Dossier
Comment les medias américains analysent et interprètent le déclin de Silicon Valley

American Dynamism in Retreat
Startups as share of all businesses

Source: Ryan Decker, Federal Reserve Board

Figure 2: Young firm share patterns vary by sector

Note: Young firms have age less than 5. Industries are defined on a consistent NAICS basis; high-tech is defined as in Hecker (2005). Data include all firms (new entrants, exiters, and continuers). Author calculations from the LBD.
The US startup is disappearing June 2018 Quartz

America’s Startup Scene Is Looking Anemic Fewer people are taking the entrepreneurial plunge. That’s not a good sign. 7 juin 2018 Bloomberg Opinion

The Vanishing Startup: Is U.S. Entrepreneurship in Decline? Vol. 25 Issue 11 Fall 2018 Thing Bigger

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Silicon Valley tech bubble is larger than it was in 2000, and the end is coming 22 05 2018 CNBC

Valley Is Over, Says Silicon Valley March 4, 2018 The New York Times

Trump Administration is Killing Silicon Valley With Policies on Trade, Immigration and Investment September 20 2017 Newsweek

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Silicon Valley is stalling out as the pace of innovation slows down — and it could be a good thing for humanity June 10, 2018 - Business Insider – Yahoo Finance


Where are all the startups? U.S. entrepreneurship near 40-year low Sept 2016 CNN business

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The US startup is disappearing

By Dan Kopf June 20, 2018

Historically, startups have been the engine of US economy. By creating new jobs and surfacing new ideas, startups play an outsized role in making the economy grow.

It’s too bad they are a dying breed.

The share of companies that are startups has been falling

While companies that were less than two years old made up about 13% of all companies in 1985, they only accounted for 8% in 2014.
A far smaller share of people work for startups

From around 1998 to 2010, the share of private sector workers in companies that were less than two years old plummeted from more than 9% to less than 5%.

The startup decline is happening across the economy

A new report from the Brookings Institution, finds that in nearly every industry, from agriculture to finance, the share of new companies is falling.

So what’s going on?

It’s not entirely clear, but the authors of the Brookings report have some ideas.
One possibility: Startups are struggling in this era of rising market concentration. In most industries, since the 1980s, the share of all sales going to the top firms is increasing. Startups may have a hard time competing with these mega firms, which can out pay them for the best talent and sometimes attempt to drive them out of the industry. Previous Brookings research found there are fewer startups in states where a smaller number of companies dominate the market (pdf).

Another related possibility is that the most-educated American workers are no longer attracted to entrepreneurship. In 1992, 4% of 25-54 year olds with a master’s degree or PhD owned a small company with at least 10 employees. In 2017, this was true of only 2.2%. Companies started by the highly educated are often unusually productive.

The Brookings report suggests that high salaries for educated employees at big companies have made entrepreneurship less compelling. Why compete with Google or Walmart when they are offering you an enormous amount of money to come work for them?

The decreasing number of startups has some advantages

The economy is less dynamic, but fewer startups also means fewer destroyed jobs from the competition. This means that, contrary to popular belief, jobs in the US are far more secure than they were in previous decades.

One way to give startups a boost would be eliminating subsidies that help out existing businesses. For example, when Amazon gets a tax break for opening a new facility, it makes it even harder for a startup to compete with them. And these breaks are just getting bigger. According to the Brookings report, the value of tax incentives for US companies nearly tripled from 1990 to 2015. Give startups an even playing field, and more of them just might appear.
America’s Startup Scene Is Looking Anemic

Fewer people are taking the entrepreneurial plunge. That’s not a good sign.

Noah Smith 7 juin 2018

That was then.

Photographer: Eric Sander/Hulton Archive/Getty Images
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Why aren’t people starting more startups? That might seem like a weird question to ask, in an age when Silicon Valley ventures are hot commodities and money and talent is flooding into machine learning companies. But in fact, Americans don’t start businesses like they used to:
American Dynamism in Retreat

Some of this decline has come from the decline of small businesses. When national chains like Walmart Inc. and Target Corp. can come to town and muscle out the competition, there’s not much point in opening a mom-and-pop shop. Online retailers like Amazon.com Inc. just compound the effect. Research indicates that this has been responsible for much of the overall decline in entrepreneurship.

That’s worrisome, because small business was traditionally one of the main gateways to the middle class. Without the option of starting a corner store, Americans without high skills or advanced degrees will find it much harder to maintain comfortable lifestyles. Instead, many will have to seek jobs from large corporations, depriving them of personal autonomy and possibly driving down wages due to the increased competition for jobs.

This is an old and well-known problem. The decline in business formation in the retail and service sectors has been happening since the 1980s, even though the U.S. government has enacted a steady stream of policies to counteract the trend. More initiatives to put the government’s thumb on the scale in favor of small businesses would probably be a good thing, but the decline in new retail businesses isn’t an acute crisis.

More worrying, however, is the decline in high-tech business formation. Tech businesses, unlike corner stores, tend to be high-growth businesses that employ lots of people. That same demand for labor also probably helps to drive up wages. And perhaps most important for the long term, technology startups are important for productivity growth.

Innovation is at the core of what tech startups do. They don’t necessarily do original science, but they take scientific findings and new technologies and combine them with creative new business models. That
results in either better or cheaper versions of existing goods — for example, improved lithium-ion batteries — or entirely new goods that people didn’t even realize they would want, like coding tool GitHub (which was recently acquired by Microsoft Corp. for $7.5 billion). Newer, better and cheaper products raise the overall standard of living in the economy.

So it’s disturbing to see that high-technology startups have also been getting rarer. Here is a graph from a recent paper by economists Ryan Decker, John Haltiwanger, Ron Jarmin and Javier Miranda, who study economic dynamism and business formation, showing the percent of young businesses in various sectors:

The data only goes through 2013, so it’s possible that the last few years have seen a reversal of the trend. The Great Recession — from which the recovery only really began in earnest in 2013 — probably pushed these lines downward. But there are reasons to think there hasn’t been much of a startup recovery. Chris Canipe of the website Axios notes that startup formation has barely ticked up in the last few years. While it’s possible that high-tech companies are bucking the overall trend, it seems unlikely.

So why are so few high-technology companies being formed in the U.S.? There are a number of possible explanations. The boom in high-tech activity in the 1990s might have been a one-time bubble, or a temporary burst of activity in response to the invention and expansion of the internet. Decker et al. also mention the possibility that the U.S.’s aging population might result in fewer founders and high-tech workers. An extremely pessimistic possibility is that there might simply be fewer new technologies and ideas to exploit.

But it’s also possible that the high-tech sector is becoming dominated by a few big players, leaving less room for innovators to break in. Tech titans like Amazon, Facebook Inc., Apple Inc., Alphabet (Google) and Microsoft have grown to staggering size:
Who Will Be First to Reach $1 Trillion?

Market capitalization of Big Tech stocks

Source: Bloomberg

These companies may be such powerhouses that entrepreneurs don’t find it worth their while to enter the market, because they’ll just get out-competed.

If Alphabet et al. are actually doing their own innovation, like Bell Labs or Xerox PARC in past decades, then this isn’t that big of a problem. But if it’s merely the threat of big-company competition keeping tech entrepreneurs out of the market, the picture looks worse.

Suppose I have a great idea for a new kind of algorithm to match customers with products. I could start my own online retailer built around that algorithm, but Amazon could just copy it (rather than acquiring my company), so I don’t. Yet in this hypothetical example, since I don’t actually start my startup, Amazon actually doesn’t invent the new recommendation algorithm, and the innovation never gets done!

