in 2012. Bigger companies like Facebook and Google continued beefing up their own lobbying, spending \$2.6 million and \$14 million in 2012 respectively.<sup>49</sup>

The next time the tech industry united to crusade was in late 2011, to fight SOPA (the Stop Online Piracy Act) and PIPA (the Protect IP Act). These two pieces of legislation were introduced in the House and Senate, respectively, in late 2011. The bills’ causes were similar and noble: to stifle the proliferation of distribution of

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<sup>48</sup> Tony Romm. "D.C. Crowd's Path to Silicon Valley." POLITICO. October 07, 2010. Accessed April 16, 2016. <http://www.politico.com/story/2010/10/dc-crowds-path-to-silicon-valley-043249>.

<sup>49</sup> Casey Johnston. "The Netflix Lobby in Washington Spent \$1 Million in Two Years." Ars Technica. December 27, 2012. Accessed April 16, 2016. <http://arstechnica.com/tech-policy/2012/12/the-netflix-lobby-in-washington-spent-1-million-in-two-years/>.

counterfeited goods, and the distribution and sale of pirated copyrighted movies and music. They were endorsed by Hollywood, had broad bipartisan support and were not viewed as particularly controversial. That is, until the tech industry got involved.

The language and structure of the two bills created the framework for a much more highly regulated Internet. The bills put a lot of power in the hands of copyright owners, who would have been able to make complaints to law enforcement officers any time a website hosted copyrighted content *or* linked to another website that did so. Search engines would have been required to block sites when ordered by a judge.

Tech companies, who are to regulations like cats are to water, were not pleased. One protesting tech company wrote, “Making one link would require checking millions (even tens of millions) or pages, just to be sure that we weren’t in some way impinging on the ability of five Hollywood studios, four multinational record labels, and six global publishers to maximize their profits.”<sup>50</sup> Google warned, “YouTube would just go dark immediately. It couldn’t function.”<sup>51</sup>

On January 18th, 2012, tech leaders facilitated an “internet blackout”. Sites like reddit and Wikipedia shut down for the day, showing visitors anti-SOPA and PIPA messages. The message on reddit’s homepage stated, “These bills provide overly broad mechanisms for enforcement of copyright which would restrict innovation and threaten the existence of websites with user-submitted content, such as reddit.” Google took a less extreme approach, keeping its search engine running but blacking out its logo on the homepage and linking to information about the legislation as well as a petition. Many lesser websites participated as well, totaling 75,000 sites involved.

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<sup>50</sup> CNN Staff. “Websites Blackout in Protest of SOPA.” CNNMoney. January 18, 2012. Accessed April 16, 2016. [http://money.cnn.com/2012/01/18/technology/sopa\\_blackouts/](http://money.cnn.com/2012/01/18/technology/sopa_blackouts/).

<sup>51</sup> Ibid.

This show of force had a stunning effect: 4.5 million people signed Google's petition, and 350,000 emails were sent to representatives via AmericanCensorship.org and SopaStrike.com.<sup>52</sup> The bills were suspended, and effectively killed. This victory, coupled with the increasing wealth of the tech industry, has sped up the political growth of the Valley over the last five years.

The amount of money spent shows a sharp increase of recent engagement, jumping each time the Valley has had to gear up for another fight. According to [opensecrets.org](http://opensecrets.org), Electronics Manufacturing and Internet lobbying grew from about \$62 million in 2000 to about \$165 million in 2014.<sup>53</sup> In the second quarter of 2015, Google spent \$4.62 million on lobbying efforts, making it the third largest corporate lobbyist in the country. Facebook and Amazon both recently increased their lobbying spending, to \$2.60 million and \$2.15 million, respectively.

POLITICO reporter Tony Romm commented, "The sharp uptick in spending reflects the tech sector's evolution from an industry that once shunned Washington into a powerful interest that's willing to lobby extensively to advance the debates that matter most to companies' bottom lines..."<sup>54</sup>

Carl Guardino, CEO of the Silicon Leadership Group, describes the maturity of the tech industry as a political power today: "We're no longer infants when it comes to being engaged in policy, but we are at best in early adulthood. The entrepreneurial mind-set doesn't always initially understand the importance of

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<sup>52</sup> Chenda Ngak. "SOPA and PIPA Internet Blackout Aftermath, Staggering Numbers." CBSNews. December 19, 2012. Accessed April 16, 2016. <http://www.cbsnews.com/news/sopa-and-pipa-internet-blackout-aftermath-staggering-numbers/>.

<sup>53</sup> [opensecrets.org](http://opensecrets.org)

<sup>54</sup> Romm, Tony. "Tech Giants Get Deeper into D.C. Influence Game." POLITICO. January 21, 2015. Accessed April 16, 2016. <http://www.politico.com/story/2015/01/tech-lobby-apple-amazon-facebook-google-114468>.

government, in the positive sense but also the negative: If you're not at the table, you're often the menu."<sup>55</sup>

The development of the relationship between D.C. and Silicon Valley has more depth than just dollars exchanged—after rolling out the Apple Watch, the company's chief technology officer and health product manager visited the House Energy and Commerce Committee to, “provide an overview of Apple's new offerings, demonstrate the new products and discuss how Apple sees this market developing,” according to the invitation to the panel. POLITICO calls this meeting a “rare overture for Apple, a company that's beginning to engage Washington more directly under CEO Tim Cook.”<sup>56</sup> The company intended to familiarize lawmakers with Apple Watch, in order to reduce suspicion of its data-tracking features.

Google, too, has exercised less visible forms of influence, particularly surrounding the debate around the company's dominance (or monopoly, depending on who's side you're on) of the search engine industry. The Washington Post reported a story on Google's covert sponsoring of a forum at George Mason University where tech and legal experts “forcefully rejected the need for the government to take action against Google,” in front of an audience of FTC commissioners, members of Congress and officials of the Justice Department and state attorney general's offices. The Post writes, “The behind-the-scenes machinations demonstrate how Google- once a lobbying weakling- has come to master a new method of operating in modern-day Washington, where spending on traditional lobbying is rivaled by other, less visible

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<sup>55</sup> Melanie Mason. Los Angeles Times. February 28, 2015. Accessed April 16, 2016. <http://www.latimes.com/local/politics/la-me-pol-tech-sacramento-20150301-story.htm>.

<sup>56</sup>Romm, Tony. "Apple Privacy Pitch Hits Hill." POLITICO. September 16, 2014. Accessed April 16, 2016. <http://www.politico.com/story/2014/09/apples-health-privacy-pitch-hits-hill-111033>.

forms of influence,” including backing sympathetic non-profits, advocacy groups, think tanks and research institutions.<sup>57</sup>

Google has also recently opened new offices in Washington D.C., just as hip as the Mountain View offices with a video-game room, nap spaces and several dining areas. Google’s Vice President of Public Policy, Susan Molinari, highlighted the importance of Google’s government presence: “We are at the nexus of Washington and Silicon Valley, and in a lot of ways we find ourselves the interpreters in both directions for the two.” The new space, which is meant to showcase new technology developed by the company for Washington’s ‘influential class,’ allows “people who come in here to get themselves to a place that the message of innovation is problem solving, and it’s told in so many different ways,” she said.<sup>58</sup>

Silicon Valley’s growing influence has been notable during the recent election cycles. In the 2012 election, Silicon Valley outspent other traditional powerhouse industries, including automotive, Hollywood, defense contractors and pharmaceutical manufacturers. According to the Center for Responsive Politics, internet firms, software companies, computer manufacturers and data processors from the Bay Area have contributed \$172 million to federal election campaigns since 2008. This is a 40 percent increase over the previous eight years, indicating a major shift in the attitude

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<sup>57</sup>Tom Hamburger and Matea Gold. "How Google Learned to Stop Worrying and Mastered the Washington Lobbying Game." Washington Post. April 12, 2014. Accessed April 16, 2016. [https://www.washingtonpost.com/politics/how-google-is-transforming-power-and-politicsgoogle-once-disdainful-of-lobbying-now-a-master-of-washington-influence/2014/04/12/51648b92-b4d3-11e3-8cb6-284052554d74\\_story.html](https://www.washingtonpost.com/politics/how-google-is-transforming-power-and-politicsgoogle-once-disdainful-of-lobbying-now-a-master-of-washington-influence/2014/04/12/51648b92-b4d3-11e3-8cb6-284052554d74_story.html).

<sup>58</sup> Stephanie Green. "Google's New Digs in DC Opens to Senators, Dogs." Bloomberg.com. July 16, 2014. Accessed April 16, 2016. <http://www.bloomberg.com/news/articles/2014-07-16/google-s-new-digs-in-dc-opens-to-senators-dogs>.

towards the importance strong ties to Washington<sup>59</sup>. Vivek Wadwha, fellow at the Rock Center for Corporate Governance, says that despite all of the money flowing from the Valley, the spending strategy is not yet as sophisticated as older, more politically savvy industries. He says that tech firms generally want, “freedom from regulations and immigration,” but “there is no single ideology.”<sup>60</sup>

The tech industry and Silicon Valley are hotbeds for ideas and opinions about the way things should work, and techies do want to get involved in policy creation. But they will not ally themselves with one side or the other. Instead, they tend to decide on the policy that they want, and fight for it, hacking their way through the underbrush of regulation or evading political engagement altogether, until someone in politics seizes the opportunity to get on tech’s good side. Different iterations of this are evident in tech’s engagement with policy makers on education, immigration and encryption. Each topic area highlights a specific facet of Silicon Valley’s relationship with tech.

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<sup>59</sup> David Sirota, and Andrew Perez. "Election 2016: Silicon Valley Becomes Major Money Force In Politics." International Business Times. July 16, 2015. Accessed April 16, 2016.

<http://www.ibtimes.com/election-2016-silicon-valley-becomes-major-money-force-politics-2010988>.

<sup>60</sup>Ibid.

#### **4. Education: The Playing Field Tilts West**

The Valley recovered from the burst of the tech bubble at the start of the 2000's. Employees in the tech industry are getting wealthier and achieving more stability, and consequently, some have shifted focus -- from making money to making a difference, (or more often, making money *while* making a difference). If one wants to change the world, education reform is an attractive starting point.

Reformers who come from the business world and go into governmental social programs, like public education, often see their projects through a business world lens. They attempt to rebuild existing inefficient systems, rather than working with what exists to make it better, or at least less bad, incrementally. The revolutionary approach may work well in a business setting, but it ignores a lot of the more complex desires of a teacher or young student "consumer".

Making education reform one of its policy issues is a manifestation of the peculiar Silicon Valley mixture of altruism, ego and profit hunger. Silicon Valley benefits financially as education reformers introduce updated education tools such as iPads, quiz apps and online supplemental learning. And by improving the American

education system, which is based on an untested 19th century Prussian model, and that former Secretary of Education Arne Duncan deemed to be in “a state of real crisis,”<sup>61</sup> has all the trappings of a good deed. So Silicon Valley can make money, make an impact, and receive praise all at once.

Education has a special place in the collective heart of the tech world, for a few reasons. The first is purely self-interest and self-preservation. Professor Annalee Saxenian writes in her book about Silicon Valley’s success, “The greatest long-term threats to the Silicon Valley economy are not simply from Japan (and the rest of Asia)...Closer to home, continued reductions in public funding for California’s educational institutions... jeopardize the rich supply of technical talent and the research base that have historically supported the regional economy.”<sup>62</sup> Silicon Valley wants to make public education work better, because they want to nurture their future talent pool. Another facet of that self-interest is the children of the tech industry’s members themselves. Being well-educated is a great virtue within the tech community, and both the elites and the rank-and-file want to ensure their children are getting a top-notch education.

Some entrepreneurs are also interested in education reform because they see a profit opportunity. Though education is not generally considered to be a growth or high margin industry, there is, in fact, plenty of money to be made for those who can disrupt a traditional industry with a lower-cost alternative to the status quo.

Technology is becoming increasingly central to education itself, and new software

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<sup>61</sup> Chuck, Elizabeth. "US in a 'real State of Crisis,' Education Secretary Says - NBC News." NBC News. October 13, 2013. Accessed April 14, 2016. <http://www.nbcnews.com/news/other/us-real-state-crisis-education-secretary-says-f8C11354527>.

<sup>62</sup> AnnaLee Saxenian. *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press, 1994.

and hardware tailored to meet the needs of schools is a growing market. Many tech industry people advocate for school system privatization via charter schools and innovative private schools, which have the potential to be very profitable.

Google, for example, thinks it is about to make a lot of money from ed-tech, and does not mind talking about it. Google Chromebooks have been a huge hit in schools: the company sold one million Chromebooks to schools in 2014, accounting for one fifth of all laptop purchases made by schools. Google has made a deliberate move into the education space, an application for Chromebooks called Google Classroom. The app allows teachers to set up a virtual classroom, and distribute, collect and grade work through a paperless system.<sup>63</sup>

According to Google Classroom's creator Zach Yeskel, this is the foundation of Google's future forays into education. Chromebooks have been so successful in schools, he says, and Google is working on adapting their services even more to teachers. Google is particularly interested in creating products that will be in the hands of students because "kids will dictate tomorrow's market." Kids, Yeskel says are, "the future. They'll be going into business someday." And, hopefully, will be using Google products.<sup>64</sup>

### *Newark: 'An Expensive Experiment'*

But when they go into education to make a difference, even the stars of the tech industry do not emerge unscathed. Mark Zuckerberg, founder and CEO of Facebook, had little success when he tried to treat the Newark public education system like a startup. Zuckerberg has often been criticized for his lack of sensitivity when it comes to global issues. In his biting article on Silicon Valley culture,

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<sup>63</sup> Issie Lapowsky. "Google Wants to Save Our Schools—And Hook a New Generation of Users." Wired.com. August 13, 2014. Accessed April 16, 2016. <http://www.wired.com/2014/08/google-classrooms/>.

<sup>64</sup> Ibid.

journalist George Packer uses an anecdote from a 2008 interview to illustrate Zuckerberg's hubristic naiveté, when he claimed that Facebook helped turn young Lebanese Muslims away from terrorism because it increased their empathy for Westerners. "[Terrorism] not out of a deep hatred of anyone,' Zuckerberg offered. 'It comes from a lack of connectedness, a lack of communication, a lack of empathy, and a lack of understanding.'" Packer remarked, "Successive U.S. Administrations had failed to resolve the Israeli-Palestinian conflict; perhaps the answer was to get as many people as possible on Facebook."<sup>65</sup>

Starting in 2010, after Facebook's IPO, Zuckerberg and his wife Priscilla Chan began to spend their vast wealth on charitable causes. This theme of well-intentioned naiveté when it comes to social problem solving that Packer described, though, remained. His forays into the philanthropic sphere have been scrutinized and critiqued for the lack of awareness and sensitivity that he exhibits whenever he is outside of the Facebook world.

In *The Prize: Who's in Charge of America's Schools?* Journalist Dale Russakoff investigates Mark Zuckerberg's most publicized act of charity, and its spectacular failure: his \$100 million donation to the Newark Public School District. It began in July 2010, when Zuckerberg met Cory Booker, the mayor of Newark, at a mixer for the rich and famous in Sun Valley, Idaho. Zuckerberg told Booker that he was looking to make a big gift in the education space, and, more specifically, "he was looking for a city poised to upend the forces impeding urban education, where his money could make the difference and create a national model."<sup>66</sup> Booker won him

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<sup>65</sup> Packer.

<sup>66</sup>Dale Russakoff. *The Prize: Who's in Charge of America's Schools?* Boston: Houghton Mifflin Harcourt, 2015, 24.

over, pitching Newark as the perfect place for Zuckerberg to invest. He said to him, “You could flip a whole city!”

Russakoff explains that Zuckerberg had little experience with public schools- he graduated from Phillips Exeter Academy for high school and attended Harvard until he dropped out -- but he was drawn to improving public education because of his wife’s passion for the issue.

She grew up with Chinese-Vietnamese immigrant parents, who worked eighteen hour days to build a better life for their children. It was because of two of her public school teachers, who took an interest in her and drew out her potential, that Priscilla was able to attend Harvard. She was the first in her extended family to go to college. Once at Harvard, she began volunteering at an after-school program for lower-income children. She said, “I was like, ‘Oh my God, these kids are me, except I got a lucky break somewhere along the way and things turned out really well. I should help these kids because this is me and maybe one or two small things can sort of change their trajectory.’”<sup>67</sup>

Chan’s dedication to education equality drew Zuckerberg’s attention, and he began to see it as a systemic economic problem that could be solved by applying the same principles used at Facebook. Russakoff writes, “His hope was to make teaching in an urban school -- one of the most important jobs in America, as he saw it- as attractive to the most talented college graduates as working at Facebook. He couldn’t succeed without having his pick of the best people in the business. Why would it be different for public schools?”

So Mark Zuckerberg continued his talks with Cory Booker, and they ultimately reached an agreement to work together. They planned to not only revitalize

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<sup>67</sup> Russakoff, 26.

education in Newark, but to “develop a model for saving [education] in all of urban America- and to do it in five years.” Zuckerberg agreed to give \$100 million over five years, and Booker was to match that figure. The six-point plan for the money, drawn up by McKinsey pro-bono consultants, included: a new data system to track student progress and hold schools accountable, the introduction of new school models (like charter schools, schools targeted at students with learning disabilities, etc.), a recruitment push for the best available teachers, and a community awareness program to get buy-in from Newark stakeholders. Zuckerberg also prioritized a new labor contract, which would heavily reward teachers with bonuses for improved student results, rather than for seniority. He believed that this would improve the attractiveness of the teaching profession -- “Over the long term, that’s the only way they’re going to get the very best people, a *lot* of the very best people,” he said.<sup>68</sup>

*The Prize* chronicles the way that, despite all of Zuckerberg’s best intentions, his gift did not make Newark a model for the rest of the country. Rather, the proceedings in Newark were an ugly depiction of the dark underbelly of philanthropy and politics. Firstly, the supposed leader of the crusade, Cory Booker, was hailed as a superstar politician in elite circles, but was mistrusted in Newark. He had political ambitions beyond his mayor-ship, and it became obvious that these took precedence over the success of Newark schoolchildren. He was more focused on the photo-ops and the publicity that came with the project than the nitty-gritty that comes with major change. Secondly, the effort to overhaul education did not achieve, or even really attempt to get, community buy-in. The majority of the projects that Booker’s team implemented were top-down rather than bottom up, and overlooked the nuances of the Newark school system that would have been key for success.

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<sup>68</sup> Russakoff, 29.

Hand in hand with this oversight came the insistence on sticking to business principles, and the esoteric language of education reform, rather than putting things in terms that Newark residents themselves could understand. Throughout the duration of the project, school staff expressed, “They felt that the district had been overtaken by a cadre of technocrats, most of them white and commuting from New York, whose vocabulary was rich in education reform buzzwords. Beside ‘transformational’- never incremental- change, they also made it a priority to “move the needle” which meant to achieve measurable progress, usually in test scores.”<sup>69</sup> \$20 million of the gift went to consultants, getting paid about \$1,000 a day, while working on creating contracts that gave teachers bonuses of about \$3,000 a year (but required them to work extra hours and extra days).

The reformers did things like shutting down failing district schools and replacing them with charter schools. Rather than having a revitalizing effect, this angered the community members, who were not consulted, and displaced students from particular neighborhoods, who were then forced to cross gang territory in order to reach their new schools. “Neighborhood schools were part of a delicately balanced ecosystem that served many needs for families,” Russakoff explains, even when those schools were failing.<sup>70</sup>

The example of Newark is a magnified example of the explosions that can result from the collision between Silicon Valley ideals, backed by Silicon Valley money, and public policy. Plastered all around Facebook’s Menlo Park headquarters are phrases like “Move Fast and Break Things” and “Done is Better than Perfect.” The way that money motivates people in the tech world is relatively transparent:

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<sup>69</sup> Russakoff, 125.

<sup>70</sup> Russakoff, 202.

everyone wants to get rich, and they are in competition with each other to make better products, and sell more of them, and make more money.

But the world of public education is not like Silicon Valley. There are often decades of mismanagement and complicated labor contracts and favors owed and local politics to wade through in order to understand the root of the problems in most districts. And in order to create lasting changes, particularly in the country's most underserved neighborhoods, the changes must be deliberated on and agreed to by the community. This means that changes and reforms often are broad, slow and bulky. In other words, public education cannot not respond to pure financial investment the way a startup can. The Newark failure is an illustration of this.

Five years later, Newark has not become a beacon on the hill for public school districts around the country. Despite the widely publicized problems, the experiment did have some positive outcomes. Zuckerberg highlighted, in a November, 2015 Facebook post some good-news statistics on the Newark public school system since their donation in 2010 -- graduation rate has increased 13%, Newark's charter schools rank 2<sup>nd</sup> highest in the nation and "95% of the best Newark teachers stayed in the district." Without directly addressing the mountains of criticism his philanthropy has received, he writes, "No effort like this is ever going to be without challenges, mistakes and honest difference among people with good intentions. We welcome a full analysis and debate of lessons learned. But it is important that we not overlook the positive results."<sup>71</sup>

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<sup>71</sup> Dailymail.com. "Mark Zuckerberg Talks about His Successes and the Lessons Learned Five Years after He Donated \$100million to Newark Schools." Mail Online. November 06, 2015. Accessed April 16, 2016. <http://www.dailymail.co.uk/news/article-3307596/Zuckerberg-talks-success-lessons-learned-Newark-schools.html>.

More importantly, Mark Zuckerberg and Priscilla Chan seem to have taken a lesson about community engagement from the experience, and turned it into something positive. The couple has made changes to their philanthropic strategy for projects coming after the Newark donation. They have refocused their education foundation on the Bay Area, where they have a better understanding of the community. In 2014, they announced a \$120 million commitment to Bay Area schools, and wrote that they will be “listening to the needs of local educators and community leaders so that we understand the needs of students that others miss.”<sup>72</sup>

More recently, they have announced the opening of an entirely new non-profit school, called The Primary School. It will be in East Palo Alto, and will bring education and healthcare together. The school will be free, and targeted towards low income families. “The goal is to literally offer healthcare and education from birth through graduation,” the website claims. “Our mission is to foster each child’s well-being as a foundation for academic and life success by drawing on the strengths of the child’s entire community including family, educators, medical and mental health providers.”<sup>73</sup> The school is slated to open August 2016, and positive results could surely erase Zuckerberg’s past negative record in education.

### *School as a Startup*

It is not just Zuckerberg who has taken an interest in education as an area to affect positive social change. “Starting schools is the Next Hot Thing in Silicon

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<sup>72</sup> Zuckerberg, Mark, and Priscilla Chan. "Mark Zuckerberg and Dr. Priscilla Chan: Why We're Committing \$120 Million to Bay Area Schools." - San Jose Mercury News. May 29, 2014. Accessed April 16, 2016. [http://www.mercurynews.com/opinion/ci\\_25859659/mark-zuckerberg-120-million-bay-area-schools](http://www.mercurynews.com/opinion/ci_25859659/mark-zuckerberg-120-million-bay-area-schools).

<sup>73</sup> "Mission and Vision." The Primary School. Accessed April 16, 2016. <http://www.theprimaryschool.org/mission-and-vision/>.

Valley”, according to edSurge, an education blog.<sup>74</sup> However, there is a difference between what Zuckerberg did in Newark, and what many wealthy and philanthropic tech executives are doing in the Bay Area. Where Zuckerberg was focused on government, and pushing money into the system to affect policy change, many others are bypassing any sort of government involvement and simply starting their own schools, and applying tech startup principles to education directly.

Wired Magazine explains that, in the past this community has been disappointed by the impact of their efforts to reform public education: startup principles don’t seem to gel effectively with pre-existing education systems. “...It’s hard to fault parents and educators for their conservatism. Innovation is an inherently risky endeavor. The tech industry fetishizes failure -- the millions of eggs that must be broken on the way to making a unicorn omelet. That may be fine for business models or user interfaces, but not so great when those eggs are your kids.”<sup>75</sup> So instead, these reform-minded tech people have moved towards the creation of their own school models. There are several high profile recent examples of the tech elite funneling money into new models for education, including Mark Zuckerberg’s announcement of the Primary School, former Googler Max Ventilla’s AltSchool, and the new Khan Academy Lab School.

One of the buzzwords used to describe an innovative form of education is called “blended learning.” The Clayton Christensen Institute for Disruptive Innovation defines it as: “Blended learning is not the same as technology-rich

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<sup>74</sup> "Starting Schools Is the Next Hot Thing in Silicon Valley (EdSurge News)." EdSurge. October 27, 2015. Accessed April 16, 2016. <https://www.edsurge.com/news/2015-10-27-starting-schools-is-the-next-hot-thing-in-silicon-valley>.

<sup>75</sup> Jason Tanz. "The Tech Elite’s Quest to Reinvent School in Its Own Image." Wired.com. October 26, 2015. Accessed April 16, 2016. <http://www.wired.com/2015/10/salman-khan-academy-lab-school-reinventing-classrooms/>.

instruction. It goes beyond one-to-one computers and high-tech gadgets. Blended learning involves leveraging the Internet to afford each student a more personalized learning experience, meaning increased student control over time, place, path, and/or pace of his or her learning.”<sup>76</sup> Following this definition sorts the leaders from the stragglers in innovative schooling -- those who still believe that one iPad per child counts as “hacking” education are well behind the cutting edge. Other features of innovative education include meticulous metrics tracking, dedication to personalization, and a disregard for a lot of the most emblematic features of traditional education, like nightly homework, 50-minute class periods and summer vacation.

Both AltSchool and the Kahn Academy Lab School embody the notion of “education as a startup”, and are true products of Silicon Valley culture. They are creating a brand new type of school, and avoiding regulation and government wherever possible. These schools may be the blueprint of the future, or they may go the way of Mark Zuckerberg’s Newark project.

AltSchool founder and CEO Max Ventilla, former Head of Personalization at Google, resembles any other techie in his jeans and hoodie uniform. He is forging ahead with the traditional Silicon Valley startup methodology, but in a space usually reserved for the more glacial innovation of the public sector. His AltSchool narrative started when searching for school options for his daughter he was disappointed by what he saw. “Looking ahead to elementary schools, I didn’t see a school that would

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<sup>76</sup> "Christensen Institute." Christensen Institute Blended Learning Comments. Accessed April 16, 2016. <http://www.christenseninstitute.org/blended-learning/>.

equip her to know herself, that would deliver what she needed to be happy and successful.”<sup>77</sup>

He identified several outcomes that he believed *should* be the deliverables that students receive from an education, and decided that today’s schools fail to meet the needs of their customers. He says, “In the 2030s, when [this generation’s] kids are graduating, they’re going to have to be highly independent, dynamic, able to know themselves, and able to get from the world what they need to be happy and successful in a way that leaves the world better off.”<sup>78</sup> So in April of 2013, he left his job at Google to “disrupt” the education world.

Like the experienced tech founder he is, he traversed Sand Hill Road and pitched to the biggest venture capital funds. Through his own resources and personal connections, he successfully raised a \$6 million seed funding from First Round Capital, Harrison Metal, Baseline, and others. He had the experience to achieve early funding success in a way that is not possible for others who try to create innovative schools. Damon Horowitz, who cofounded Aardvark, a successful startup, with Ventilla, wrote about him, “He had a huge network, and was plugged into the Silicon Valley culture... He knows everyone in that world, which startups are hot, and how to dazzle investors and the press.”<sup>79</sup> With money in the bank, he hired an interdisciplinary team, and launched the first AltSchool in San Francisco in September 2013.

The school derives some of its structure from other alternative school models, particularly the “one room schoolhouse” teaching method, originally restructured and introduced by the Montessori schools. At AltSchool, the classroom is not a

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<sup>77</sup> John J-H Kim, Kyla Wilkes, and Christine S. An. "AltSchool: School Reimagined." Harvard Business School Case 315-054, February 2015. (Revised May 2015.)

<sup>78</sup> Ibid.

<sup>79</sup> Kim, 3.

constricting environment where each student is of the same age, and mandated to learn the same things at the same time by the instructor standing at the front. Rather, students of all ages co-exist in the same area, and are grouped by age in color groups (but are not confined to doing activities with those groups). They begin each day with an individualized “playlist” of activities, based on their learning and achievement goals which have been set by themselves, the teachers and their parents.

Each day, the AltSchool team assesses how effective the individual playlist activities are in increasing student comprehension of the material by measuring student success and improvement over time. The classroom itself is designed to collect immense amounts of data -- there are small fisheye cameras on the walls that track student expressions and create heat maps, and the school is prototyping Fit-bit like devices that track everything from time between meals to heart-rate.

A lot of the surveillance is currently used vaguely for “R&D”, but the goal is for this data to become a part of a constant feedback loop for teachers giving them insights that weren’t possible before. They could learn, for example, that girls learn better in math when working alone rather than in groups, or that 11 year olds are significantly more focused after exercising.

The outcome AltSchool intends to achieve is what they call a “T-shaped student -- students who are very highly skilled and deeply talented in a single field, but also embody a horizontal breadth of interest, knowledge, and enthusiasm that cuts across disciplines.” These are hefty goals for any six to thirteen-year-old child, but AltSchool intends to ensure that all of their students succeed, and they will have the metrics to prove it.

The language AltSchool uses to describe itself is unapologetically startup-y. Ventilla describes the continuous self-improvement of the school system: “The better

a product or service is, the more people use it. The more people use it, the better it becomes. As the network grows we learn more about what works and what doesn't. Information from the network pressures the system to evolve to meet the changing needs of the people using it.”<sup>80</sup>

One notable feature of AltSchool is its for-profit status -- it avoided going the charter school route. This inevitably changes AltSchool's methods and goals -- it has to educate students, but it also has to turn a profit. Its ambition is to grow a nationwide for-profit educational network. This concept gives some parents pause. Anya Kamenetz from National Public Radio's Education Team said in an interview, “...I think the legacy of for-profits in education is not a great one...And, you know, ultimately, if it's between my kid's future and some investor somewhere, I'm going to want to send them to a school that really puts my kid first.”<sup>81</sup> AltSchool would argue, though, that its for-profit status protects it from the bureaucracy and politics of the charter school movement, and the inefficiencies of non-profits.

Right now, the model seems to be working. AltSchool opened its first location in 2013 with about 20 students, and now has 350 students in six schools in both the Bay Area and New York City. They plan to expand to Chicago in 2017. Ventilla raised \$100 million in Series B funding, though has not yet reported profits. The founders claim that AltSchool is playing the long game, aiming to eventually leverage the immense amount of data the schools collect and the software the company develops to make the entire American education system smarter and more

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<sup>80</sup> Kim, 5.

<sup>81</sup> Anya Kamenetz. "AltSchool Promises To Reimagine Education For the 2030s." NPR. May 7, 2015. Accessed April 16, 2016. <http://www.npr.org/2015/05/07/404859293/altschool-promises-to-reimagine-education-for-the-2030s>.

effective. Whether or not this will happen depends not only on AltSchool's own progress but on its ability to collaborate with the current system in place.

The Khan Academy Lab School, located in Mountain View, resembles AltSchool in many ways. The Lab School is the dream-come-true of Salman Khan, former hedge-fund manager and renowned creator of the Khan Academy. Khan Academy is a non-profit education organization, which Mr. Khan started in 2006. It is a "free, world class education for anyone, anywhere,"<sup>82</sup> according to the website. It is an online collection of step-by-step instructional videos on topics ranging from price elasticity of demand to Neolithic art to derivatives of multivariable functions.