In other words, big tech companies might be acting like Walmart and Target, but muscling out tech startups rather than mom-and-pop stores. But unlike the retail sector, competition in the innovation space might sometimes leave new ideas unexploited.

The source of the decline in startup dynamism isn’t yet known. More research, and better understanding of the last few years, is needed before any definitive conclusions are reached. But if the tech sector is getting too concentrated, regulators might take a second look at options to reduce the dominance of the big players.

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The Vanishing Startup:
Is U.S. Entrepreneurship in Decline?

James Hart Vol. 25 Issue 11 Fall 2018

The U.S. is experiencing a decades-long decline in a key measure of entrepreneurship.

Entrepreneurs have always been a rare breed. Unfortunately, experts are worried they’re becoming even rarer. By one measure, more Americans appear to be starting businesses. Last year, in a typical month, 330 adults out of every 100,000 launched their own businesses.

That’s an improvement over 2013, when the rate of new entrepreneurs was 0.28 percent, according to the Ewing Marion Kauffman Foundation. The foundation studies new business creation through its annual Kauffman Index of Startup Activity.
But if you look at new businesses that employ someone other than the owner—the companies that tend to have the greatest economic impact—they make up a shrinking share of the nation’s businesses.

In 2013, out of every 1,000 companies, about 80 were less than a year old and employed someone other than the owner. That measure, “startup density,” is 20 percent lower than what it was before the Great Recession, and has been declining over the last few decades.

This is bad news because new businesses help drive the larger economy. In the 1990s, new companies regularly created more than 4 million jobs per year, the Bureau of Labor Statistics reports. Last year, they generated about 3 million.

“This is a major concern at the local and national level,” said Steve Bradley, the head of Baylor University’s Baugh Center for Entrepreneurship & Free Enterprise, one of the country’s leading entrepreneurship programs.

“Small businesses create the majority of new jobs in the U.S.,” Bradley said. “New businesses also bring many innovations to the market, challenging larger competitors, leading to lower costs for consumers.”

Put simply, fewer new businesses could lead to serious repercussions for all of us.

What’s Behind the Decline?

Nobody has a definitive explanation for the drop-off.

“There’s some research that indicates what could be behind it, but we don’t fully know,” said Arnobio Morelix, senior research analyst at the Kauffman Foundation.

It’s possible the United States is experiencing a natural trend toward fewer, larger companies—a Walmartization effect, he said.

Or technology could be taking over jobs that new small businesses would otherwise do. Tax-prep and accounting software might reduce the need for new accounting or bookkeeping firms, for example.

The Kauffman Foundation has also warned about artificial obstacles like overly restrictive noncompete agreements, Morelix said. While noncompetes help small businesses protect themselves, overly restrictive agreements can throttle innovation.

Meanwhile, several states have expanded their professional licensing requirements—maybe beyond what makes sense. In some places, you need the government’s blessing to braid hair or recycle scrap metal for a living.
Licensing has a larger impact on entrepreneurs in low-income fields. Kauffman and the Institute for Justice found that states that license more than 50 percent of their low-income jobs had, on average, an entrepreneurship rate 11 percent under the national average.

Supporters say the rules are there to protect the public. Opponents argue they mostly benefit established businesses at the expense of newcomers.

Bradley suspects would-be entrepreneurs are staying on the sidelines because they don’t want to deal with these and other regulatory hassles.

He points to a recent study from the Heritage Foundation: In the past 15 years, the federal government has instituted 47,661 regulations with a price tag of $176 billion.

**Where Things Stand in Kansas City**

When Kauffman released its most recent report on startup activity, Kansas City was ranked 18th among the country’s largest metro areas, up from 29th place in the previous year. It was one of the biggest jumps for any city.

One of the reasons for the change: In 2015, about 0.32 percent of Kansas City adults became entrepreneurs in a typical month. A year earlier, that rate was 0.23 percent.

“I think we’re seeing a steady flow of people with the desire to start new businesses,” said Maria Meyers, the director of the University of Missouri-Kansas City Innovation Center.

Meyers is also the founder of KCSourceLink, which connects would-be entrepreneurs with free or low-cost business help. During the Great Recession, KCSourceLink’s hotline had a surge in calls from “opportunity entrepreneurs”—those who had lost their jobs and, as a result, decided to go into business for themselves.

When the unemployment rate is high, KCSourceLink tends to get more calls for help. But as the economy has picked up, interest has stayed high, Meyers said. Part of that might be due to the increased public focus on making Kansas City “America’s most entrepreneurial city.”

John Addessi is a business consultant at the Kansas Small Business Development Center at Johnson County Community College. If there’s been a drop-off in business creation locally, he hasn’t seen any sign of it. The center still gets a lot of requests for assistance from aspiring entrepreneurs.

“We haven’t seen any decline whatsoever,” he said.

That’s not to say there aren’t obstacles for new business owners.
Complying with regulations can be a challenge, Addessi noted. There are a range of state and federal rules that apply to everything from producing your own cosmetics to selling food to importing clothing from other countries.

Another hurdle for many young businesses? A lack of cash.

Addessi recently assisted a client who plans to open an event business. Everything about the concept looks perfect, from the business plan on down. But the startup cost, like it would be for any brick-and-mortar operation, is steep—at least $300,000.

Another client plans to just rent room for a dog boarding operation. Building out the space will still cost about $80,000, Addessi said. Even the expense of setting up an LLC for a home-based business can run a couple thousand dollars, Meyers said.

That might not sound like a lot of money, but if you’re a young person just starting out, or even a mid-career professional whose assets took a hit during the Great Recession, every dollar matters. Research has found that most new entrepreneurs rely on their personal savings as their business’s primary funding source, Meyers said.

“When personal finances are constrained,” Meyers said, “it’s going to be harder for people to start businesses.”

**Saving the Vanishing Startup**

So what can we as a country do to reverse the decline in U.S. entrepreneurship?

“We need to expand the ‘window of opportunity,’” Baylor’s Bradley said. “The threshold to entry should be as low as possible so those with a good idea are willing to try.”

Here are a few ideas from the experts:

**Rein in noncompete agreements**: Kauffman has recommended limiting the scope of noncompete agreements and restricting them to one year in length.

Employers should also be required to tell new hires about noncompete agreements earlier, Kauffman has suggested. Some employees learn they must sign a noncompete on the first day they show up for work—after it’s too late for them to back out.

**Reform state licensing programs** There are a range of steps that state legislatures could take, including lowering the fees and educational requirements for certain licenses, limiting the number of licensed practitioners that sit on licensing boards and even reconsidering whether licensing is necessary for certain industries.
Instead of licensing programs, states could switch to a certification system. Under a certification regime, anyone can operate in a particular field. But those who meet certain standards can qualify for certification, which signals a higher level of quality to customers.

**Continue to encourage innovative forms of funding ::** Peer-to-peer lending and crowdfunding (including equity-based crowdfunding) create other ways for young companies to find the money they need to start and grow.

**Offer a safety net for startup founders ::** It might be worth offering some form of social insurance to people who launch their own businesses, Kauffman’s Morelix said.

France introduced something similar in 2002. People were allowed to keep the unemployment benefits from their old jobs for three years—if those people started their own business. The business creation rate increased by 24 percent.

Offering a basic safety net—or programs like subsidized daycare—could make it possible for middle-class or low-income entrepreneurs to take the risk of going into business for themselves.

**Don’t penalize entrepreneurs ::** “We need to minimize taxes that reduce incentives for business initiation,” Bradley said.

Starting a business demands a significant investment of effort and resources. Historically, entrepreneurs have made the leap anyway because of the opportunity to achieve a higher income. If taxes wipe out that advantage, some would-be business owners may decide it makes more sense to remain an employee.