The revolutionary nature of Khan's approach comes from the ability to disseminate his lessons, which allows learners to go at their own pace, anytime and anywhere. His videos reach 31 million students a month, in 190 countries. He has been hailed as "the world's teacher." Mr. Khan is now a major celebrity in the tech world -- one of the few people considered to have made a major impact on education using technology. Bill Gates, a major contributor to the organization, wrote in an email to TIME magazine, "I'd been, frankly, frustrated at how little creative work was being done to use the Web as a core component of instruction. And when I saw this, I thought-- yes, he's got it."<sup>83</sup>

In 2012, Khan wrote a book called *The One World Schoolhouse*, detailing his philosophy for a new model of education. It includes a lot of the features of AltSchool -- a one room schoolhouse with a personalized approach for each student, as well as serious focus on metrics. He never expected to start a school -- he himself had called

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<sup>82</sup> "Khan Academy." Khan Academy. Accessed April 16, 2016. <https://www.khanacademy.org/>.

<sup>83</sup> Valerie Strauss. "Is Khan Academy a Real 'education Solution'?" Washington Post. July 12, 2012. Accessed April 16, 2016. [https://www.washingtonpost.com/blogs/answer-sheet/post/is-khan-academy-a-real-education-solution/2012/07/12/gJQAtApceW\\_blog.html](https://www.washingtonpost.com/blogs/answer-sheet/post/is-khan-academy-a-real-education-solution/2012/07/12/gJQAtApceW_blog.html).

his ideas “outlandish” and “utopian”. These words sound prohibitive to the public education system. In Silicon Valley, though, they make entrepreneurs salivate. So it wasn’t hard for Khan to raise \$1 million to start his dream school.

Like AltSchool, the Khan Academy Lab School does not strive to replace traditional teacher-student instruction with technology, but rather to enhance it. Khan explains, “A lot of people when they think about virtual anything, they do make that comparison of say an Amazon.com versus a Barnes & Noble. We at Khan Academy, we never viewed it that way. We view the virtual as something that can empower the physical- ... that doesn’t mean the classroom gets replaced; it means the classroom gets liberated.”<sup>84</sup> Students of the Lab School spend less time in lecture and more time building things, having discussions, and working on personalized mastery-based assignments.

Khan, like Ventilla, expects that the Khan Academy Lab School will have a positive impact on the world of education overall. “We want to catalyze change more broadly,” he says. “Break out of Prussian-factory model of education...we don’t want just to create another one-off, progressive private school. So everything that we’re doing in this lab school we’re sharing - we’re sharing with local public [and] private schools. All the curricula, we’re going to figure out what works, what doesn’t.” The Lab School has not expanded beyond its current location yet, but growth seems to be on the not-so-distant agenda.

### ***Spreading the Model: Can Ed-Tech Change Education for Good?***

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<sup>84</sup> Eric Westervelt. "A Bit Of A Montessori 2.0': Khan Academy Opens A Lab School." NPR. January 5, 2016. Accessed April 16, 2016. <http://www.npr.org/sections/ed/2016/01/05/461506508/sal-khan-on-learning-coding-and-why-virtual-ed-is-not-enough>.

With a few exceptions of charter schools focused on low-income areas, these new schools are serving a hip, wealthy demographic. “This [trend] may come off as the educational equivalent of on-demand laundry delivery- privilege couched in the language of disruption,” writes Wired Magazine. Empowered by money and technology, their administrators are able to iterate new features of an improved model of education faster than in public schools ruled by bureaucracy. But their fundamental goals are broad: to develop new education models which can overflow into mainstream education and become the norm nationwide.

Silicon Schools, a venture philanthropy foundation supporting blended-learning efforts, has a bird’s-eye-view of the way the tech industry is breaking into education. Silicon Schools provides funds for “new personalized learning schools that use innovative education models and technology to personalize learning.” Like AltSchool and the Kahn Lab School, the organization sees the student as a consumer who ought to have more control over the pace and outcomes of their learning. And, also similarly, it promotes teacher flexibility. Its goal is to fund either the transition or creation of up to 25 schools into blended learning schools by 2017, making sure to reach a diverse range of school demographics and “support an R&D approach to innovation- encouraging thoughtful testing of hypotheses and rapid-prototyping of new school structures and systems.”<sup>85</sup>

The organization works with private, public and charter schools, and provides funding both for both the creation of new schools and the “conversion” of existing schools. Conversion means, to Silicon Schools, transitioning into the individualized approach to learning, often overhauling their existing programs. Caitrin Wright, a partner at Silicon Schools, says that it is certainly harder for district schools to make

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<sup>85</sup> Wright, Caitrin. "Silicon Schools." Telephone interview by author. December 10, 2015.

the changes that the organization supports, in comparison to private or charter schools. “We work with a lot of charter schools, and they’re freed from some of the bureaucratic stuff that goes along with being a government program. If you want to be innovative, you need to make a lot of changes quickly. You need to implement something, and if it doesn’t work, turn around and change it. That’s a lot harder for district schools to do.”<sup>86</sup> Silicon Schools barely works with district schools, and is not engaged with policymakers.

If the schools that can implement change most effectively tend to only reach kids that can afford private school, or whose parents are willing to send them to an alternative charter school, how will innovative education reach the masses? Is it doomed to be the right of the privileged? Wright says, truly, she doesn’t know. “I have some hypotheses of how this is going to play out, but I am under no illusion that I have an answer, broadly. We think that charter schools are going to become a bigger and bigger piece of the pie. And really, we are playing the long game here. This change, this overhaul of the current method of education is not going to happen in the next two years, or the next five years. This is going to take patience.”

She shares that none of the schools that they fund have reached the “destination point.” She says, “When you’re looking at these schools, you’re looking at the David statue being carved out of marble, but only 30% of the way through. You see things and think, ‘huh, that might not be better than what we had before.’ But remember that the real question is: what could this become? When it grows into itself, what will it contribute to how kids learn?”

She explains that slow changes in public schools, even if they are not implemented in the most effective way, can still be useful in setting in a foundation

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<sup>86</sup> Ibid.

for the future. “I think of this sort of like the transition from the iPod to the iPhone. Apple developed the iPod first, and people thought it was weird, and then they started getting used to it. And then, when Apple introduced the iPhone, the shock was not as great as it would have been otherwise. I think of schools introducing technology, even if they aren’t doing it “right”, as being like the iPod of education. Once better software is available to educators, they’ll have the tools to start using it already in place.”<sup>87</sup>

Wright does not come from a background in education and views that as one of her key strengths as an agent of educational change. She graduated from Harvard, and went straight into consulting. She moved into non-profit consulting, and then returned to Harvard for business school. After her second round at Harvard she entered the field of education nonprofits, and has been with Silicon Schools since shortly after it was incorporated in 2012. She explains how her background in business helps, not hurts, her ability to contribute to the field of education. “It’s true, I haven’t been a teacher,” she says. “I don’t know what it’s like to be in front of a classroom. But I can observe from a different perspective, and then ask very thoughtful questions.”

She believes that this carries over into the broader relationship between education and the tech industry: “Powerful partnerships can be created in Silicon Valley. I am really hopeful about the relationships that are made when folks in tech dig deep with the educators.” At a meeting she attended between ‘folks in tech’ and education specialists, she notes, “Max Ventilla was there, actually, and he had a suggestion about how to evaluate test scores that the teachers would never have come up with because they aren’t coming at education from a background in technology

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<sup>87</sup> Ibid.

and data analysis. But at the same time, the teachers needed to be there in case he comes up with an idea that will not work, to say, ‘No, no, we hate that.’”

She observes that the relationships between the two spheres can often be a little rocky. “There’s an inherent suspicion in education of for-profit companies, who have motives and shareholders. But I don’t think having market pressures is a bad thing. Sure, there are some people getting involved in education to make a quick buck, but on the whole, these are tech people who really do care about the issues at hand.” She has visited AltSchool, and she has “a really deep appreciation for the view that tech can bring to problem-solving in education. But, I also appreciate that there are certain nuances in education that are really hard to understand from the outside.”<sup>88</sup> Striking the balance in that relationship is extremely delicate.

From the outside looking in, Washington is very excited about what the tech industry has to offer to education. Leslie Cornfeld, Director of Strategic Partnerships and Special Advisor to the Secretary of Education, says, “From the Department of Education’s point of view, technology is the next phase of education. We also see it as a potential equalizer.”<sup>89</sup> She says that the Department is on board with the concept of “blended learning” which Silicon Schools supports. She says, “We look to Silicon Valley to see that in action, and see what tools they are innovating to actualize new theories of education.” Unlike Wright, she does not see this effort as a “30% complete” effort, or one that will be near impossible to implement in traditional district schools.

“There is a real sense of urgency in Washington to make sure that is not the case. Sure, it’s true that it’s easier to get things done in charter schools and private

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<sup>88</sup> Ibid.

<sup>89</sup> Cornfeld, Leslie. "D.C.'s Take on Ed-Tech." Telephone interview by author. December 10, 2015.

schools. But, district schools in high need communities are realizing that, in order to improve their results, they just *need* to get faster at implementing new technologies. And there is funding and support available for those areas. Really, all of the efforts in Washington are going towards closing the opportunity gap.”

She discusses some of the differences in ideology between Silicon Valley and Washington, illustrated by the teacher shortage crisis. “There was a huge concern about this teacher shortage- how are we going to recruit better teachers? How are we going to keep them in the system?” And, she says, Silicon Valley teased them for asking “such a ‘Washington’ kind of question”. They replied that recruiting was not going to be an issue, because technology will fill the gap in the need. On this particular issue, Cornfeld disagrees; the tech industry may be getting ahead of itself. “Technology isn’t going to *replace* teachers; it will just enhance their ability to teach. And I think most people in the Valley know that, but there are still plenty of people who are very futuristic.”<sup>90</sup>

Another struggle that she finds in working with Silicon Valley types is the pacing. “Silicon Valley wants to see change immediately. They decide they want to change high school graduation rates, and they want to see results by next year. Often it takes a few years for change to actually happen, and the metrics just aren’t going to be good right away. Real change takes long term commitment.”

And of course, any discussion about Silicon Valley is not complete without a complaint about arrogance. Cornfeld suggests gently, “You know, high net worth, successful individuals who have effectively run companies and achieved great things always think they know how to fix social issues. And in Silicon Valley, there are a lot

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<sup>90</sup> Ibid.

of these wealthy and successful people, who are very nice and well intentioned. They think that what made them successful in business will also make them successful in attacking poverty, or environmental issues, etc.” They often want to implement very top-down approaches, thinking that a solution can just be invented and implemented, the faster the better.

She echoes Dale Russakoff’s categorization of Mark Zuckerberg’s donation in Newark as a classic and very well publicized example of a lack of empathy. She calls it “a very expensive experiment”, where a leader from the tech industry came in with a solution that he thought made sense, and imposed it without listening to the community. “The community didn’t want this, didn’t trust them, and everyone left disappointed.”

“When we have meetings with a lot of these folks, they’re often not really interested in looking at the evidence; they want to trust their gut. But, on the other hand, some of them are very keen on understanding what failed in the past, in Newark, for example, and try to approach things differently. I think it’s critical that we do have people like Mark Zuckerberg, and Bill Gates, putting money behind innovation, so we can really be bold and experiment. And as long as they’re learning to be less prescriptive, and approach education with a less business-oriented perspective, these mistakes can be worth it.”<sup>91</sup>

### *Next Steps*

The intersection between education and technology, and the corresponding intersection between Silicon Valley and Washington D.C., has immense potential to make vast changes to the American school systems. This is a space where tech feels valued, because it can create and contribute tangible products in addition to money. It

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<sup>91</sup> Ibid.

does not have the capacity or ability to effectively *create* education policy, as demonstrated by Zuckerberg's failed Newark experiment, but that is what a partnership is for.

This ultimately will come down to good leadership and good timing. Moderates like Leslie Cornfeld or Caitrin Wright, who understand and accept both their own and their counterparts' strengths and shortcomings in education reform, could come together in the years ahead to create effective solutions. But extremists -- hardcore supporters of the status quo in public education and heads-down entrepreneurs focused only on "moving fast and breaking things" probably cannot.

Seeing real results from a government-tech partnership is not going to happen any time soon. Caitrin Wright estimated that any substantive change will take longer than five years. AltSchool launched its first class in 2013, so the first students that enrolled at age 6 and continued through until high school will not graduate, and give the school credibility, until 2025. The concepts of blended learning will continue to slowly trickle in to the public school system, with the introduction of tools like Google Classroom, but a full-blown ed-tech revolution will probably not reach the mainstream until AltSchool and Kahn Lab School look-alikes spread throughout the country, outside of main city centers, and public school systems are given federal support to overhaul their existing systems. That could be ten years from now, or twenty, or even longer.

But, if the right entrepreneurs and government officials are given the time, resources and moral support to meld the strengths of Silicon Valley and D.C. together, though, we will eventually begin to see systemic change. We can hope to enter a new age in American education, one based on data and personalization rather than an outdated, untested model from 19th century Prussia.

## **5. Immigration: Silicon Valley's Political Limits Revealed**

Silicon Valley considers itself the ultimate meritocracy and thus, the perfect environment for realizing the American dream. The immigrant rags-to-riches story has repeated itself over and over again in the Bay Area: founders of Google, Apple, Yahoo and many more are either immigrants or the children of immigrants.

The impact of immigrants on the culture and business climate in Silicon Valley is felt everywhere. They have made enormous contributions to the technology industry, and are a large portion of the industry's demographics: One third of the startups in Silicon Valley are founded by Indian Americans, one third of the top 10 Valley companies are run by a foreign born CEO,<sup>92</sup> and 50% of the region's workforce is foreign born.<sup>93</sup> Silicon Valley workers are very likely to work alongside immigrants, or be immigrants themselves. The tech community collectively understands the challenges that high-skilled immigrants face and the reasons they should care about mitigating these challenges.

The industry's desire to make the world a better place conveniently dovetails with its self interest in the case of immigration. More immediately than education, immigration has a direct impact on the success of Silicon Valley and fighting for desirable immigration policy is one of the key motivations for tech representation and

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<sup>92</sup> "Tech Immigrants: A Map of Silicon Valley's Imported Talent." Bloomberg.com. June 5, 2014. Accessed April 16, 2016. <http://www.bloomberg.com/bw/articles/2014-06-05/tech-immigrants-a-map-of-silicon-valleys-imported-talent>.

<sup>93</sup> Ferenstein, Gregory. "CEOs Of Silicon Valley's Top Firms Are Often Non-White, Immigrants, Or Women (In 1 Graph)." Forbes. Accessed April 16, 2016. <http://www.forbes.com/sites/gregoryferenstein/2015/08/14/ceos-of-silicon-valleys-top-firms-are-often-non-white-immigrants-or-women-in-1-graph/>.

lobbying in D.C. When immigration reform is discussed in the Valley, the conversation usually centers on H1B Visas.

### *The Current System for High Skilled Immigration*

The H1B visa, a nonimmigrant visa, is the most commonly used method of bringing high skilled foreign workers to tech companies. The program has existed since 1965, and was created under the Immigration and Nationality Act. It was notable at the time for its departure from the U.S.'s ethnicity quota-based immigration policy. It focuses on skills over ethnicity, and allows businesses to hire foreign employees for up to six years (the visa is valid for three initial years, and then can be renewed for an additional three years). It allows immigrants, in the meantime, to apply for a green card.<sup>94</sup>

Each year, there are 20,000 visas available to foreign college post-graduates to stay after their student visas expire. More relevant to Silicon Valley, though, are the 65,000 visas intended for foreign workers with specialized training in the field in which they are being hired. This usually means at least a bachelor's degree, plus work experience. One is not allowed to self-petition; company sponsors must petition to hire individuals. The cost for the company associated with the mere application for the visa is between \$1,575 and \$2,325, and this can often come to around \$5,000 after paying the government filing fees (these fees are returned to the filer in the case of a rejection).

The H1B Visa application requires proof of the company sponsor's business viability, and its ability to pay the employee's salary. This is an extremely limiting

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<sup>94</sup> Nicholas Seabrook. "Congress Should Fix the H-1B Visa Program, Not Abolish It." OrlandoSentinel.com. January 23, 2016. Accessed April 16, 2016. <http://www.orlandosentinel.com/opinion/os-ed-h1b-visa-congress-012416-20160123-story.html>.

factor in the Valley, where early stage startups are typically uncertain of future cash infusions and have no sources of revenue other than financing rounds. Each year, every company with a specific potential employee in mind must petition for one of the 65,000 H1B visas (6,800 of which are set aside for immigrants from Singapore and Chile).<sup>95</sup> These become available on April 1<sup>st</sup>, but in 2013 and 2014, the 65,000 cap was reached within five days.

### ***What Does Silicon Valley Want, and Why?***

The tech industry *loathes* the H1B Visa application process, and the restrictions it places on high skilled immigration. The application is bureaucratic and paper-work heavy. The cost and application requirements bars most startups from applying. The program favors large companies and consulting firms, who are, some argue, less in need than startups of stand-out coders to work on fundamental infrastructure building. And, of course, 65,000 are simply *not enough*. Veritas CEO Bill Coleman claimed, “The entire Silicon Valley believes that the H1-B visa policy needs to be dramatically expanded. We can’t hire enough good people. They are just not available here.”<sup>96</sup>

Why do startups need to hire foreign workers so desperately? Why can’t the tech industry spend more money training American engineers instead? Critics of the efforts to expand the H1B program ask this question repeatedly, pointing to the number of qualified engineers already in the US. Hal Salzman, a workforce development expert at Rutgers University, writes, “There is no evidence that we know

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<sup>95</sup> Matthew Faustman. "How Does a Company Sponsor H1B Visas?" Forbes. April 7, 2016. Accessed April 16, 2016. <http://www.forbes.com/sites/quora/2014/04/07/how-does-a-company-sponsor-h1b-visas/#3c1752fb377d>.

<sup>96</sup> BI India Bureau. "Silicon Valley Cannot Do without Indians? At Least Veritas CEO Thinks so." Business Insider. February 19, 2016. Accessed April 17, 2016. <http://www.businessinsider.in/Silicon-Valley-cannot-do-without-Indians-At-least-Veritas-CEO-thinks-so/articleshow/51052700.cms>.

of that backs up their claim of shortage [of high skilled American workers.]”<sup>97</sup> He, as well as others opposed to H1B visa expansion, believe that the real reason why the tech industry is desperate for foreign workers is that companies can exercise much more control over them, and pay them thousands of dollars per person less each year. Because the visa application program is in the hands of the employer, engineers from India, for example, will be less likely to take vacation before their first three years on the visa are up and their company needs to re-apply on their behalf.

Salzman scoffs at the idea of a real shortage- there are thousands of Americans who graduate each year with degrees in computer science, but cite their reasons for not entering the tech industry as low wages. “[Wages in the tech industry] have been flat since the 1990’s. I don’t know of any market where there is a shortage of goods and the prices don’t go up.”<sup>98</sup>

Compete America, The Alliance for a Competitive Workforce, provides conflicting numbers. “Our economy is generating 122,000 new job openings for computer related occupations each year, yet our schools are only graduating 51,000 students with bachelor’s degrees in computer science annually,” writes Scott Corley, the executive director of the coalition. “As for wages, the evidence consistently has shown that H1-B workers are paid more money, not less, than their American counterparts. And the research has also clearly demonstrated that high-skilled immigrants create additional American jobs once they get here to the United States.”<sup>99</sup>

Paul Graham, venture capitalist and co-founder of Y Combinator, explains the controversy somewhat differently, taking the view of many executives of tech

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<sup>97</sup> Colleen Curry. "Not Everyone Is Happy About the Influx of Foreign Workers That Could Soon Hit Silicon Valley | VICE News." VICE News RSS. March 17, 2015. Accessed April 17, 2016. <https://news.vice.com/article/not-everyone-is-happy-about-the-influx-of-foreign-workers-that-could-soon-hit-silicon-valley>.

<sup>98</sup> Ibid.

<sup>99</sup> Ibid.

companies. He writes, “What the anti-immigration people don’t understand is that there is a huge variation in ability between competent programmers and exceptional ones, and while you can train people to be competent, you can’t train them to be exceptional. Exceptional programmers have an aptitude for and interest in programming that is not merely the product of training.”<sup>100</sup> He believes that a great programmer can add up to 100 or even 1000 times more value to a company or a product than an average programmer. The need for foreign workers, then, is not about a shortage of competent programmers, but a shortage of *excellent* programmers.

Regardless of the reason or its validity, the tech industry wants more H1B Visas, badly, and as soon as possible. Max Levchin, co-founder of PayPal, has said, “Let’s start stapling H1-Bs to people’s [computer science] diplomas and other relevant majors...I have yet to hear the candidate or a sitting president, for that matter, speak to that point directly.”<sup>101</sup> The desire to change the H1B visa program has prompted Silicon Valley to attempt to strengthen its bond with D.C., and push for the immigration reform it wants. However, there is a lot more to immigration reform than helping talented programmers enter the country. Silicon Valley business interests are concerned with high skilled workers who will be employed directly by their companies in white-collar roles, and they often ignore the importance of lower-skilled immigrant workers.

This other segment of immigrants comes to the country for different reasons, and faces a different set of issues. The tech industry-based immigration reform efforts

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<sup>100</sup> Paul Graham. "Let the Other 95% of Great Programmers In." Let the Other 95% of Great Programmers In. December 2014. Accessed April 17, 2016. <http://www.paulgraham.com/95.html#f3n>.

<sup>101</sup>Melody Hahm. "Silicon Valley Giant Max Levchin Nails What's Truly Sad about the Trump Phenomenon." Yahoo Finance. March 16, 2016. Accessed April 17, 2016. <http://finance.yahoo.com/news/max-levchin-paypal-trump-immigration-election-silicon-valley-174704154.html>.

tend to ignore these lower-skilled workers, who come mostly from South and Central America. When they find work in the Bay Area it is as janitors, restaurant workers and housekeepers. They make up a large part of the job growth and subsequent boost to the region's economy. The tech industry, while united in support for high-skilled immigration reform, is fragmented in its attitude toward immigration of low skilled workers.

Joe Lonsdale, tech entrepreneur and comprehensive immigration reform supporter explains, "Many people in Silicon Valley understand that it is a moral issue," and illegal immigrants and skilled workers should both be treated better by the system. However, the effort to decouple the two in the case of reform is a pragmatic approach, based on avoiding conflict with many Americans' bias against low-skilled immigrants. While some Silicon Valley immigration supporters are in sync with Lonsdale, seeing it as a human rights issue, many more are simply on the hunt for talent anywhere they can find it and are at best indifferent to low skilled immigration. The separation of the two types of immigration has made it more difficult for the tech industry to fight for the foreign workers it believes it needs to succeed.

### ***Legislative Failures***

In 2012, Silicon Valley was foiled in its attempt to have their cake (high skilled immigrants) and eat it too (circumvent *comprehensive* immigration reform.) The STEM Jobs Act, supported with \$14.7 million in donations from the tech industry and lauded by AOL, IBM, Microsoft, Oracle and others, would have added 55,000 work visas for high skilled STEM immigrants. It did not make it through the Senate.<sup>102</sup> Republicans supported it, but the Democrats rejected it because it would

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<sup>102</sup> Gregory Ferenstein. "No Exceptions For Tech Industry: High Skilled." TechCrunch. December 1, 2012. Accessed April 17, 2016. <http://techcrunch.com/2012/12/01/no-exceptions-for-tech-industry-high-skilled-visas-now-tied-to-comprehensive-reform/>.

have replaced the Diversity Visa Program (which currently grants 55,000 visas via a lottery). Some supporters of the bill came away from the experience feeling disenchanted with politics. Others, however, learned that in order to get what it wants out of the political system, Silicon Valley needs to play by the rules of politics, not their own. Asking for exactly what they want and pushing for piecemeal reform, they saw, did not work.

Another piecemeal bill, however, is up for voting once again. Two bipartisan groups in the Congress proposed immigration centered bills in January of 2015, and both are geared towards the tech industry: The Startup Act and the Immigration Innovation (I-squared) Act. The former increases H1B visas from 65,000 to 115,000, while eliminating country based-limits on visa applicants and letting spouses of H1B visa holders work. The latter creates a new type of visa for foreign entrepreneurs.<sup>103</sup>

Both of these reforms are time-sensitive priorities for the tech industry, in a way that rights and citizenship for undocumented workers is not. There are already some signs of the negative impact that the H1B Visa process has on the tech industry- over the past few years, Silicon Valley has lost some of its cache as *the* center of innovation and technology. Venture capitalists put a record-breaking amount of money into European startups since 2001, and LinkedIn data shows that in 2013, more software engineers moved to India's tech hubs in Bangalore, Pune, Hyderabad and Chennai than any other cities worldwide.<sup>104</sup>

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<sup>103</sup> Katie Benner. "Obama, Immigration and Silicon Valley." Bloomberg View. January 22, 2015. Accessed April 17, 2016. <http://www.bloombergvew.com/articles/2015-01-22/obama-immigration-reform-h-1-b-visas-and-silicon-valley>.

<sup>104</sup> Ritika Trikha. "H-1B Visa Cap: The Imminent Threat to US Tech Innovation." HackerRank Blog. April 14, 2015. Accessed April 17, 2016. <http://blog.hackerrank.com/h1-b-visa-cap-the-imminent-threat-to-us-tech-innovation/>.

Author Vivek Wadhwa writes that the reason no substantive immigration reform bills have been passed in recent years is a product of partisan splits on the topic of illegal immigration. He writes, “Both the Democrats and the Republicans agree that we want the entrepreneurs, the scientists, the doctors, the researchers...But there’s a stalemate on the issue of amnesty for illegal workers.”<sup>105</sup>

The two bills recently introduced were, in his opinion, more likely to pass based on their focus on purely on high-skilled immigration. Julissa Arce, director of development of Define American, an organization supporting more thoughtful conversation about immigration, says, “The unconscious bias is that undocumented workers are stealing jobs. On the other hand people believe that workers who were born overseas, have a college degree and are ‘highly intelligent’ should be a part of the American workforce.”<sup>106</sup> This is the bias that the Senate committees were adjusting for in order to pass these bills.

Analysts believed in 2015 that both bills had a strong chance of passing: “Congress seems much more amenable to high-skilled reform than they were before. Republicans have been on board with expanding high-skilled immigration for a very long time. Now that they control the Senate, they can control the discussion on that, and they’re going to push for more liberalization of the system than they would have gotten in a mixed Congress,” said Alex Nowrasteh, analyst at the Cato Institute.<sup>107</sup>

However, thanks to today’s highly polarized and charged political environment, both bills are likely to fail. Neither has been reported to committees, and

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<sup>105</sup> Sam Gustin. "Why Mark Zuckerberg Is Pushing for Immigration Reform | TIME.com." Business Money Why Mark Zuckerberg Is Pushing for Immigration Reform Comments. April 12, 2013. Accessed April 17, 2016. <http://business.time.com/2013/04/12/why-mark-zuckerberg-is-pushing-in-immigration-reform/>.

<sup>106</sup> Benner.

<sup>107</sup> Brianna Lee. "Immigration Reform 2015: High Hopes For High-Skilled Immigration Reform, Even As Congress Battles Obama." International Business Times. January 15, 2015. Accessed April 17, 2016. <http://www.ibtimes.com/immigration-reform-2015-high-hopes-high-skilled-immigration-reform-even-congress-1783946>.

GovTrack.us gives each a 1% chance of being enacted as of April 2016.<sup>108</sup> High skilled immigration is simply not the priority for either party at the moment. The Republican Party is so divided that it may be difficult to reach consensus on immigration, particularly due to the strength of the Tea Partiers, who value ideology over pragmatism. And the Democratic Party is showing signs of tilting more anti-business in the near future, indicated by the success of Senator Bernie Sanders in the primaries. It seems unlikely that these bills or newer versions of them will get bipartisan support again soon: Democrats may reject these bills in favor of strengthening alliances with the Latino vote, and pro-immigration Republicans will probably prioritize their relationships with their anti-immigration constituencies and colleagues over their connection with Silicon Valley.

During the Obama administration, major policy proposals focusing on lower-skilled immigration have been put forth, and mostly make the tech industry feel like their demands are not being met. In November of 2014, President Obama, fed up with Congress's inability to pass immigration reform, took matters into his own hands with an Executive Action. The Immigration Accountability Executive Action plan included expansion of the Deferred Action for Childhood Arrivals initiative (DACA) and the Deferred Action for Parents of American Lawful Permanent Residents (DAPA). These two initiatives together are expected to provide up to 5 million immigrants with temporary relief from deportation, as well as increasing U.S. GDP and tax revenue while decreasing the high number of separated families.<sup>109</sup> The Executive Action was challenged legally by 26 mainly Republican-led states, and has been in limbo as Americans wait for the Supreme Court to hear the case.

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<sup>108</sup> "Startup Act (S. 181)." GovTrack.us. Accessed April 18, 2016. <https://www.govtrack.us/congress/bills/114/s181>.

<sup>109</sup> "Just the Facts." Immigration Policy Center. January 21, 2016. Accessed April 17, 2016. <http://www.immigrationpolicy.org/just-facts/understanding-legal-challenges-executive-action>.

Many strong voices in the tech industry did voice support for Obama's Executive Action. Upon the announcement that the U.S. Supreme Court will hear the case, Victor Gomez, director of public policy and advocacy for the San Jose Silicon Valley Chamber of Commerce said, "This is a step in the right direction for the San Jose businesses community and economy. Silicon Valley has long looked to immigrant communities for leadership in innovation and to drive economic development."<sup>110</sup> FWD.us, the Silicon Valley voice on immigration reform, commented, "This is a promising step in the right direction to finally unfreeze the DAPA and DACA extended programs that will provide 5 million undocumented immigrants with the opportunity to apply for temporary deportation relief and work authorization."<sup>111</sup>

However, some members of the tech community received the news about the Executive Action with lukewarm feelings. In November of 2014, The LA Times reported, "Technology leaders in Silicon Valley...reacted to President Obama's national address [regarding his executive order on immigration] with a shrug and a slight smile. But nobody's jumping for joy." Maria Klawe, President of Harvey Mudd College and Microsoft board member commented that the Executive Action will help the American economy on the whole, but will not have a significant impact on the tech workforce.

The vice president of the Silicon Valley Leadership Group, a tech industry trade organization, echoed, "We absolutely need legislative fixes because the

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<sup>110</sup> Jody Meacham. "Bay Area Business and Immigrants' Rights Groups Cheer Supreme Court's Decision to Hear Immigration Case." Silicon Valley Business Journal. January 19, 2016. Accessed April 17, 2016. <http://www.bizjournals.com/sanjose/news/2016/01/19/bay-area-business-and-immigrants-rights-groups.html>.

<sup>111</sup> Maxwell Tani. "The Supreme Court Will Drop an Immigration Blockbuster Right in the Heat of the Election." Business Insider. January 19, 2016. Accessed April 17, 2016. <http://www.businessinsider.com/supreme-court-obama-immigration-actions-2016-1>.

president cannot increase the [visa] cap, and that is what really hurts start-ups and large companies.”<sup>112</sup> The separation of high and low-skilled immigration makes policy making even thornier, and prevents the development of a unified voice in Silicon Valley promoting a single course of action.