“We are increasingly penalizing rather than rewarding success,” Bradley said.

**Create a dedicated, permanent startup visa program ::** Immigrants tend to launch businesses at a higher rate than the general population. In fact, some of the United States’ biggest technology firms count immigrants or immigrants’ children among their founders.

But right now, these entrepreneurs often have to be sponsored by an employer in order to win an H-1B visa—meaning they can’t really focus on creating their own company. There’s also the EB-5, but it comes with a financial requirement that’s beyond the reach of many startup founders.

The good news in all this is more policymakers are paying attention to the decline in entrepreneurial activity, Morelix said. They realize that a drop-off in new businesses could ripple out and cause bigger problems for the U.S. economy and society at large.

“I think this is something that should be of concern,” Morelix said. “This is something we should pay attention to.”
Is Silicon Valley doomed to become the next Detroit?

[Source Photos: Doug Zuba/Unsplash, PorqueNoStudios/iStock]

The moral and economic decline of Detroit’s elite offers an important cautionary tale for Silicon Valley.

There was a time when California’s Santa Clara Valley, bucolic home to orchards and vineyards, was known as “the valley of heart’s delight.” The same area was later dubbed “Silicon Valley,” shorthand for the high-tech combination of creativity, capital, and California cool. However, a backlash is now well underway—even from the loyal gadget-reviewing press. Silicon Valley increasingly conjures up something very different: exploitation, excess, and elitist detachment.

Today there are 23 active Superfund toxic waste cleanup sites in Santa Clara County. Its culture is equally unhealthy: Think of the Gamergate misogynist harassment campaigns, the entitled “tech bros,” and rampant sexism and racism in Silicon Valley firms. These same companies demean the online public with privacy breaches and unauthorized sharing of users’ data. Thanks to the companies’ influences, it’s extremely expensive to live in the area. And transportation is so clogged that there are special buses bringing tech-sector workers to and from their jobs. Some critics even perceive threats to democracy itself.

In a word, Silicon Valley has become toxic.

Silicon Valley’s rise is well-documented, but the backlash against its distinctive culture and unscrupulous corporations hints at an imminent twist in its fate. As historians of technology and industry, we find it helpful to step back from the breathless champions and critics of Silicon Valley and think about the long term. The rise and fall of another American economic powerhouse–Detroit–can help explain how regional reputations change over time.
The rise and fall of Detroit

The city of Detroit became a famous node of industrial capitalism thanks to the pioneers of the automotive age. Men such as Henry Ford, Horace and John Dodge, and William Durant cultivated Detroit’s image as a center of technical novelty in the early 20th century.

The very name “Detroit” soon became a metonym for the industrial might of the American automotive industry and the source of American military power. General Motors president Charles E. Wilson’s remark, “For years I thought what was good for our country was good for General Motors, and vice versa,” was an arrogant but accurate account of Detroit’s place at the heart of American prosperity and global leadership.

The public’s view changed after the 1950s. The auto industry’s leading firms slid into bloated bureaucratic rigidity and lost ground to foreign competitors. By the 1980s, Detroit was the image of blown-out, depopulated post-industrialism.

In retrospect–and perhaps as a cautionary tale for Silicon Valley–the moral decline of Detroit’s elite was evident long before its economic decline. Henry Ford became famous in the prewar era for the cars and trucks that carried his name, but he was also an anti-Semite, proto-fascist, and notorious enemy of organized labor. Detroit also was the source of defective and deadly products that Ralph Nader criticized in 1965 as “unsafe at any speed.” Residents of the region now bear the costs of its amoral industrial past, beset with high unemployment and poisonous drinking water.

A new chapter for Silicon Valley

If the story of Detroit can be simplified as industrial prowess and national prestige, followed by moral and economic decay, what does that say about Silicon Valley? The term “Silicon Valley” first appeared in print in the early 1970s and gained widespread use throughout the decade. It combined both place and activity. The Santa Clara Valley, a relatively small area south of the San Francisco Bay, home to San Jose and a few other small cities, was the base for a computing revolution based on silicon chips. Companies and workers flocked to the Bay Area, seeking a pleasant climate, beautiful surroundings, and affordable land.

By the 1980s, venture capitalists and companies in the Valley had mastered the silicon arts and were getting filthy, stinking rich. This was when “Silicon Valley” became shorthand for an industrial cluster where universities, entrepreneurs, and capital markets fueled technology-based economic development. Journalists fawned over successful companies like Intel, Cisco, and Google, and analysts filled shelves with books and reports about how other regions could become the “next Silicon Valley.”

Many concluded that its culture set it apart. Boosters and publications like Wired magazine celebrated the combination of the Bay Area hippie legacy with the libertarian individualism embodied by the late Grateful Dead lyricist John Perry Barlow. The libertarian myth masked some crucial elements of Silicon Valley’s success–especially public funds dispersed through the U.S. Defense Department and Stanford University.

In retrospect, perhaps that ever-expanding gap between Californian dreams and American realities led to the undoing of Silicon Valley. Its detachment from the lives and concerns of ordinary Americans can be seen today in the unhinged Twitter rants of automaker Elon Musk, the extreme politics of PayPal cofounder Peter Thiel, and the fatuous dreams of immortality of Google’s vitamin-popping director of engineering, Ray Kurzweil. Silicon Valley’s moral decline has never been clearer, and it now struggles to survive the toxic mess it has created.
The new geography of innovation

Why startups are leaving Silicon Valley

Its primacy as a technology hub is on the wane. That is cause for concern

Aug 30th 2018

“LIKE Florence in the Renaissance.” That is a common description of what it is like to live in Silicon Valley. America’s technology capital has an outsized influence on the world’s economy, stockmarkets and culture. This small portion of land running from San Jose to San Francisco is home to three of the world’s five most valuable companies. Giants such as Apple, Facebook, Google and Netflix all claim Silicon Valley as their birthplace and home, as do trailblazers such as Airbnb, Tesla and Uber. The Bay Area has the 19th-largest economy in the world, ranking above Switzerland and Saudi Arabia.

The Valley is not just a place. It is also an idea. Ever since Bill Hewlett and David Packard set up in a garage nearly 80 years ago, it has been a byword for innovation and ingenuity. It has been at the centre of several cycles of Schumpeterian destruction and regeneration, in silicon chips, personal computers, software and internet services. Some of its inventions have been ludicrous: internet-connected teapots, or an app that sold people coins to use at laundromats. But others are world-beaters: microprocessor chips, databases and smartphones all trace their lineage to the Valley.

Its combination of engineering expertise, thriving business networks, deep pools of capital, strong universities and a risk-taking culture have made the Valley impossible to clone, despite many attempts to do so. There is no credible rival for its position as the world’s pre-eminent innovation hub. But there are signs that the Valley’s influence is peaking (see Briefing). If that were simply a symptom of much greater innovation elsewhere, it would be cause for cheer. The truth is unhappier.
Silicon Plateau

First, the evidence that something is changing. Last year more Americans left the county of San Francisco than arrived. According to a recent survey, 46% of respondents say they plan to leave the Bay Area in the next few years, up from 34% in 2016. So many startups are branching out into new places that the trend has a name, “Off Silicon Valleying”. Peter Thiel, perhaps the Valley’s most high-profile venture capitalist, is among those upping sticks. Those who stay have broader horizons: in 2013 Silicon Valley investors put half their money into startups outside the Bay Area; now it is closer to two-thirds.