### ***FWD.us***

FWD.us intends to be that unifying voice. It is one of the most prominent lobbying organizations in the tech community, and a major advocate of sweeping immigration reform versus piecemeal. The organization was started in 2013, by Mark Zuckerberg and is supported by a host of other tech titans including Reid Hoffman, Marissa Meyer, Eric Schmidt and Bill Gates. It debuted in a very public op-ed by Zuckerberg in the Washington Post; entitled *Immigrants are the Key to a Knowledge Economy*. He wrote about how, in the knowledge economy, sharing creates wealth in a way that it hadn't before, and that in our country, our most important resource has shifted from materials or space to human talent.

He said, “To lead in this economy, we need the most talented and hard-working people. We need to train and attract the best.”<sup>113</sup> In that vein, he called for, “comprehensive immigration reform that begins with effective border security allows a path to citizenship and lets us attract the hardest working people, no matter where they are from.” He concluded by announcing the creation of FWD.us.

It was led, at its start, by Joe Green, Mark Zuckerberg's college roommate. In college, Green had opted out of working on Zuckerberg's Facebook project, and

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<sup>112</sup>Mitchell, Russ. "Silicon Valley Lukewarm to Obama's Immigration Reform Moves." Los Angeles Times. November 20, 2014. Accessed April 17, 2016. <http://www.latimes.com/business/la-fi-1120-immigration-tech-20141121-story.html>.

<sup>113</sup> Mark Zuckerberg. "Mark Zuckerberg: Immigrants Are the Key to a Knowledge Economy." Washington Post. April 10, 2013. Accessed April 17, 2016. [https://www.washingtonpost.com/opinions/mark-zuckerberg-immigrants-are-the-key-to-a-knowledge-economy/2013/04/10/aba05554-a20b-11e2-82bc-511538ae90a4\\_story.html](https://www.washingtonpost.com/opinions/mark-zuckerberg-immigrants-are-the-key-to-a-knowledge-economy/2013/04/10/aba05554-a20b-11e2-82bc-511538ae90a4_story.html).

instead volunteered for John Kerry's campaign over the summer in 2004. After graduating from Harvard, he moved to Silicon Valley, and ran two cause-based tech companies (Causes, an app for Facebook, and Nationbuilder, software for political organizers.) All the while, Green had been trying in vain to convince Zuckerberg to use his skills and position to make a difference in politics.

Finally, the stars aligned for Green: Zuckerberg started teaching a class on entrepreneurship at a public middle school in a poor community, and gained first hand exposure to the injustices undocumented workers face. He also attended a dinner with President Obama and the rest of the tech elite, and was disappointed by the way that the other power players in his industry attempted to influence politics, focusing on their own "pet issues" rather than having a broader agenda.

That's when Zuckerberg decided to team with Green on a political advocacy group that focused on comprehensive immigration reform. It combines Silicon Valley's self-interest (improving conditions and pathways to citizenship for high skilled immigrants) with an altruistic goal (doing the same for low skilled immigrants). And based on the failures of piecemeal reform in the past, this method appears to be more likely to get the tech industry what it wants. Together, they got many of the biggest tech names involved as donors and supporters, and launched in April of 2013.

FWD.us writes that its mission is, broadly, to "mobilize the tech community to support policies that keep the American Dream achievable in the 21st century." More specifically, "FWD.us has focused on immigration reform first because America's broken system prevents far too many talented immigrants from fully contributing to

our communities and our economy. FWD.us supports a comprehensive legislative fix to our broken immigration system.”<sup>114</sup>

Joe Green was FWD.us’s first president, and it was during his tenure that the organization got involved with a political controversy that was commonplace in D.C., but shocking to Silicon Valley. In 2013, FWD.us funded two subsidiaries: Americans for Conservative Action and Council for American Job Growth. These groups sponsored advertisements for politicians who support the Keystone XL pipeline and oppose Obama’s health care policy, including Marco Rubio and Lindsey Graham, both Republicans, and Mark Begich, a Democrat from Alaska. Graham and Begich were both up for re-election in 2014. These advertisements were meant to encourage support for these lawmakers who were instrumental in the passage of immigration reform bills. This sort of swapping is considered politics-as-usual, but it horrified Silicon Valley.<sup>115</sup>

Upon discovery of this support, FWD.us was lambasted by liberal groups. The Sierra Club commented, “When the ads came out they were politics as usual and divisive and pitting one issue against another. We were really surprised that Silicon Valley would be moving into the political space by doing the worst of business-as-usual politics.”<sup>116</sup> Elon Musk, founder of Tesla, revoked his support of the group entirely. He said, “Initially, I agreed to be a part of FWD.us because I agree with immigration reform. But I think the methods that were employed- it was a little too

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<sup>114</sup> "FWD.us." FWD.us. Accessed April 17, 2016. <http://www.fwd.us/>.

<sup>115</sup> Somini Sengupta and Eric Lipton. "Silicon Valley Group’s Political Effort Causes Uproar." The New York Times. May 08, 2013. Accessed April 17, 2016. <http://www.nytimes.com/2013/05/09/technology/fwdus-raises-uproar-with-advocacy-tactics.html?ref=sominisengupta>.

<sup>116</sup>Ibid.

Kissinger-esque, Realpolitik.”<sup>117</sup> Both the Sierra Club and MoveOn.org pledged to pull ads from Facebook for two weeks. David Sacks, founder of Yammer, also left the group of backers.

Most of the supporters stayed in the group, and a spokeswoman for the organization said, “We recognize that not everyone will always agree with or be pleased by our strategy- and we’re grateful for the continued support of our dedicated founders and major contributors. FWD.us remains totally committed to supporting a bipartisan policy agenda that will boost the knowledge economy, including comprehensive immigration reform.”<sup>118</sup>

FWD.us was not made ineffectual by this controversy, but it lost some of its veneer in the Valley. Both Green himself and his organization’s tactics took heat for this transgression. One unnamed Silicon Valley investor quoted in an article about the scandal said, “The FWD.us fiasco feels like a case of geeks playing fantasy baseball who then all of the sudden found themselves thrust into the major leagues. I am amazed at how poorly advised and unprepared they were.”<sup>119</sup>

The organization, and Silicon Valley itself, learned a few lessons. It discovered that when in unfamiliar territory, like federal politics, it really helps to hire the experts. Zuckerberg’s first instinct was to hire Joe Green, his college roommate and a member of the tech world himself, as FWD.us’s president. Backers initially trusted that instinct. Techies want to hire other techies, due to their familiarity and

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<sup>117</sup>Levi Sumagaysay. "Quoted: Elon Musk on Why He Quit Zuckerberg’s FWD.us." SiliconBeat. May 30, 2013. Accessed April 17, 2016. [http://www.siliconbeat.com/2013/05/30/quoted-elon-musk-on-why-he-quit-zuckerbergs-fwd-us/?doing\\_wp\\_cron=1454298655.2459509372711181640625](http://www.siliconbeat.com/2013/05/30/quoted-elon-musk-on-why-he-quit-zuckerbergs-fwd-us/?doing_wp_cron=1454298655.2459509372711181640625)

<sup>118</sup>Somini Sengupta. "Technology Industry Lobbying Group Loses Supporters." The New York Times. May 10, 2013. Accessed April 17, 2016. [http://www.nytimes.com/2013/05/11/technology/teslas-elon-musk-leaves-zuckerbergs-fwdus.html?\\_r=0](http://www.nytimes.com/2013/05/11/technology/teslas-elon-musk-leaves-zuckerbergs-fwdus.html?_r=0).

<sup>119</sup> Hamish McKenzie. "The Talented Mr Green: How FWD.us Lost New York, Elon Musk, and the Tech Moral High Ground." Pando. May 29, 2013. Accessed April 17, 2016. <https://pando.com/2013/05/29/the-talented-mr-green-how-fwd-us-lost-new-york-elon-musk-and-the-tech-moral-high-ground/>.

shared philosophies, but Green was too inexperienced. Backers of FWD.us also learned about their tolerance for political maneuvering. They will not stand for backroom dealings. They now have a better understanding of how politics-as-usual works, and are less interested in participating.

Shortly after the controversy, Mark Zuckerberg emailed FWD.us members, notifying them that Joe Green had resigned from his post, and the then-executive director, Todd Schulte, would become acting president. Schulte has much more experience in the world of politics: he is the former chief of staff at Priorities USA, an Obama Super PAC, and has worked at the Democratic Congressional Campaign Committee in Washington.<sup>120</sup> Under his control, FWD.us has regained its positive reputation, and it has been running relatively smoothly since.

FWD.us considers itself to be one of the few organizations that effectively bridge the gap between politics and tech. They draw the distinction between organizing the tech community and speaking for it, and they aim to do the former. Andrew Moriarty, the chapter leader of FWD.us in San Francisco, says, “All the founders supporting FWD are individuals, not companies. They give individually.”<sup>121</sup> This allows them to act on their own independent priorities and policies, removing some of the complications that other tech advocacy groups face in mobilizing entire companies who have to answer to shareholders, boards, and customers.

The tech elite, isolated on their large campuses complete with catered lunches, gyms, and sometimes even dry cleaning and automobile maintenance, are frequently criticized for being un-empathetic. And they often consider themselves absolved from

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<sup>120</sup> Maggie Haberman. "Zuckerberg Group Hires Todd Schulte." POLITICO. June 24, 2013. Accessed April 17, 2016. <http://www.politico.com/story/2013/06/zuckerberg-group-hires-todd-schulte-093226>.

<sup>121</sup> Andrew Moriarty. "FWD.us In San Francisco." Telephone interview by author. October 24, 2015.

philanthropy, as they consider themselves to already be doing “God’s work.” FWD.us struggles with this problem of mobilization of the tech world. Moriarty says that empathy building through exposure, or “story sharing”, as FWD.us calls it, is the best way to get the techies fired up. The organization highlights individual immigrants, on their website and at the organization’s events, who share their backgrounds and the challenges they have faced, in order to humanize the issue.

Josh Rodriguez, a leader of the Los Angeles chapter who works closely with the Silicon Valley tech community as well as “Silicon Beach” in Venice Beach, says that the people he interacts with are not as uncaring as they might come off. “When you’re talking to any tech person, they do care about different issues. They care about STEM education, and the environment, and of course immigration. It’s just that they don’t know what they’re supposed to *do* about it. There’s no real unified voice in their industry for them to get behind. And individually, they don’t have the institutional know how and resources to create that voice.”<sup>122</sup> FWD.us is that voice, representing both high and low skilled immigrants.

Moriarty in San Francisco says that one of the challenges he faces is putting the immigration issue that the tech community faces on a daily basis in the broader context of the entire country. “I’ll talk to supporters, some of them CEO’s, and a lot of these issues affect them in the business way. So it’s hard for them to see the full scope of things that a member of congress has to worry about.” He describes the separation between high and low skilled immigrants and their advocates. High skilled workers, usually coming from Asia, often brought in by tech companies, face very different challenges than lower skilled, undocumented workers from Central and

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<sup>122</sup> Josh Rodriguez. “FWD.us in Los Angeles.” Telephone interview by author. November 15, 2015.

South America. These two are often seen as separate issues, “but those two groups standing beside each other would be ideal, particularly out here in the Bay Area.”

Rodriguez says, “Tech doesn’t really know how to deal with this problem, or how to see these two issues in conjunction with each other. The industry knows that it’s a big problem, but doesn’t know how to organize itself to fix it.”

“Tech and government work at completely different speeds, a lot of millennials are disenchanted with a lot of our political systems, and they don’t see the positives of voting, or how to *use* the political process to affect change.” In the tech community, he continues, change is created by direct action: building *this* app that will solve *this* problem. The pace of government is not comparable. The government with all of its red tape and bureaucracy, looks outdated and in need of “hacking” to the entrepreneur. “The nature of the entrepreneur is to see an issue, and fix it by going against the grain.” This sort of approach, according to Rodriguez, simply doesn’t work in politics.

To address immigration effectively, FWD.us believes a compromise needs to be made. “At the end of the day,” Moriarty says, “the only thing that’s going to fix this is government. This needs comprehensive legislation.”<sup>123</sup> So how do they get the tech world on board? “Tech people are very metrics driven -- they really want to see what they are doing making a difference. So telling them about some lofty goal of comprehensive immigration reform is not very appealing. We offer them opportunity XYZ, which will help by doing ABC. They want a purpose for *why* to engage with you.”<sup>124</sup> And, according to Rodriguez, they do care to make the world a better place.

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<sup>123</sup> Moriarty.

<sup>124</sup> Rodriguez.

Like education, immigration reform is a realm in which Silicon Valley and DC intersect. It presents another opportunity to either create change, or stretch out a status quo stalemate. The relationship between the tech industry and government on immigration differs from the one in education. In that area, Silicon Valley is valued by government because it develops new education technology, and is in turn more willing to cooperate, especially when there's a new, disruptive business model in view. Immigration, by contrast, is purely a policy issue. Clever hoodie-clad engineers cannot "hack" immigration the way they can upend education -- a new mobile app is not going to increase the H1B Visa Cap or unite families. Silicon Valley, by virtue of what it wants to do and is willing to do, can influence whatever happens with immigration. But ultimately it will be lawmakers, participating in complex deal making and politicking, who will decide.

Immigration reform is a very complex, multi-faceted issue, with contentious stakeholders. The tech industry is just another special interest with industry-specific demands, and policy makers will weigh the costs and benefits of meeting those demands. It appears therefore unlikely that Silicon Valley will play the central role in the ultimate immigration reform that it could have in education reform.

## 6. Encryption: The People Will Decide

On February 16th, 2016, Apple's CEO Tim Cook wrote in an open letter shared all over the internet: "The United States government has demanded that Apple take an unprecedented step which threatens the security of our customers. We oppose this order, which has implications far beyond the legal case at hand. This moment calls for public discussion, and we want our customers and people around the country to understand what is at stake."<sup>125</sup> The government responded quickly and sharply: "Rather than assist the effort to fully investigate a deadly terrorist attack by obeying this Court's Order of February 16, 2016, Apple has responded by publicly repudiating that Order."<sup>126</sup> Apple received a motion to compel it to comply.

The conflict between D.C. and Silicon Valley regarding security, privacy and encryption has been developing for years, but the current crisis is entering both legal and public relations spheres at greater intensity levels than ever. To understand the significance of this case, and the implications that the outcome has on the future, one must follow the conversation that led up to this point, and the precedents for the actions of both the FBI and Apple.

In an interview with the Los Angeles Times, Marc Rotenberg, executive director of the public interest research group Electronic Privacy Information Center (EPIC), set the current Apple vs. FBI conflict in historical context: "This is part of a battle over strong encryption and law-enforcement access that goes back 25 years. I had hoped that the government had reached the conclusion that it was better to

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<sup>125</sup> Cook, Tim. "Customer Letter - Apple." Apple. February 16, 2016. Accessed April 17, 2016. <http://www.apple.com/customer-letter/>.

<sup>126</sup> Neil Hughes. "US Department of Justice Files Motion to Force Apple to Crack Terrorist's iPhone." AppleInsider. February 19, 2016. Accessed April 17, 2016. <http://appleinsider.com/articles/16/02/19/us-department-of-justice-files-motion-to-force-apple-to-crack-terrorists-iphone>.

encourage strong encryption to protect American consumers and American businesses than to go down the path of broken encryption.”<sup>127</sup> This battle was at the forefront of tech-world current events in 2013, when Edward Snowden released information about the National Security Agency’s practices of collecting mass amounts of data on US citizens. During that year, the Obama administration had begun to call on companies like Apple and Google to weaken encryption, so that law enforcement could more easily access their customer’s data.

Post-Snowden, tech companies, to the dismay of government officials, intensified efforts to strengthen their privacy systems. At a cybersecurity conference in April 2015, Homeland Security Secretary Jeh Johnson addressed the tech elite: “Encryption is making it harder for your government to find criminal activity, and potential terrorist activity. We need your help to find the solution.” Johnson, as well as FBI Director James Comey, had at this point already begun suggesting the creation of a “backdoor” in phones and computers that later became infamous in Apple’s open letter to the FBI.