The reasons for this shift are manifold, but chief among them is the sheer expense of the Valley. The cost of living is among the highest in the world. One founder reckons young startups pay at least four times more to operate in the Bay Area than in most other American cities. New technologies, from quantum computing to synthetic biology, offer lower margins than internet services, making it more important for startups in these emerging fields to husband their cash. All this is before taking into account the nastier features of Bay Area life: clogged traffic, discarded syringes and shocking inequality.

Other cities are rising in relative importance as a result. The Kauffman Foundation, a non-profit group that tracks entrepreneurship, now ranks the Miami-Fort Lauderdale area first for startup activity in America, based on the density of startups and new entrepreneurs. Mr Thiel is moving to Los Angeles, which has a vibrant tech scene. Phoenix and Pittsburgh have become hubs for autonomous vehicles; New York for media startups; London for fintech; Shenzhen for hardware. None of these places can match the Valley on its own; between them, they point to a world in which innovation is more distributed.

If great ideas can bubble up in more places, that has to be welcome. There are some reasons to think the playing-field for innovation is indeed being levelled up. Capital is becoming more widely available to bright sparks everywhere: tech investors increasingly trawl the world, not just California, for hot ideas. There is less reason than ever for a single region to be the epicentre of technology. Thanks to the tools that the Valley’s own firms have produced, from smartphones to video calls to messaging apps, teams can work effectively from different offices and places. A more even distribution of wealth may be one result, greater diversity of thought another. The Valley does many things remarkably well, but it comes dangerously close to being a monoculture of white male nerds. Companies founded by women received just 2% of the funding doled out by venture capitalists last year.

Shadows of the colossi

The problem is that the wider playing-field for innovation is also being levelled down. One issue is the dominance of the tech giants. Startups, particularly those in the consumer-internet business, increasingly struggle to attract capital in the shadow of Alphabet, Apple, Facebook et al. In 2017 the number of first financing rounds in America was down by around 22% from 2012. Alphabet and Facebook pay their employees so generously that startups can struggle to attract talent (the median salary at Facebook is $240,000). When the chances of startup success are even less certain and the payoffs not so very different from a steady job at one of the giants, dynamism suffers—and not just in the Valley. It is a similar story in China, where Alibaba, Baidu and Tencent are responsible for close to half of all domestic venture-capital investment, giving the giants a big say in the future of potential rivals.

The second way in which innovation is being levelled down is by increasingly unfriendly policies in the West. Rising anti-immigrant sentiment and tighter visa regimes of the sort introduced by President Donald Trump have economy-wide effects: foreign entrepreneurs create around 25% of new companies in America. Silicon Valley first bloomed, in large part, because of government largesse. But state spending on public universities throughout America and Europe has fallen since the financial crisis of 2007-08. Funding for basic research is inadequate—America’s federal-government spending on R&D was 0.6% of GDP in 2015, a third of what it was in 1964—and heading in the wrong direction.
If Silicon Valley’s relative decline heralded the rise of a global web of thriving, rival tech hubs, that would be worth celebrating. Unfortunately, the Valley’s peak looks more like a warning that innovation everywhere is becoming harder.

Silicon Valley is changing, and its lead over other tech hubs narrowing

Great success has brought high costs and structural change

THE garage in which Hewlett-Packard was started in 1939 is now a private museum—a modest monument to the cut-price creativity and bare-knuckle entrepreneurship that made Silicon Valley famous. Drive south from Palo Alto through 20 minutes of inevitable traffic to Sunnyvale and you will find a landmark of a different kind. Nothing of technological note has taken place there. But in February this small two-bedroom house, which boasts just the sort of garage a startup would once have felt at home in, sold for $2m, 40% more than its asking price, within two days of listing—a new record for the area. That translates into a price of $25,386 per square metre ($2,358 per square foot).

When Ajay Royan of Mithril Capital, an investment fund, asks rhetorically “How are you supposed to have a startup in a garage if the garage costs millions of dollars?”, he is barely exaggerating the problem. The immense success of its tech industry means that the San Francisco Bay Area in which Silicon Valley sits has the highest cost of living in America. A median-priced home costs $940,000, four-and-a-half times the American average. The Department of Housing and Urban Development considers a family earning less than $120,000 in San Francisco “low income”.

As a result, a region that has long drawn people in is beginning to cast them out. More Americans are leaving the Valley than moving to it. In 2017 several counties in the area saw their largest combined domestic outward migrations in around a decade (see chart 1). In a recent survey by the Bay Area Council, a think-tank, 46% of Bay Area residents said they planned to leave in “the next few years”, up from 34% in 2016.

This is not just a case of people of more modest means being pushed out by carpet-bagging techies. At this year’s “FOO camp”, a freewheeling annual gathering of hackers and others, a session called “Should
I/you leave the Bay Area?” saw a strong turnout. Participants shared their gripes about the high cost of living, bad traffic and a “toxic” culture obsessed with money.

“We’re seeing a lot of the talent moving or saying they won’t come here,” says Dan Rosensweig, who runs Chegg, an education-tech company in Santa Clara. “It’s hard to imagine doing another startup in Silicon Valley. I don’t think I would,” says Jeremy Stoppelman, the boss of Yelp, a review site. “I will probably never scale another company in the Bay Area,” says one of the founders of a public internet company. He says that for his next venture he will keep a small team in the Bay Area but will hire most of the software developers and executives in other cities, where the cost of talent and the risk of them being poached are both lower.

Silicon Valley is still a place where new ideas can flourish, fortunes can be made and products that change millions of lives will get dreamed up and brought to market. But thanks to its past success it is no longer the ferment it once was, and it is unlikely it will ever again dominate the technology world in quite the way it has over the past decades. The cost of living and operating a firm will drive more people away. The dominance of the companies that have generated its current wealth will change the paths to success for those who stay. And unfavourable governmental policies will further harm the Valley’s dynamism.

A whole generation

On top of all that, Silicon Valley’s own products and services make it ever easier to start out elsewhere, or everywhere, and be connected to Silicon Valley’s culture through messaging, video-conferencing and collaborating online. By changing the way companies work, this technology is making it ever more feasible to have a presence in the Valley while keeping most or almost all of your employees elsewhere. No other tech hub in this more spread-out world will grow as powerful as Silicon Valley has been. But its lead over a growing pack of competitors will narrow.

With its strong networks of experts, stellar universities, culture of risk-taking, deep-pocketed investors and history of helping startups grow into giants, Silicon Valley—now taken, for the purposes of discussions like this, to include San Francisco proper—has over decades become the tech hub that all others measure themselves against. The centre of semiconductor innovation from the 1960s on—hence
the name—in the 1990s it made big bets on the internet, which by the 2000s it dominated. Since then its firms have created the operating systems on which more than 95% of the world’s smartphones run.

From 2010 to this year venture capitalists invested $168bn in firms in the Bay Area, a third of the total they invested in America. No other area comes close (see chart 2). In the second quarter of 2018 the Valley was home to three of the world’s five most valuable companies: Apple, Alphabet (Google’s parent) and Facebook, valued between them at almost $2.5 trillion. Apple and Alphabet, true natives, were born in garages in Los Altos and Menlo Park, respectively. Facebook moved into somewhat plusher digs while still an infant. It hosts 57 unicorns—private startups valued at more than $1bn—including household names like Airbnb and Uber.

![Positive returns](chart2.png)

At a number of points in the past it has looked as though the Valley’s ascent was over. In the early 1980s its semiconductor-memory-makers lost out to Japanese competitors; in 2000 the dotcom bubble burst. But the Valley has always kept climbing, and there are plenty who believe that, unequalled in its wealth and its claim on the world’s attention, it can go on doing so. Things may currently be unhelpfully overheated; some think a recession might clear out some badly run companies and lower costs for the fitter survivors. But the long-term outlook is cheery. “Florence was in its position for more than 200 years,” says Mike Volpi of Index Ventures, which invests in startups. “Silicon Valley still has many years to go.”

Others, though, think things have really changed. AnnaLee Saxenian, dean of the School of Information at the University of California, Berkeley, says she has spent her whole career “defending the Valley’s vitality whenever people have said it’s over”. Now, she thinks there has been an important cultural shift.

In “Regional Advantage”, a seminal study published in 1994, Ms Saxenian compared Silicon Valley’s culture to that of the rival tech cluster around Boston, Massachusetts, known as Route 128. The Valley
started to outstrip its competitor in the late 1980s, she argued, because Route 128 was dominated by large, hierarchical companies that were inward-looking and secretive. They valued corporate loyalty and strongly discouraged employees from leaving for a competitor or starting their own venture. In the Valley, in contrast, information was shared much more freely both within companies and between them. Leaving to start something of your own was not frowned upon. Indeed it was encouraged; established firms helped support or spin off younger ones.

“Regional Advantage” has become a classic study of what works and goes wrong for innovation ecosystems, but it may need a new afterword. Ms Saxenian says that the tech titans have developed an increasingly “autarkic” culture that goes against the way that the Valley used to work, “shutting off the flow of talent.” “The problems of Boston,” she says, “are reappearing here”.

There have always been big companies in the Valley. Today’s are bigger—but they are also able to use their size differently. A giant internet company can move into new areas a lot faster than a big incumbent semiconductor company could in the days when the Valley’s original cultural norms were set. The big firms can seize on novelty almost as quickly as startups do—and with a lot more oomph.

That has made it harder for young startups to prosper and grow into big companies themselves. They are imitated, stamped out or acquired while they are still young. Some talk of a “kill zone” around the big companies, where it is impossible for startups to operate. Innovation continues, but without the near-nutty breadth of approaches that used to be one of the area’s strengths.

A new explanation

The giants have other chilling effects. It used to be that working for an incumbent firm was safe but not lucrative, unless you were a top executive. Those who made real money had sweated it out as early employees at startups that made it big. Now profitable business models, piles of cash and soaring share prices mean giants can afford to pay employees handsomely. “The payoff of a higher-risk startup is not so different from what you would get over the same number of years at Google or Facebook earning top dollar,” explains Yelp’s Mr Stoppelman.

In 2017 Alphabet, Apple and Facebook issued $16.2bn in stock-based compensation. Even those in middle-management positions are paid handsomely; the median compensation is $240,000 at Facebook and around $200,000 at Alphabet.

Where Ms Saxenian sees the ghost of Route 128, Tim O’Reilly, a publisher and Valley-watcher of long standing sees a flickering echo of Hollywood, with successful entrepreneurs acting the part of high-maintenance movie stars. Those with graduate degrees in artificial intelligence can fetch $5m-10m a year. People complain that such pampering has eroded tech’s work ethic, with employees focusing on free lunches and other perks. In the Financial Times earlier this year Michael Moritz, chairman of the venture-capital firm Sequoia, suggested that American techies could learn from the hard-driving culture of Chinese entrepreneurs.

Others draw a comparison with Wall Street, seeing greed taking on ever greater importance. This has been amplified not just by the Bay Area’s high costs but also by the amount of capital flooding in. For example, SoftBank, a Japanese conglomerate, has raised a $100bn technology fund, which is more than the entire American venture-capital industry invested last year. And like both Hollywood and Wall Street, the Valley has its share of toxic masculinity and entrenched sexism. A mere 2% of venture-capital funding went to female founders’ startups last year.

Companies like Airbnb and Uber, which have raised lots of cash, can compete in this monied-up world. Young startups increasingly cannot. Launching a startup rarely makes actuarial sense, since the odds of
success are so slim. But when office space, homes and top talent were within the reach of young, unproven companies there was a constant spate of dreamers willing to try it. At today’s prices, the spate has slowed. Claire Haidar of WNDYR, a productivity startup that relocated to America from Ireland in 2017, reckons it costs at least four times as much to base a startup in the Bay Area as it would in most other cities in America.

Many Silicon Valley startups are currently as much as 15% behind their hiring goals for the year, says Mr Volpi. This hurts their prospects of survival. Things don’t necessarily get easier as growth kicks in. According to CBRE, a real-estate firm, it costs $62.4m a year to run a 500-person startup with 7,000 square metres of office in San Francisco, more than anywhere else in America or Canada (see chart 3). That is 47% and 49% more than it costs to run a startup in Portland and Atlanta, respectively, and more than double what it costs in Vancouver and Toronto.

![Peninsula v island chart](chart3)

It is still possible for a Valley startup to grow large. Slack, which launched its workplace-messaging app in 2013, claims a private-market valuation of $7.1bn. However, its boss, Stewart Butterfield, is an experienced entrepreneur who had already had a well-known hit (Flickr, which was sold to Yahoo in 2005). Fewer first-time entrepreneurs are breaking through.

The corralling of talent in big companies is not just bad for startups. It is bad for future technological diversity. Talented people can still launch wild new projects from inside the giants—but probably not as new, or as wild, as they would in a startup culture where the pool of other innovators with whom to team up would be larger and more diverse. The problem which dogged Route 128 has come to the Valley in a big way. “People join the big firms, and especially Apple, and they fall off the face of the earth. It’s a genuine problem for the ecosystem,” says John Lilly, a venture capitalist with Greylock.
Route 128 did not just lose out because of culture. It also lost out because it was pursuing a technology, the minicomputer, from which the market was turning away. With smartphones ubiquitous and social networking more than a decade old, people in tech are increasingly worried about what is next. Even if the Silicon Valley giants can spot it, they may not be best placed to capitalise on it; flexible as the giants are, they cannot do everything. If the new new thing takes off elsewhere, Silicon Valley’s advantages will be lessened.

Take the continued spread of cloud computing, an increasingly lucrative business for both Amazon and Microsoft. If either could make its cloud-computing platform as dominant as Windows was in the PC era, it could cause yet more activity to move closer to Seattle, where both firms reside and which is already a buzzing tech hub much cheaper to live and work in than the Valley. Other technologies which could conceivably pull power away from the Valley might include blockchains (see Technology Quarterly) or quantum computing. Blockchains are by their nature decentralised; quantum computing could reorient the tech world toward China.

It is entirely possible that the next disruptor will be none of these things. But it is all but certain that something will supersede devices with the Valley’s namesake semiconductor at their heart as the key to success in tech, and that that will matter.

Having giants around can provide benefits as well as kill zones; in looking after their own interests through political lobbying and the like they often look after their neighbours’, too. But the biggest political problem for American tech firms, in the Bay Area and elsewhere, is one that has proved beyond even the best-paid lobbyists. A lot of Americans are worried about immigration, and President Donald Trump is determined to act on their behalf.

More than half of the top American tech companies were founded by immigrants or the children of immigrants. Despite lobbying from the tech giants, the Trump administration has brought in rules that severely restrict the number of foreigners who can receive work visas. Some tech firms have experienced delays of up to 18 months for foreign hires whom they might otherwise have been able to bring over swiftly. Students who come to America for degrees increasingly end up going home afterwards, willingly or not. “If you ask me ten years from now why Silicon Valley failed, it will be because we screwed up immigration,” predicts Randy Komisar of Kleiner Perkins, a venture-capital firm.

Nor have the tech giants as yet managed to improve things by using their muscle with local officials to ease some of Silicon Valley’s specific problems. Instead of building more affordable housing in a timely manner, which the Bay Area desperately needs, San Franciscan politicians are in the midst of discussing legislating the abolition of corporate cafeterias in order to force techies to eat lunch out. Big new infrastructure projects to ease congestion and make it easier to get to work from further away are nowhere to be seen. Instead there are private luxury buses to the tech campuses—which became, a few years ago, the centre of the first big popular protests against the new elite.