This request was heresy to the attendees of the conference, who dedicate their careers to securing tech products and who believe almost religiously in the importance of privacy. It also does not sound good from a sales perspective: Scott Montgomery, vice president and chief technology strategist for Intel Security says, “Let’s take away the emotion for a moment. Imagine you want to protect your house, and I’m going to sell you a deadbolt. That deadbolt is absolutely perfect. It’s the best deadbolt that’s ever been made. No one can break in... except, I’ve put in one method by which

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<sup>127</sup>Michael Hiltzik. "The Conflict Between Apple and the FBI Has a Long History-- and Your Privacy Is at Stake." Los Angeles Times. February 19, 2016. Accessed April 17, 2016. <http://www.latimes.com/business/la-fi-mh-the-conflict-between-apple-and-the-fbi-20160219-column.html>.

someone can break in. Would you buy it?"<sup>128</sup> The tech world agrees that the answer to this question is unequivocally, "No."

The back and forth between the federal government and Silicon Valley did not receive widespread media attention, though, until Tim Cook published his letter opposing the FBI online. In it, he extended the lock metaphor, explaining that the tool that the FBI wants Apple to create would be "the equivalent of a master key, capable of opening hundreds of millions of locks, from restaurants and banks to stores and homes. No reasonable person would find that acceptable."<sup>129</sup>

The stage for the conflict was set on December 2, 2015, when 14 people were killed and 22 seriously injured in a mass shooting and attempted bombing by terrorists Syed Rizwan Farook and Tashfeen Malik. Farook was using an iPhone 5C at the time of the attack that was owned by his employer. The FBI suspected that this phone could contain important clues about the terrorist attack, and who else may have been involved. When it was unable to unlock the phone, it asked Apple to create a method for breaking through the phone's protection to access the information. This would entail creating an anti-encryption tool, which Apple described as a "backdoor" for the phone.

In response to the request, Apple CEO Tim Cook published a Letter to Our Customers, describing the FBI's request and explaining why the company would refuse it. It reads, "The implications of the government's demands are chilling...The government could extend this breach of privacy and demand that Apple build surveillance software to intercept your messages, access your health records or

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<sup>128</sup> Sara Sorcher. "The Battle between Washington and Silicon Valley over Encryption." *The Christian Science Monitor*. July 07, 2015. Accessed April 17, 2016. <http://www.csmonitor.com/World/Passcode/2015/0707/The-battle-between-Washington-and-Silicon-Valley-over-encryption>.

<sup>129</sup>Cook.

financial data, track your location, or even access your phone's microphone or camera without your knowledge.”<sup>130</sup> Apple refused to comply with the FBI largely because of the precedent that doing so would set -- while the government wrote that this request is very narrow, applying to only one iPhone, Apple maintained that it would open the door to a 1984-esque America.

Both sides testified before a House judiciary committee named “The Encryption Tightrope: Balancing Americans’ Security and Privacy” on March 1, 2016. The FBI cited the All Writs Act of 1789 (passed in its current form in 1911) as a precedent for this case. The Act grants the Federal Government the ability to compel companies’ cooperation in law enforcement investigations, and has used it for a similar purpose in the past. Some commentators suggest that the use of such an old law in a modern debate exposes the weakness of the government’s argument. Others argue that the Act’s age is its strength- its message is clearly such a tenet of federal law that it has been in place for hundreds of years.

The tech industry united to stand behind Apple Inc. in this debate. Apple’s major competitors, Google, Microsoft, Facebook, Yahoo, Amazon and ten other tech giants jointly filed an amicus brief. Twitter, Airbnb, Ebay and Reddit did the same. Intel and AT&T each filed theirs individually. The document backed by the first group explains, “Americans live their lives on their phones now. They store their emails, their conversations, their appointments, their photos, sometimes even their medical information, all in a device they carry in their pockets. Cell phones are the way we organize and remember the things that are important to us; they are, in a very

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<sup>130</sup>Ibid.

real way, an extension of our memories.”<sup>131</sup> Mark Zuckerberg said in an interview shortly after Cook’s letter was released, “I don’t think requiring backdoors into encryption is either going to be an effective way to increase security or is really the right thing to do for the direction the world is going in.”<sup>132</sup>

Regarding the question of whether or not this is a one-time request, Apple is correct -- there is no way that the company’s public compliance with this particular FBI request will not open the door for many more. In fact, federal law enforcement already *has* asked for Apple’s help in unlocking iPhones, twelve times before this one. These are twelve stalled cases, and the precedent that Apple would set by unlocking this one phone would be used to justify the others. And there are even more iPhones being held by state and local law enforcement officers, who are waiting for this stalemate to be broken. The Manhattan District Attorney, Cyrus Vance Jr., has purportedly asked Apple to unlock 175 iPhones, and if the FBI wins in the San Bernardino case, he would “absolutely” push harder for those requests to be granted.<sup>133</sup> Comey’s insistence that this case will not open any floodgates is odd given this context.

Many Apple critics wonder whether this very public rejection of a government order was hollower than it seems. In a Forbes article, Info Systems professor Nelson

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<sup>131</sup>Brian Barrett. "Tech Giants Agree: The FBI’s Case Against Apple Is a Joke." Wired.com. March 3, 2016. Accessed April 17, 2016. <http://www.wired.com/2016/03/apple-fbi-tech-industry-support-amicus-brief/>.

<sup>132</sup> Kim Zetter. "Zuckerberg Backs Apple in Its Battle With the FBI Over iPhone Privacy." Wired.com. February 22, 2016. Accessed April 17, 2016. <http://www.wired.com/2016/02/zuckerberg-supports-apple-in-fight-with-fbi-over-iphone-privacy/>.

<sup>133</sup> Kaveh Waddell. "Apple Is Right: The FBI Wants to Break Into Lots of Phones." The Atlantic. February 23, 2016. Accessed April 17, 2016. <http://www.theatlantic.com/technology/archive/2016/02/apple-is-right-the-fbi-wants-to-break-into-lots-of-phones/470607/>.

Granados expresses his certainty that Apple is perfectly capable of creating a one-time fix for this particular phone, without compromising the security of all iPhone users.

He also claimed that Apple *would* eventually comply with the FBI's request: when one weighs the potential costs, which Apple certainly has, \$2 million in development money to create a one-time fix is (0.0004% of the company's market valuation) looks a lot more appealing than "compromising national security by being complicit in the concealment of valuable information that could thwart future terrorist attacks... [and] likely lead future terrorists to use an iPhone... a newer model that has tighter security..." Granados believes that this is an incredibly savvy move on Apple's part- the company wins free advertisement for its security (so strong that even the FBI can't hack it!), and it comes out looking like an advocate for consumer privacy, and a victim of government.<sup>134</sup> At least for now, these critics were wrong- Apple did not cave on the issue, and has continued strengthening its encryption on future product releases.

Comey accused Apple of using its anti-FBI stance as a PR move, to which Apple General Counsel Bruce Sewell interjected, "Every time I hear this my blood boils, because this is not a marketing issue. We don't put up billboards that talk about our security, we don't take out ads that market our encryption, and we're doing this because we think that protecting the security and privacy of hundreds of millions of iPhone users is the right thing to do."

It is not just Apple that is conspicuously willing to air this clash in the open. The FBI and other law enforcement agencies have had over a hundred opportunities

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<sup>134</sup>Nelson Granados. "Apple Can, Should, And Will Help FBI Unlock Shooter's iPhone." Forbes. February 20, 2016. Accessed April 19, 2016. <http://www.forbes.com/sites/nelsongranados/2016/02/20/apple-can-should-and-will-help-fbi-unlock-shooters-iphone/#60c6c4c743aa>.

to push the encryption battle into the public spotlight. They have waited though, for the perfect case to come along: a case related to terrorism. Terrorist threats in post 9/11 America make citizens much more likely to sympathize with the federal government's effort to reach into private lives. The FBI saw the San Bernardino case as an opportunity to frame the security versus privacy debate to make security seem much more favorable to American consumers and voters.

Though the two opponents vocally reject this accusation, winning a PR victory was clearly the secondary goal for both the FBI and Apple. The American people did not side definitively with one or the other, though. In an early March poll, voters leaned toward Apple. Pollsters asked: Should Apple cooperate "because this is an issue of national security," and the "government should have access to all information available?" Or should the company reject the FBI's request because the "Justice Department would want to use it in other non-national security cases, and the tool created "might make it easier for hackers or foreign governments to steal data"?<sup>135</sup>

The results came out forty-seven percent in favor of Apple, and forty-two percent against. Ultimately, this particular case was decided by the FBI, who chose to withdraw its request from Apple in favor of hiring a third-party group. But the result of the PR battle still matters: Silicon Valley achieved stunning results against SOPA (the Stop Online Piracy Act) and PIPA (the Protect IP Act) using the full force of its sway with the public, and it could have repeated its performance by riling the public against the FBI if the stalemate had continued.

And voters, already growing weary of battling to protect their personal information, likely would have gotten on board with the tech industry: a recent Pew

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<sup>135</sup> Safia Samee Ali. "Americans Divided on Whether Apple Should Help FBI: NBC News/WSJ Poll." NBC News. March 9, 2016. Accessed April 19, 2016. <http://www.nbcnews.com/tech/apple/americans-divided-whether-apple-should-help-fbi-nbc-news-wsj-n535021>.

survey shows that the more Americans know about how much of their personal data is being collected, the more they believe that email and search engine providers *should* be more secure. And 90% of Americans think it is “very important” to be able to control what information is being collected about them.<sup>136</sup>

Demonstrating how important winning the hearts and minds of Silicon Valley has become to DC, President Obama showed up to talk about encryption at the South by Southwest in Austin, Texas in March. This music festival-turned-tech expo is a central event for all technologists, and Obama’s presence was noteworthy. He posed to the audience, “[What happens when] encryption is so strong that there is no key, there’s no door at all? Then how do we apprehend the child pornographer? How do we solve or disrupt a terrorist plot? What mechanisms do we have available that even do simple things like tax enforcement?”<sup>137</sup>

This argument, which comes up frequently in the debate on encryption, posits that never before have Americans had this strength of protection against government. There is no part of the American life or household that federal law enforcement has not been able to gain access to, with the appropriate warrants. Vincent Cerf, Google executive and one of the original Internet architects pointed out that the notion of privacy as we understand it today is only a recent phenomenon.

He said, “Privacy may actually be an anomaly...Privacy is something which has emerged out of the urban boom coming from the industrial revolution...” Most homes did not have internal walls until the 19th century, and the term “Right to

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<sup>136</sup> Mary Madden and Lee Rainie. "Americans' Attitudes About Privacy, Security and Surveillance." *Pew Research Center Internet Science Tech RSS*. 20 May 2015. Web. 18 Apr. 2016.

<sup>137</sup> Philip Elmer-DeWitt. "What Obama Said About Apple vs. FBI at SXSW." *Fortune Heres What Obama Said at SXSW About Apple vs FBI Comments*. 2016. Accessed April 19, 2016. <http://fortune.com/2016/03/12/obama-sxsw-apple-vs-fbi/>.

Privacy” was only coined in 1890 by Louis Brandeis.<sup>138</sup> The logic follows that the strength of technological encryption, which continues to grow stronger, gives citizens (and particularly terrorists and criminals) a truly unprecedented amount of privacy, which is not accounted for in our current legal or political system. This gives bad actors much greater opportunity to communicate and protects them from detection and prosecution.

James Comey claims that encryption is making phones dangerously “warrant proof”. He said, “From the founding of this country it was contemplated that law enforcement could go into your house with appropriate predication and oversight. So to me the logic of that means that they wouldn’t have imagined any box or storage area that couldn’t be entered.”<sup>139</sup> We have never had this level of protection of privacy before, why is Apple fighting for it now?

To this, Apple has responded that the government has grossly misread the All Writ’s Act, and overreached the boundaries set by the Constitution. In their latest court brief, Apple lawyers write, “The Founders would be appalled. The government...contends that because this Court issued a valid search warrant, it can order innocent third parties to provide any service the government deems ‘necessary’ or ‘appropriate’ to accomplish the search.”<sup>140</sup> The company specifically cites violations of its First and Fifth Amendment rights: Computer code is a form of writing, which is covered under free speech, and therefore cannot be regulated. And,

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<sup>138</sup> Ferenstein, Gregory. "Privacy Is "An Anomaly"" TechCrunch. November 20, 2013. Accessed April 19, 2016. <http://techcrunch.com/2013/11/20/googles-cerf-says-privacy-may-be-an-anomaly-historically-hes-right/>.

<sup>139</sup> Alina Selyukh. "FBI Chief Tells Congress Encryption Is Creating 'Warrantproof' Devices." NPR. March 1, 2016. Accessed April 19, 2016. <http://www.npr.org/sections/thetwo-way/2016/03/01/468599364/fbi-chief-tells-congress-encryption-is-creating-warrant-proof-devices>.

<sup>140</sup> Alina Selyukh. "Apple On FBI iPhone Request: 'The Founders Would Be Appalled'" NPR. March 15, 2016. Accessed April 19, 2016. <http://www.npr.org/sections/thetwo-way/2016/03/15/470436785/apple-on-fbi-iphone-request-the-founders-would-be-appalled>.

it says that the Court's order is an "arbitrary deprivation of [its] liberty by government," covered by the Fifth Amendment.<sup>141</sup>

Apple's hard stance is another example of Silicon Valley's attitude that is exemplified in the realms of both education and immigration. It is a blend of altruism and self-interest, and it is difficult to see where one ends and the other begins. Apple's aim is to protect American citizens from an overreach of government power and a 1984-esque reality. It is another example of what we've seen so far with immigration and education, where Silicon Valley outwardly attempts to embody the region's "change the world" mentality, while simultaneously protecting its own interests.

The standard for how law enforcement will use technology going forward was at stake in the Apple versus FBI case. Matt Apuzo, journalist for the New York Times covering the case from D.C. explains, "If privacy overrides security here, a lot of agents will say fine. Just don't expect them to prevent every attack and solve every crime. And honestly, as a country, we've made that decision on guns. We accept a certain amount of gun crime and resist infringement on the Second Amendment."<sup>142</sup> Phones and computers provide intimate windows into our lives in a way that has never existed before, which law enforcement has been working to use to its advantage. A decision in favor of Apple would have set precedent on other questions about how protected our phones and computers are in the face of investigation.

A win for Apple would have been an enormous power trip for the broader Silicon Valley, probably resulting in a bigger confidence boost than was created by

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<sup>141</sup>Jim Kerstetter. "Apple, the F.B.I. and a Collection of Very Old Laws." The New York Times. February 26, 2016. Accessed April 19, 2016. <http://www.nytimes.com/2016/02/27/technology/apple-the-fbi-and-a-collection-of-very-old-laws.html>.

<sup>142</sup>Katie Benner and Matt Apuzzo. "Apple vs. the F.B.I.: How the Case Could Play Out." The New York Times. March 20, 2016. Accessed April 19, 2016. [http://www.nytimes.com/2016/03/21/technology/apple-vs-the-fbi-how-the-case-could-play-out.html?\\_r=0](http://www.nytimes.com/2016/03/21/technology/apple-vs-the-fbi-how-the-case-could-play-out.html?_r=0).

the PIPA and SOPA victory. It would confirm the tech industry's belief in its own power to set national cultural and political standards. Tech will be re-energized to push its policy agenda in the privacy related realm, as well as other areas of interest including immigration and education. Politicians will prioritize alignment with the tech industry over other industries. Because of tech's aversion to "backroom wheeling and dealing", this could have a cleansing effect on politics. More likely, though, victory on that scale would have had a somewhat corrupting effect on the already inflated ego of Silicon Valley.