People in motion

Faced with high costs and the chilling effect of the neighbourhood giants, entrepreneurs who would once have planned to build their businesses entirely in the Valley are increasingly pursuing three other courses: launching their startups somewhere else; moving their headquarters somewhere else once they reach a certain size; or keeping their headquarters in the Valley but scaling their operations elsewhere—“Off Silicon Valleying”, as some call it. Mark Pincus, the founder of Zynga, a games developer, predicts companies “will have to think about multiple locations much earlier in their trajectory.”

Take Indinero, which sells accounting software. Jessica Mah, the startup’s 28-year-old boss, was born and raised in New York City. She started her first company in middle school and moved to the University of
California, Berkeley, to study computer science. After graduating she went to Y Combinator, the prominent boot camp for startups in Mountain View. In 2009 she started Indinero in San Francisco. What could be more Silicon Valley?

But by 2014 Ms Mah had realised that “there was no way for me to build a profitable business in the Bay Area. I had to expand elsewhere.” She asked her employees to relocate, both to other American cities and to the Philippines. Today the firm employs 200 people, but only around 30 of them are in the Bay Area. Portland is its official headquarters. Ms Mah’s life is a ceaseless round of virtual meetings and real travel, but she reckons that building her startup in more affordable cities has enabled her to save millions of dollars.

Such a decision does not just cut costs. Hiring in other cities reduces the odds of talented employees being poached by the tech giants and other startups—especially engineers, who are in high demand. Indeed a startup in a place with cheaper housing and less crowded freeways (even on a comfortable corporate bus with Wi-Fi, a two-hour commute is a pain) can become the poacher. San Francisco has many charms, but it is not particularly salubrious. People regularly encountering used drug needles, human excrement and sidewalks full of homeless people when they arrive home late at night at their $4,000-a-month one-bedroom flat in San Francisco sometimes think they might just prefer it elsewhere.

This dispersion of startups embodies a deep irony. The technology industry, which has disrupted nearly all other sectors, is disrupting itself. The communications tools and virtual workplaces that Valley firms have pioneered let teams work productively across cities and time zones without ever meeting one another in person. The headquarters in Dallas to which Ms Haidar relocated WNDYR, the productivity startup, contains only four of its 33 employees. The far-flung crew communicates through Telegram, an instant-messaging app, talks with clients through Slack, uses Zoom for meetings and collaborates on goal-setting with software from Lucid and Google.

This does not mean that all places have become equal. Startups thrive on “network effects”: entrepreneurs, like internet users, tend to cluster where their peers are. Having a world-class university or two nearby can be very important for such hubs, especially if they actively encourage commercial activity, as Stanford has. It also helps to have an “anchor tenant” that validates the place and draws
employees there; they can then leave to start their own companies or work elsewhere. This is one reason that Seattle, home to the two of the world’s biggest five companies not based in the Valley, is doing so well.

A strange vibration

Being a place where people want to live helps a lot, too. Putting together such a package does not in itself create a Silicon Valley simulacrum: history, culture and a lot of established venture capitalists are not easily replicated. But it does well enough. “There are probably a dozen cities that are just as promising [as San Francisco in which] to start a tech company today,” says Peter Thiel, a feisty venture capitalist who will soon move from San Francisco to Los Angeles, a city which has welcomed many Valley refugees before him. It has its own growing tech scene—one that gained more attention when the online-media company Snap chose to set up shop there.

Portland, Oregon; Austin, Texas; Vancouver (close to the United States, but easier for foreign immigrants to come and work in); London; Berlin: they all fit the bill, and then some. After considering 23 factors, such as employee compensation, retention, taxes, available funding, ease of access to other cities and the weather, the cities that Ms Haidar saw as runners up to first-choice Dallas were Phoenix, Arizona and Boulder, Colorado. The Kauffman Foundation, a think-tank, now ranks the Miami-Fort Lauderdale area as number one in America for startup activity. As each grows, each offers more opportunities for people who decide to move on from their current job. Internationally, Beijing and Shenzhen are hugely important. Admittedly, they mainly appeal to Chinese entrepreneurs who can speak the language and navigate the local business environment; but that is a big pool. And some foreigners are giving it a go, too.

“Silicon Valley will continue to be the strongest innovation ecosystem in the world, but on a relative basis it will become less important,” predicts Steve Case, the former boss of America Online. He now runs Revolution, a venture-capital firm based in Washington, DC, which is looking hard for investments outside the Bay Area. According to CB Insights, a research firm, in 2013 Silicon Valley-based investors put about half their money into startups outside the Bay Area; in the year to date, that share has risen to 62%. This has mirrored the geography of “unicorns”: in 2013 some 41% were based in Silicon Valley; today only 16% are, with 35% headquartered in China (see chart 4).

Even Silicon Valley’s most conventional venture capitalists are preparing for geographical diversification. One storied firm with headquarters on Sand Hill Road in Palo Alto was recently considering signing a new ten-year lease for a larger office space in nearby San Francisco. It decided not to. “A decade from now we’re going to be spending less time, not more time, in this area,” explains one of the partners.

Coming to Silicon Valley to network and fundraise will continue to provide advantages; nowhere else will match it for apprenticeship or pilgrimage. “There’s no place that’s replacing Silicon Valley,” says Mr Thiel. But it will be less critical to stay and set up shop here. “The Valley is going to become an idea instead of a place,” predicts Glenn Kelman, the boss of Redfin, a property company. “Wall Street went through a similar transformation,” he says, its name becoming shorthand for a whole industry. As tech firms set their sights on disrupting old-fashioned industries, like health care and logistics, they may find that it helps to be based in cities that claim deep expertise in these areas—and where garages housing startups are not just the stuff of museums and memory.
Smaller shares

Location of privately held startup companies valued at over $1bn, %

- Silicon Valley
- Rest of United States
- China
- Britain
- India
- Other

2013 14 15 16 17 18*

Silicon Valley-based venture-capital investment, %

- outside Silicon Valley
- in Silicon Valley

2013 14 15 16 17 18*

Source: CB Insights

*To August 23rd

The Economist
Forget Silicon Valley. Innovation is happening in China now

This story was first published at The Aleph Report. 25 12 2017  If you want to read the latest reports, please subscribe to our newsletter and our Twitter.

Those that follow technology closely have noticed a significant trend in the field, China. The more you read, the more you encounter increasing coverage on China’s tech dealings.

![China’s Venture Fundraising Climbs to U.S. Levels](image)

Source: Silicon Valley Bank analysis based on Pitchbook and Zero2IPO’s PE data.
In the last few weeks, we’ve seen Tencent’s market capital surpass that of Facebook; Venture Capital activity reach US VC levels; LinkedIn’s Chinese rival MaiMai, outperform LinkedIn in the country and the amount of Chinese Women in Tech pass that of the US.

According to the Forbes list, out of the top 10 largest companies in the world, four are Chinese, five are American, and one is Japanese.

### The List

<table>
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<tr>
<th>Rank</th>
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<th>Country</th>
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Forbes Global 2000 List (#1-#5)

Forbes Global 2000 List (#6-#10)
If you narrow the scope to tech-only companies, China has seven companies in the top 20. Two of them, Tencent and Alibaba, among the top six.

<table>
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<tr>
<th>Rank</th>
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<th>Region</th>
<th>Current Market Value (B)</th>
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Total $3,827

2017 Internet Trends—Kleiner Perkins Caufield Byers

The China that most people imagine has nothing to do with the current technology superpower that China is now. Andrew Ng, former Chief Scientist at Baidu, hits the nail when he states,

“China has a fairly deep awareness of what’s happening in the English-speaking world, but the opposite is not true.”

This asymmetry is helping China fly under the radar. Most organizations are so focused on the Silicon Valley dream that they’re missing the elephant in the room.

Education

Education is a critical aspect of any country. This is especially true when we’re speaking of innovation. Historically, China’s educational levels have been subpar with the rest of the world. This hasn’t been the case for a while now. The truth is, China’s university are already outperforming many of their international peers.
While institutions like Stanford still hold on to their perch of the global ranking, universities like Pekin’s University, are closing in. Stanford outranks them in specific scores but lags in others like technology transfer.

Source: Times Higher Education World Universities Rankings 2018
In comparison, it’s worth noting that there are precisely zero European universities among the top 30 (excluding the United Kingdom due to Brexit).

China’s educational institutions still have a pending subject; attracting foreign talent. The country is trying to fix the lack of an international crowd applying a mixture of strategies with various degrees of success.
Technology Innovation

But better universities aren’t the only reason for China’s ascent to the innovation Olympus. In 2006, the Chinese General Secretary of China Communist Party Hu Jintao, and Wen Jiabao, President of People’s Republic of China declared their intention to transform China into an ‘Innovation-oriented’ nation.

These declarations brought forward the term ‘Indigenous innovation.’ It refers to the capacity to produce innovative products and services from within a national context.

To achieve such a lofty goal, they knew they needed better local knowledge that the one they had. Improving their university system was strategic to making this, but it wasn’t enough.

At the time, Chinese researchers and professors lacked knowledge in critical fields. To reduce the gap, they decided to bring foreign experts to the mainland through what’s called the 1000 Talents Program.

The results of the program, though, were mixed. While the program is still active, the government decided to try a different approach.

“The way the government is putting money in is getting smarter and smarter,” says Ming Lei, one of the co-founders of Baidu and now co-director at Peking University’s AI Innovation Center. “Before they just gave money to research projects or big SOEs or universities. But now they are more likely to give it to a private company, to one that is more active and can produce the products and services.”

China seeks dominance of global AI industry—FT.com

Enter the Chinese startup scene.

China’s startup talent

As with Chinese education, for years, Chinese startups have been looked down upon due to their lack of competitiveness. Local startups grew mostly as American copycats. Despite the negative connotations, these companies brought a wealth of knowledge to the entrepreneurs. It taught them how to build products, and how to do it fast.

“The velocity of work is much faster in China than in most of Silicon Valley,” says Ng. “When you spot a business opportunity in China, the window of time you have to respond usually very short—shorter in China than the United States.”—Ng

China’s Artificial-Intelligence Boom—The Atlantic

China might have started as the land of the copycats, but it quickly evolved and started developing their innovations. New Chinese startups emerged that, not only served the local market’s need but did this at a scale never seen in the US.

“Chinese companies experience both much larger scale than anything seen before in the US and no holds barred domestic competition.”

6 Reasons Why China Will Lead In AI—Forbes.com

Such has been the evolution of the Chinese startup ecosystem that their products and services are starting to outperform their American peers.
“Weibo is a better product than Twitter, same for Taobao and eBay, WeChat and Facebook Messenger. Better features, more robust business model.” Today, Chinese companies are coming up with innovative products not seen in America such as customized news or distance learning using “underpaid American teachers” to teach English. We are now entering the age of copying from China, says Lee.

6 Reasons Why China Will Lead In AI—Forbes.com

All this was happening, while Internet and Mobile penetration were increasing. In a way, China skipped an innovation step and went directly to mobile.
This leap has created some unique mobile behaviors that are giving a massive edge to Chinese companies.

“The data gap between the US and China is “dramatically larger” than the actual gap between the respective populations or the number of active mobile users. Chinese use their phones to pay for goods 50 times more often than Americans, he says, and orders for food delivery are ten times greater than in the US.”

6 Reasons Why China Will Lead In AI—Forbes.com

China’s Artificial Intelligence moment

At the heart of the rise of the Chinese startups lies the field of Artificial Intelligence. As I’ve written before, Artificial Intelligence (AI) is becoming the de-facto disruptive technology. Any company that wants to compete needs to be deploying AI systems.

China’s innovation efforts have squarely targeted the development of AI and Deep Learning technologies. Nonetheless, attaining AI expertise isn’t easy. Investing in AI demands spending on the three building blocks that make it possible; hardware, data, and talent.

Hardware infrastructure

People know China for their hardware production. Even so, their expertise on the design aspect of high-tech semiconductors has remained elusive. If China wanted to up their game, they needed to increase their knowledge in the space.

That’s what they started doing via foreign investments. Such was the pace that the Committee on Foreign Investment (CFIUS) issued a warning to Congress about it and started blocking some of these operations.
Top 5 Covered Transactions by Acquirer Home Country or Economy 2013–2015

Source: CFIUS Anual Report to Congress, 2015

Figure II-1: Completed Transactions by Sector of U.S. Target Company

The data in this report can also be analyzed by the home region of the foreign acquirers. Figure II-2 displays the data with the following regional breakdown:

Source: CFIUS Anual Report to Congress, 2015
Data access

Access to massive amounts of data is paramount for AI. Yet, data is one thing China has in excess. With an Internet population of 731 million users (2.5x more than the US) and very lax privacy regulations, they’re well equipped to train their systems with large swaths of information.

“When it comes to government data, the US doesn’t match what China collects on its citizens at all,” says James Lewis, senior fellow at the Center for Strategic and International Studies. “They have a big sandbox to play in and a lot of toys and good people.”

China seeks dominance of global AI industry—FT.com

Talent

Data and hardware aren’t enough. You need people to man the algorithms. The government started doubling down on AI research money to increase the number of skilled AI and Deep Learning researchers. In contrast, the Trump administration began slashing the 2017 National Science Foundation budget by 11.2%. The effect has been dramatic.

In October of 2016, the US National Science and Technology Council released a paper titled “The National Artificial Intelligence Research and Development Strategic Plan” (PDF). The document indicated that China had surpassed, for the first time, the US number of peer-reviewed publications mentioning Deep Learning. It also sets the first US Artificial Intelligence R&D strategic plan ever.

![Deep Learning chart](chart.png)

Figure 1: Journal articles mentioning “deep learning” or “deep neural network”, by nation.62

The rise of Chinese AI researchers has been felt worldwide.

“When Rao [Subbarao Kambhampati, current president of the Association of the Advancement of Artificial Intelligence, AAAI] first started seeing Chinese researchers at international AI meetings, he recalls they were usually from Tsinghua and Peking University, considered the MIT and Harvard of China. Now, he sees papers from researchers all over the country, not just the most elite schools.”

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**Figure 2:** Journal articles cited at least once, mentioning “deep learning” or “deep neural network”, by nation.63

**Figure 3:** Analysis of number of patents using term “deep learning” or “deep neural net”.64

Machine learning—which includes deep learning—has been an especially popular topic lately. “The number of people who got interested in applied machine learning has tremendously increased across China,” says Rao.

China’s Artificial-Intelligence Boom — The Atlantic

The trend not only hasn’t reverted, but it’s widening. According to a recent analysis by The Financial Times,

“In 2016 China increased its output of AI-related papers by almost 20 per cent compared with the previous year, while EU and US output dropped. […] However, the quality of fundamental research remains a problem. Although China leads the world in quantity of AI research, it lags behind the EU in terms of number of AI papers in the top 5 per cent of most cited research—but still overtook the US in this metric last year.”