In the epitome of anti-climax, the FBI dropped the case on March 28, 2016, announcing that they had found a third party, private expert to hack the phone and no longer needed Apple's help. The FBI has not yet revealed how it bypassed iPhone security. It has expressed to other law enforcement agencies that it will help them replicate the process.<sup>143</sup> But Apple has said publicly that the FBI method will not work for long: the company will soon find and plug the hole in its software's vulnerability. So who really won?

The fight is not over yet. "When Apple does fix the flaw," writes *Reuters*, "it is expected to announce to its customers and thereby extend the rare public battle over security holes, a debate that typically rages out of public view."<sup>144</sup> Even though the FBI got what they wanted in this particular case, they did not subdue the tech industry- it will continue to deny aid to the government in the future. Encryption seems to only be strengthening. WhatsApp, the world's second largest social media platform, just announced that it has introduced end-to-end encryption on all messages between users, so no one, not even the company's employees, will be able to access

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<sup>143</sup>Brendan O'Brien. "FBI Assures It Will Help Authorities Unlock Devices When Allowed by Law." *Reuters*. April 02, 2016. Accessed April 19, 2016. <http://www.reuters.com/article/us-apple-encryption-letter-idUSKCN0WZ055>.

<sup>144</sup> *Ibid*.

private messages. WhatsApp co-founder Brian Acton stands by Apple and the rest of the tech industry, saying “Building secure products actually makes for a safer world, [though] many people in law enforcement may not agree with that.”<sup>145</sup>

The encryption debate introduces a new facet to the relationship between the tech industry and government. Silicon Valley’s stance is, in keeping with its usual theme, laced with benevolence. Leaders in the Valley have chosen to stir up controversy and conflict on behalf of a cause they believe in deeply (and surely, there is a hint of PR interest mixed in). Unlike immigration and education, there are few politicians who will side with them against another branch of the federal government in this case. Politicians will say a lot of things to create alliances with the moneyed tech-world, but crossing the FBI is not worth the donation boost. Rather than drawing the tech industry into the folds of politics and policy, this issue will have an alienating effect on the tech industry from D.C. This will be a case of Silicon Valley versus the government in general, rather than a certain faction of government. If encryption continues to be a top issue for the tech industry, as it might, it could reverse some of the steps forward into the political sphere that Silicon Valley has taken over the past decade.

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<sup>145</sup>Metz, Cade. "Forget Apple vs. the FBI: WhatsApp Just Switched on Encryption for a Billion People." Wired.com. April 05, 2016. Accessed April 19, 2016. <http://www.wired.com/2016/04/forget-apple-vs-fbi-whatsapp-just-switched-encryption-billion-people/>.

## Conclusion

Not everyone thinks that Silicon Valley is as politically unique as I do. Michael Miller, former *PC Magazine* editor and VP of Editorial for Ziff-Davis said, “You know, the tech industry is just an industry. It’s just looking out for itself, in the end.” True, it has its selfish interests that it wants to protect from government, and it does so by lobbying, making donations and publicizing its positions. But what makes Silicon Valley different from other industries is its almost-religious belief in its unique culture, and its desire to convert the non-believers.

Members of the tech industry champion their way of doing things, at the expense of losing supporters, losing money, angering the federal government, losing progress on political initiatives and more. This level idealism is not found in pharmaceuticals, or finance, or agriculture, or insurance. It is what makes Silicon Valley different, and special, and important to understand.

The issues of education, immigration and encryption give us a window into how tech fits into policy development- both where the tech industry can be a powerful agent for change, and where it can be an obstruction to progress.

I predict that Silicon Valley will continue to have a positive impact on the development innovations in education, but in spurts that are stymied by the bulkiness of government. Within the next five years, schools like AltSchool and the Khan Lab School will be much less radical in the private school sphere, but only a handful of the tech innovations coming out of the Valley will be implemented in the public school system. There will be more apps and computers in classrooms and a more rigorous focus on data collection, but the progressive ability-based classroom divisions will not replace the existing age-based model for another decade at the least. Silicon Valley will continue developing the technology to improve education at its customary quick

pace, and the federal and local governments will continue to introduce it at their own pace.

Regarding immigration, the tech industry may not be strong enough to tip the scales in its favor. Our highly polarized political environment going into the 2016 election cycle shows no indication of softening in the near future. Because high-skilled immigration is such a complex issue with so many stakeholders, a measure to increase it will require bipartisan support. That will be difficult to achieve, given the current political circumstances.

I believe that the government will continue to be pushed on encryption laws, and have decreasing access to citizens' online and cell phone activity over time. Barring a 9/11-like attack on American soil that unites the country against a common threat, the American people will continue to grow weary of data collection, and eventually push their representatives to advocate for increased privacy from the government. The tech industry is on the right side of history regarding encryption, and its ability to influence policy will stand to benefit when the government publicly cedes to it.

Silicon Valley is its own worst enemy if getting things done with government is its goal. It has huge wealth and outsized intellectual capital, which can be used to develop tangible solutions to issues like education, poverty, and environmental sustainability. In addition, it has the ability to reach an enormous, worldwide audience, and can influence public opinion, which we saw in the response to SOPA and PIPA. All those assets come with liabilities: the tech industry has no interest in conforming to the delicate relationship building that goes on amongst politicians, lobbyists and industry groups. And it has too big of a collective ego to make ideological compromises or accept less attention from politicians than it thinks it

deserves. It does not hold politics-as-usual in high regard, assuming instead that business and startup principles that work in the Valley the better way to mitigate all types of issues.

In order to benefit from the money and influence that Silicon Valley has to offer, politicians must be strategic about the way they court it. Members of the tech industry are more likely to engage in a project which they feel they are uniquely qualified to solve based on their skills, illustrated by their engagement in education reform. They appreciate straightforwardness and efficiency. These are important lessons for politicians to take to heart, because as technology becomes more integral to the economy and to Americans' daily lives, the people who develop and maintain it will become more influential. And the government would benefit from having the tech industry feel aligned with it, because as evidenced by the recent encryption battle, fighting against it is an enormous energy sink and could pit government against popular opinion.

Silicon Valley is still in an extended adolescence. Its status as a political entity is not set in stone. Politicians would do well to gain a deeper understanding of how the Valley works, and how its power can be harnessed with and for government, rather than orthogonally. Silicon Valley is not an industry with simply defined needs, which politicians can transact with as simply as other industries with one-dimensional desires. And in order to better achieve its goals, the tech industry must develop a sense of humility, recognizing its place in the greater scheme of politics. Together, they can achieve the social progress that both strive for, better than they can alone.

## Bibliography

- 2015 *Silicon Valley Index*. Joint Venture Silicon Valley: Silicon Valley Institute for Regional Studies. Jointventure.org. January 2016. <https://www.jointventure.org/images/stories/pdf/index2015.pdf>.
- BI India Bureau. "Silicon Valley Cannot Do without Indians? At Least Veritas CEO Thinks so." Business Insider. February 19, 2016. Accessed April 17, 2016. <http://www.businessinsider.in/Silicon-Valley-cannot-do-without-Indians-At-least-Veritas-CEO-thinks-so/articleshow/51052700.cms>.
- "Christensen Institute." Christensen Institute Blended Learning Comments. Accessed April 16, 2016. <http://www.christenseninstitute.org/blended-learning/>.
- CNN Staff. "Websites Blackout in Protest of SOPA." CNNMoney. January 18, 2012. Accessed April 16, 2016. [http://money.cnn.com/2012/01/18/technology/sopa\\_blackouts/](http://money.cnn.com/2012/01/18/technology/sopa_blackouts/).
- "Cyberstates 2016." CompTIA. March 1, 2016. Accessed April 11, 2016. <https://www.comptia.org/resources/cyberstates-2016>.
- Dailymail.com. "Mark Zuckerberg Talks about His Successes and the Lessons Learned Five Years after He Donated \$100million to Newark Schools." Mail Online. November 06, 2015. Accessed April 16, 2016. <http://www.dailymail.co.uk/news/article-3307596/Zuckerberg-talks-success-lessons-learned-Newark-schools.html>.
- "Electronics Manufacturing & Equipment." Opensecrets RSS - Center for Responsive Politics. Accessed April 13, 2016. <https://www.opensecrets.org/industries/background.php?ind=B12>.
- "FWD.us." FWD.us. Accessed April 17, 2016. <http://www.fwd.us/>.
- "Just the Facts." Immigration Policy Center. January 21, 2016. Accessed April 17, 2016. <http://www.immigrationpolicy.org/just-facts/understanding-legal-challenges-executive-action>.
- "Khan Academy." Khan Academy. Accessed April 16, 2016. <https://www.khanacademy.org/>.
- Mission and Vision." The Primary School. Accessed April 16, 2016. <http://www.theprimaryschool.org/mission-and-vision/>.
- Paul Clips. Rand Paul. September 3, 2013. <https://www.youtube.com/watch?v=NZDN7qw6mHE>.
- "Startup Act (S. 181)." GovTrack.us. Accessed April 18, 2016. <https://www.govtrack.us/congress/bills/114/s181>.
- "Starting Schools Is the Next Hot Thing in Silicon Valley (EdSurge News)." EdSurge. October 27, 2015. Accessed April 16, 2016. <https://www.edsurge.com/news/2015-10-27-starting-schools-is-the-next-hot-thing-in-silicon-valley>.
- "Tech Immigrants: A Map of Silicon Valley's Imported Talent." Bloomberg.com. June 5, 2014. Accessed April 16, 2016. <http://www.bloomberg.com/bw/articles/2014-06-05/tech-immigrants-a-map-of-silicon-valleys-imported-talent>.
- "To Save Everything, Click Here: The Folly of Technological Absolutism." Interview by Joanne J. Myers and Evgeny Morozov. Carnegie Council for Ethics in International Affairs. April 24, 2013. Accessed October 1, 2015. [https://www.carnegiecouncil.org/studio/multimedia/20130412/transcript.html/\\_res/id=sa\\_File1/To\\_Save\\_Everything\\_Click\\_Here.pdf](https://www.carnegiecouncil.org/studio/multimedia/20130412/transcript.html/_res/id=sa_File1/To_Save_Everything_Click_Here.pdf).

Anderson, Monica and Andrew Perrin. "15% of Americans Don't Use the Internet. Who Are They?" Pew Research Center RSS. July 28, 2015. Accessed April 16, 2016. <http://www.pewresearch.org/fact-tank/2015/07/28/15-of-americans-dont-use-the-internet-who-are-they/>.

Benner, Katie and Matt Apuzzo. "Apple vs. the F.B.I.: How the Case Could Play Out." The New York Times. March 20, 2016. Accessed April 19, 2016. [http://www.nytimes.com/2016/03/21/technology/apple-vs-the-fbi-how-the-case-could-play-out.html?\\_r=0](http://www.nytimes.com/2016/03/21/technology/apple-vs-the-fbi-how-the-case-could-play-out.html?_r=0).

Benner, Katie. "Obama, Immigration and Silicon Valley." Bloomberg View. January 22, 2015. Accessed April 17, 2016. <http://www.bloombergvew.com/articles/2015-01-22/obama-immigration-reform-h-b1-visas-and-silicon-valley>.

Barrett, Brian. "Tech Giants Agree: The FBI's Case Against Apple Is a Joke." Wired.com. March 3, 2016. Accessed April 17, 2016. <http://www.wired.com/2016/03/apple-fbi-tech-industry-support-amicus-brief/>.

Cook, Tim. "Customer Letter - Apple." Apple. February 16, 2016. Accessed April 17, 2016. <http://www.apple.com/customer-letter/>.

Chuck, Elizabeth. "US in a 'real State of Crisis,' Education Secretary Says - NBC News." NBC News. October 13, 2013. Accessed April 14, 2016. <http://www.nbcnews.com/news/other/us-real-state-crisis-education-secretary-says-f8C11354527>.

Cornfeld, Leslie. "D.C.'s Take on Ed-Tech." Telephone interview by author. December 10, 2015.

Curry, Colleen. "Not Everyone Is Happy About the Influx of Foreign Workers That Could Soon Hit Silicon Valley | VICE News." VICE News RSS. March 17, 2015. Accessed April 17, 2016. <https://news.vice.com/article/not-everyone-is-happy-about-the-influx-of-foreign-workers-that-could-soon-hit-silicon-valley>

Elmer-DeWitt, Philip. "What Obama Said About Apple vs. FBI at SXSW." Fortune Heres What Obama Said at SXSW About Apple vs FBI Comments. 2016. Accessed April 19, 2016. <http://fortune.com/2016/03/12/obama-sxsw-apple-vs-fbi/>.

Faustman, Matthew. "How Does a Company Sponsor H1B Visas?" Forbes. April 7, 2016. Accessed April 16, 2016. <http://www.forbes.com/sites/quora/2014/04/07/how-does-a-company-sponsor-h1b-visas/#3c1752fb377d>.

Ferenstein, Gregory. "Privacy Is 'An Anomaly'" TechCrunch. November 20, 2013. Accessed April 19, 2016. <http://techcrunch.com/2013/11/20/googles-cerf-says-privacy-may-be-an-anomaly-historically-hes-right/>.

Ferenstein, Gregory. "No Exceptions For Tech Industry: High Skilled." TechCrunch. December 1, 2012. Accessed April 17, 2016. <http://techcrunch.com/2012/12/01/no-exceptions-for-tech-industry-high-skilled-visas-now-tied-to-comprehensive-reform/>.

Ferenstein, Gregory. "CEOs Of Silicon Valley's Top Firms Are Often Non-White, Immigrants, Or Women (In 1 Graph)." Forbes. Accessed April 16, 2016.

Ferenstein, Gregory. "A Lot of Billionaires Are Giving to Democrats. Here's a Data-Driven Look at Their Agenda." Forbes. February 26, 2016. Accessed April 16, 2016. <http://www.forbes.com/sites/gregoryferenstein/2016/02/26/a-lot-of-billionaires-are-giving-to-democrats-heres-a-data-driven-look-at-their-agenda/2/#360e613d6fad>.

Ferenstein, Gregory. "Silicon Valley Represents An Entirely New Political Category Now - ReadWrite." ReadWrite. November 06, 2015. Accessed April 16, 2016. <http://readwrite.com/2015/11/06/silicon-valley-politics>.

Ferenstein, Gregory. "The Politics of Silicon Valley." Fast Company. November 08, 2015. Accessed April 16, 2016. <http://www.fastcompany.com/3053318/the-politics-of-silicon-valley>.

Graham, Paul. "Let the Other 95% of Great Programmers In." Let the Other 95% of Great Programmers In. December 2014. Accessed April 17, 2016. <http://www.paulgraham.com/95.html#f3n>.

Goodman, Leah M. "Who's Silicon Valley Backing for President?" October 26, 2015. Accessed April 16, 2016. <http://www.newsweek.com/clinton-sanders-google-hewlett-packard-rubio-fiorina-387001>.

Gove, Philip Babcock. *Webster's Third New International Dictionary of the English Language, Unabridged: A Merriam-Webster*. Springfield, MA: G. & C. Merriam, 1961.

Granados, Nelson. "Apple Can, Should, And Will Help FBI Unlock Shooter's iPhone." Forbes. February 20, 2016. Accessed April 19, 2016. <http://www.forbes.com/sites/nelsongranados/2016/02/20/apple-can-should-and-will-help-fbi-unlock-shooters-iphone/#60c6c4c743aa>.

Green, Stephanie. "Google's New Digs in DC Opens to Senators, Dogs." Bloomberg.com. July 16, 2014. Accessed April 16, 2016. <http://www.bloomberg.com/news/articles/2014-07-16/google-s-new-digs-in-dc-opens-to-senators-dogs>.

Gustin, Sam. "Why Mark Zuckerberg Is Pushing for Immigration Reform | TIME.com." Business Money Why Mark Zuckerberg Is Pushing for Immigration Reform Comments. April 12, 2013. Accessed April 17, 2016. <http://business.time.com/2013/04/12/why-mark-zuckerberg-is-pushing-in-immigration-reform/>.

Haberman, Maggie. "Zuckerberg Group Hires Todd Schulte." POLITICO. June 24, 2013. Accessed April 17, 2016. <http://www.politico.com/story/2013/06/zuckerberg-group-hires-todd-schulte-093226>.

Hahn, Melody. "Silicon Valley Giant Max Levchin Nails What's Truly Sad about the Trump Phenomenon." Yahoo Finance. March 16, 2016. Accessed April 17, 2016. <http://finance.yahoo.com/news/max-levchin-paypal-trump-immigration-election-silicon-valley-174704154.html>.

Hamburger, Tom and Matea Gold. "How Google Learned to Stop Worrying and Mastered the Washington Lobbying Game." Washington Post. April 12, 2014. Accessed April 16, 2016. [https://www.washingtonpost.com/politics/how-google-is-transforming-power-and-politicsgoogle-once-disdainful-of-lobbying-now-a-master-of-washington-influence/2014/04/12/51648b92-b4d3-11e3-8cb6-284052554d74\\_story.html](https://www.washingtonpost.com/politics/how-google-is-transforming-power-and-politicsgoogle-once-disdainful-of-lobbying-now-a-master-of-washington-influence/2014/04/12/51648b92-b4d3-11e3-8cb6-284052554d74_story.html).

Henton, Doug, Janine Kaiser, and Kim Held. *Silicon Valley Competitiveness and Innovation Project*. Silicon Valley Leadership Group and Silicon Valley Community Foundation. Silicon Valley Competitiveness and Innovation Project. January 1, 2015. Accessed March 5, 2016. [http://svcip.com/files/SVCIP\\_2015.pdf,10](http://svcip.com/files/SVCIP_2015.pdf,10).

Hiltzik, Michael. "The Conflict Between Apple and the FBI Has a Long History-- and Your Privacy Is at Stake." Los Angeles Times. February 19, 2016. Accessed April 17, 2016. <http://www.latimes.com/business/la-fi-mh-the-conflict-between-apple-and-the-fbi-20160219-column.html>.

Hughes, Neil. "US Department of Justice Files Motion to Force Apple to Crack Terrorist's iPhone." AppleInsider. February 19, 2016. Accessed April 17, 2016. <http://appleinsider.com/articles/16/02/19/us-department-of-justice-files-motion-to-force-apple-to-crack-terrorists-iphone>.

Johnston, Casey. "The Netflix Lobby in Washington Spent \$1 Million in Two Years." Ars Technica. December 27, 2012. Accessed April 16, 2016. <http://arstechnica.com/tech-policy/2012/12/the-netflix-lobby-in-washington-spent-1-million-in-two-years/>.

Kamenetz, Anya. "AltSchool Promises To Reimagine Education For the 2030s." NPR. May 7, 2015. Accessed April 16, 2016. <http://www.npr.org/2015/05/07/404859293/altschool-promises-to-reimagine-education-for-the-2030s>.

Kaplan, David A. *The Silicon Boys and Their Valley of Dreams*. New York City: Harper Collins, 2000, 27.

Keen, Andrew. "Are Republicans The Party Of Silicon Valley?" TechCrunch. January 7, 2016. Accessed April 16, 2016. <http://techcrunch.com/2016/01/07/are-republicans-the-party-of-silicon-valley/>.

Kerstetter, Jim. "Apple, the F.B.I. and a Collection of Very Old Laws." The New York Times. February 26, 2016. Accessed April 19, 2016. <http://www.nytimes.com/2016/02/27/technology/apple-the-fbi-and-a-collection-of-very-old-laws.html>.

Kim, John J-H, Kyla Wilkes, and Christine S. An. "AltSchool: School Reimagined." Harvard Business School Case 315-054, February 2015. (Revised May 2015.)

Konrad, Alex. Forbes. December 22, 2015. Accessed April 13, 2016. <http://www.forbes.com/sites/alexkonrad/2015/12/22/top-10-regulatory-battles-in-tech-for-2016/#2ad7b918557f>.

Lapowsky, Issie. "Google Wants to Save Our Schools—And Hook a New Generation of Users." Wired.com. August 13, 2014. Accessed April 16, 2016. <http://www.wired.com/2014/08/google-classrooms/>.

Lee, Brianna. "Immigration Reform 2015: High Hopes For High-Skilled Immigration Reform, Even As Congress Battles Obama." International Business Times. January 15, 2015. Accessed April 17, 2016. <http://www.ibtimes.com/immigration-reform-2015-high-hopes-high-skilled-immigration-reform-even-congress-1783946>.

Luhby, Tami. "Typical American Family Earned \$53,657 Last Year." CNNMoney. September 16, 2015. Accessed April 12, 2016. <http://money.cnn.com/2015/09/16/news/economy/census-poverty-income/>.

Mason, Melanie. Los Angeles Times. February 28, 2015. Accessed April 16, 2016. <http://www.latimes.com/local/politics/la-me-pol-tech-sacramento-20150301-story.htm>.

Madden, Mary and Lee Rainie. "Americans' Attitudes About Privacy, Security and Surveillance." *Pew Research Center Internet Science Tech RSS*. 20 May 2015. Web. 18 Apr. 2016.

McKenzie, Hamish. "The Talented Mr Green: How FWD.us Lost New York, Elon Musk, and the Tech Moral High Ground." Pando. May 29, 2013. Accessed April 17, 2016. <https://pando.com/2013/05/29/the-talented-mr-green-how-fwd-us-lost-new-york-elon-musk-and-the-tech-moral-high-ground/>.

Meacham, Jody. "Bay Area Business and Immigrants' Rights Groups Cheer Supreme Court's Decision to Hear Immigration Case." Silicon Valley Business Journal. January 19, 2016. Accessed April 17, 2016. <http://www.bizjournals.com/sanjose/news/2016/01/19/bay-area-business-and-immigrants-rights-groups.html>.

Metz, Cade. "Forget Apple vs. the FBI: WhatsApp Just Switched on Encryption for a Billion People." Wired.com. April 05, 2016. Accessed April 19, 2016. <http://www.wired.com/2016/04/forget-apple-vs-fbi-whatsapp-just-switched-encryption-billion-people/>.

Miles, Sara. *How to Hack a Party Line: The Democrats and Silicon Valley*. New York: Farrar, Straus and Giroux, 2001, 9.

Miller, Michael. "History of Silicon Valley." Telephone interview by author. April 4, 2016.

Moriarty, Andrew. "FWD.us In San Francisco." Telephone interview by author. October 24, 2015.

Ngak, Chenda. "SOPA and PIPA Internet Blackout Aftermath, Staggering Numbers." CBSNews. December 19, 2012. Accessed April 16, 2016. <http://www.cbsnews.com/news/sopa-and-pipa-internet-blackout-aftermath-staggering-numbers/>.

O'Brien, Brendan. "FBI Assures It Will Help Authorities Unlock Devices When Allowed by Law." Reuters. April 02, 2016. Accessed April 19, 2016. <http://www.reuters.com/article/us-apple-encryption-letter-idUSKCN0WZ055>.

Packer, George. "Change the World." The New Yorker. May 27, 2013. Accessed April 16, 2016. <http://www.newyorker.com/magazine/2013/05/27/change-the-world>.

Rodriguez, Josh. "FWD.us in Los Angeles." Telephone interview by author. November 15, 2015.

Romm, Tony. "Apple Privacy Pitch Hits Hill." POLITICO. September 16, 2014. Accessed April 16, 2016. <http://www.politico.com/story/2014/09/apples-health-privacy-pitch-hits-hill-111033>.

Romm, Tony. "Tech Giants Get Deeper into D.C. Influence Game." POLITICO. January 21, 2015. Accessed April 16, 2016. <http://www.politico.com/story/2015/01/tech-lobby-apple-amazon-facebook-google-114468>.

Romm, Tony. "D.C. Crowd's Path to Silicon Valley." POLITICO. October 07, 2010. Accessed April 16, 2016. <http://www.politico.com/story/2010/10/dc-crowds-path-to-silicon-valley-043249>.

Russ, Mitchell. "Silicon Valley Lukewarm to Obama's Immigration Reform Moves." Los Angeles Times. November 20, 2014. Accessed April 17, 2016. <http://www.latimes.com/business/la-fi-1120-immigration-tech-20141121-story.html>.

Russakoff, Dale. *The Prize: Who's in Charge of America's Schools?* Boston: Houghton Mifflin Harcourt, 2015, 24.

Samee Ali, Safia. "Americans Divided on Whether Apple Should Help FBI: NBC News/WSJ Poll." NBC News. March 9, 2016. Accessed April 19, 2016. <http://www.nbcnews.com/tech/apple/americans-divided-whether-apple-should-help-fbi-nbc-news-wsj-n535021>.

Saxenian, AnnaLee. *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press, 1994.

Schurenberg, Eric. "The Inconvenient History of Silicon Valley." Inc.com. May 30, 2012. Accessed April 16, 2016. <http://www.inc.com/eric-schurenberg/inconvenient-history-of-silicon-valley.html>.

Seabrook, Nicholas. "Congress Should Fix the H-1B Visa Program, Not Abolish It." OrlandoSentinel.com. January 23, 2016. Accessed April 16, 2016. <http://www.orlandosentinel.com/opinion/os-ed-h1b-visa-congress-012416-20160123-story.html>.

Selyukh, Alina. "Apple On FBI iPhone Request: 'The Founders Would Be Appalled'" NPR. March 15, 2016. Accessed April 19, 2016. <http://www.npr.org/sections/thetwo-way/2016/03/15/470436785/apple-on-fbi-iphone-request-the-founders-would-be-appalled>.

Selyukh, Alina. "FBI Chief Tells Congress Encryption Is Creating 'Warrantproof' Devices." NPR. March 1, 2016. Accessed April 19, 2016. <http://www.npr.org/sections/thetwo-way/2016/03/01/468599364/fbi-chief-tells-congress-encryption-is-creating-warrant-proof-devices>.

Sengupta, Somini. "Technology Industry Lobbying Group Loses Supporters." The New York Times. May 10, 2013. Accessed April 17, 2016. [http://www.nytimes.com/2013/05/11/technology/teslas-elon-musk-leaves-zuckerbergs-fwdus.html?\\_r=0](http://www.nytimes.com/2013/05/11/technology/teslas-elon-musk-leaves-zuckerbergs-fwdus.html?_r=0).

Sengupta, Somini and Eric Lipton. "Silicon Valley Group's Political Effort Causes Uproar." The New York Times. May 08, 2013. Accessed April 17, 2016. <http://www.nytimes.com/2013/05/09/technology/fwdus-raises-uproar-with-advocacy-tactics.html?ref=sominisengupta>.

Sirota, David, and Andrew Perez. "Election 2016: Silicon Valley Becomes Major Money Force In Politics." International Business Times. July 16, 2015. Accessed April 16, 2016. <http://www.ibtimes.com/election-2016-silicon-valley-becomes-major-money-force-politics-2010988>.

Sorcher, Sara. "The Battle between Washington and Silicon Valley over Encryption." The Christian Science Monitor. July 07, 2015. Accessed April 17, 2016. <http://www.csmonitor.com/World/Passcode/2015/0707/The-battle-between-Washington-and-Silicon-Valley-over-encryption>.

Sumagaysay, Levi. "Quoted: Elon Musk on Why He Quit Zuckerberg's FWD.us." SiliconBeat. May 30, 2013. Accessed April 17, 2016. [http://www.siliconbeat.com/2013/05/30/quoted-elon-musk-on-why-he-quit-zuckerbergs-fwd-us/?doing\\_wp\\_cron=1454298655.2459509372711181640625](http://www.siliconbeat.com/2013/05/30/quoted-elon-musk-on-why-he-quit-zuckerbergs-fwd-us/?doing_wp_cron=1454298655.2459509372711181640625)

Strauss, Valerie. "Is Khan Academy a Real 'education Solution'?" Washington Post. July 12, 2012. Accessed April 16, 2016. [https://www.washingtonpost.com/blogs/answer-sheet/post/is-khan-academy-a-real-education-solution/2012/07/12/gJQAtApceW\\_blog.html](https://www.washingtonpost.com/blogs/answer-sheet/post/is-khan-academy-a-real-education-solution/2012/07/12/gJQAtApceW_blog.html).

Swaine, Jon. "Mozilla CEO Brendan Eich Resigns in Wake of Backlash to Prop 8." The Guardian. April 03, 2014. Accessed April 16, 2016. <http://www.theguardian.com/technology/2014/apr/03/mozilla-ceo-brendan-eich-resigns-prop-8>.

Tani, Maxwell. "The Supreme Court Will Drop an Immigration Blockbuster Right in the Heat of the Election." Business Insider. January 19, 2016. Accessed April 17, 2016. <http://www.businessinsider.com/supreme-court-obama-immigration-actions-2016-1>.

Tanz, Jason. "The Tech Elite's Quest to Reinvent School in Its Own Image." Wired.com. October 26, 2015. Accessed April 16, 2016. <http://www.wired.com/2015/10/salman-khan-academy-lab-school-reinventing-classrooms/>.

Tarver, Clayu and Mike Judge, writers. "Proof of Concept." In *Silicon Valley*. HBO. May 18, 2014.

Thiel, Peter. "A Conversation about Entrepreneurship and Education." Lecture, A A Conversation about Entrepreneurship and Education, Claremont McKenna College Athenaeum, Claremont, California, March 11, 2016.

Tiku, Nitasha. "Why Zuck's 'Pro-Knowledge' Politics Are Just More Corporate Bullshit." Valleywag. September 19, 2013. Accessed April 17, 2016. <http://valleywag.gawker.com/ive-always-been-confused-are-people-afraid-to-identify-1350629211>.

Trikha, Ritika. "H-1B Visa Cap: The Imminent Threat to US Tech Innovation." HackerRank Blog. April 14, 2015. Accessed April 17, 2016. <http://blog.hackerrank.com/h1-b-visa-cap-the-imminent-threat-to-us-tech-innovation/>.

Waddell, Kevah. "Apple Is Right: The FBI Wants to Break Into Lots of Phones." The Atlantic. February 23, 2016. Accessed April 17, 2016. <http://www.theatlantic.com/technology/archive/2016/02/apple-is-right-the-fbi-wants-to-break-into-lots-of-phones/470607/>.

Westervelt, Eric. "A Bit Of A Montessori 2.0: Khan Academy Opens A Lab School." NPR. January 5, 2016. Accessed April 16, 2016. <http://www.npr.org/sections/ed/2016/01/05/461506508/sal-khan-on-learning-coding-and-why-virtual-ed-is-not-enough>.

Wright, Caitrin. "Silicon Schools." Telephone interview by author. December 10, 2015.

Zuckerberg, Mark. "Mark Zuckerberg: Immigrants Are the Key to a Knowledge Economy." Washington Post. April 10, 2013. Accessed April 17, 2016. [https://www.washingtonpost.com/opinions/mark-zuckerberg-immigrants-are-the-key-to-a-knowledge-economy/2013/04/10/aba05554-a20b-11e2-82bc-511538ae90a4\\_story.html](https://www.washingtonpost.com/opinions/mark-zuckerberg-immigrants-are-the-key-to-a-knowledge-economy/2013/04/10/aba05554-a20b-11e2-82bc-511538ae90a4_story.html).

Zuckerberg, Mark, and Priscilla Chan. "Mark Zuckerberg and Dr. Priscilla Chan: Why We're Committing \$120 Million to Bay Area Schools." - San Jose Mercury News. May 29, 2014. Accessed April 16, 2016. [http://www.mercurynews.com/opinion/ci\\_25859659/mark-zuckerberg-120-million-bay-area-schools](http://www.mercurynews.com/opinion/ci_25859659/mark-zuckerberg-120-million-bay-area-schools).