One of the unspoken advantages of many Chinese researchers is that they have access to the best of both worlds,

“Chinese researchers usually speak English, so they have the benefit of access to all the work disseminated in English. The English-speaking community, on the other hand, is much less likely to have access to work within the Chinese AI community.”

China’s Artificial-Intelligence Boom — The Atlantic

This increased research is starting to yield incredible results. Some of the current Chinese startups are becoming the AI reference in their fields. Such is the case of Face++, whom recently won the first place in the International Conference of Computing Vision 2017 (ICCV), ahead of teams from Facebook, Google or Microsoft.

Artificial Intelligence is the new strategy

Artificial Intelligence and Deep Learning have become so critical to China that in July of 2017, they released a State Council Notice called “The Next Generation Artificial Intelligence Development Plan” (PDF). The plan is worth reading due to its prescient nature on several aspects.

“The plan includes formulation of laws, regulations, and ethical norms on AI, as well as mechanisms for safety and supervision. The plan seeks to mitigate likely negative externalities, such as job losses, associated with AI, while fully leveraging the opportunities.”

China’s Plan to ‘Lead’ in AI: Purpose, Prospects, and Problems — NewAmerica.com

The government recognizes, though, that local talent is still hard to come by. To offset this, they’re deploying a dual strategy. On the one hand, they’re investing heavily on AI-based startups, both locally (SensaTime Group’s 410 million dollars in July 2017, Megvii’s Face++ 460 million dollars in October) and outside the mainland. While the US is investing in the field, the hunger for more money is patent. China is investing in companies that the US money is neglecting.

“We were told by the secretary of the Air Force, ‘Your tech is awesome, we should put it everywhere,’” he said. “No one followed up.” […] American military officials have “figured out a very good way to give $10 billion to Raytheon,” he said. “But to give a start-up $1 million to develop a proof of concept? That’s still very, very hard.”

China Bets on Sensitive U.S. Start-Ups, Worrying the Pentagon — NYTimes.com
China Investment in Silicon Valley Report, CBInsights, 2016
China Investment in Silicon Valley Report, CB Insights, 2016

China Investment in Silicon Valley Report, CB Insights, 2016
On the other hand, China is trying to make it easier for foreign talent to come and work with them. To accomplish this, the big three of China, Baidu, Alibaba and Tencent (BAT) have been opening AI, and Deep Learning focused research centers on the West Coast.

Baidu already has two research centers in Sunnyvale, CA. Tencent has been operating a data center out of Silicon Valley and a new AI Research center in Seattle, WA. Alibaba recently announced they’re opening seven new research labs worldwide, one of them in the Seattle area and another in San Mateo, CA. Uber Rival Didi Chuxing, is also another of the big Chinese startups that opened shop in Mountain View in March 2017.

**Strategic ramifications**

Underestimating China is easy. For many years it’s been the land of the cheap mediocre copycats. Chinese culture is foreign to most Westerners. It’s plagued with idiosyncrasies that cultured western institutions have defined as inferior or wrong. The fact that few outside of China speaks or read Chinese doesn’t help. We disregard and downplay that that’s different or unknown to us.

But the truth is, it’s becoming increasingly hard to ignore the fact that China is on the verge of becoming the world’s technological leader.

While Chinese universities still have a low rate of international participation, that will change fast. It’s a matter of time before foreign students start flocking China, looking for the next Stanford.

Meanwhile, more and more companies are turning to China for funding and customers. The US and Europe are lagging behind in technological adoption. Robotics, AI-based systems, automated education, Quantum computing or smart mobility are all happening in China, not in the US. The market is in China, the funding is in China, and the regulation is in China.

The US is becoming progressively more hostile to startups. More and more entrepreneurs are fleeing America. Some are finding in China, the perfect market for their cutting-edge technology.

It’s hard to see how the Trump administration can correct the innovation decline. Much worse is the situation in Europe where there seem to be no strategic plans around key technologies like AI and Deep Learning. The difference in research, investment and execution capacity between China and Europe is staggering.

Organizations worldwide should keep a close eye on Asia, both China’s big four (BATJ, Baidu, Alibaba, Tencent, and JD) and conglomerates like Japan’s Softbank.

China will, most probably, dictate the rules of the next technological revolution. Organizations need to invest in understanding the new landscape before they get obliterated in the crossfire.
Silicon Valley tech bubble is larger than it was in 2000, and the end is coming

- There are fewer new Silicon Valley unicorns being created.
- These start-ups, valued at $1 billion or more, have been able to access vast amounts of capital from venture investors, hedge funds and mutual funds.
- Some may be overvalued by as much as 50 percent; higher interest rates and the return of market volatility may usher in the end of this tech bubble.

Keith Wright, instructor of accounting and information services at the Villanova School of Business
Published Tue, 22 May 2018

In case you missed it, the peak in the tech unicorn bubble already has been reached. And it's going to be all downhill from here. Massive losses are coming in venture capital-funded start-ups that are, in some cases, as much as 50 percent overvalued.

The age of the unicorn likely peaked a few years ago. In 2014 there were 42 new unicorns in the United States; in 2015 there were 43. The unicorn market hasn't reached that number again. In 2017, 33 new U.S. companies achieved unicorn status from a total of 53 globally. This year there have been 11 new unicorns, according to PitchBook data as of May 15, but these numbers tend to move around, and I believe the 279 unicorns recorded globally in late February by TechCrunch was the peak, where the start-up bubble was stretched to its limit.

A recent study by the National Bureau of Economic Research concludes that, on average, unicorns are roughly 50 percent overvalued. The research, conducted by Will Gornall at the University of British Columbia and Ilya Strebulaev of Stanford, examined 135 unicorns. Of those 135, the researchers estimate that nearly half, or 65, should be more fairly valued at less than $1 billion.
Get big fast. No IPO required

In 1999 the average life of a tech company before it went public was four years. Today it is 11 years. The new dynamic is the increased amount of private capital available to unicorns. Investors new to the VC game, including hedge funds and mutual funds, came in when the Jobs Act started to get rid of investor protections in 2012, because there were fewer IPOs occurring.

These investors focus on growing the unicorn customer base, not turning a profit. New regulatory conditions, including wildly separate share classes, which give some shareholders significantly more rights than others, have resulted in a danger of widespread overvaluation. Some shareholders have voting, rights to assets, rights to dividends, rights to inspect records. Snap won't give any shareholders voting rights, and the shares have steadily declined since the IPO.

A recalculation model constructed jointly for the University of St. Gallen and Villanova University estimated the average venture capital-backed unicorn reported a valuation 49 percent above its fair value. Researchers believe this is happening because current valuations assume that a unicorn's total shares have the same price as the most recently issued shares. This oversimplification significantly inflates valuations, since the most recently issued shares almost always include perks not found in previously issued shares.

New regulation, beginning with the Jobs Act, allows unicorns to have far more shareholders before they disclose their financials publicly. Multiple funding rounds allow them to get big fast without going through an IPO. They can just go back to their investors for more capital.

More from Disruptor 50:

Spotify's IPO disrupted Wall Street. What lies ahead now for unicorns looking to go public
Oscar Health has a vision of fairer pay for doctors and clearer pricing for patients
Meet the 2018 CNBC Disruptor 50 companies

Don’t let the few recent successes in the 2017 IPO market fool you. After two years of stagnation in terms of the number of IPOs being filed in the United States — 275 IPOs (2014), 170 IPOs (2015) and 105 IPOs (2016) — deal counts have dropped to their lowest figure since 2012.

Seventy-six percent of the companies that went public last year were unprofitable on a per-share basis in the year leading up to their initial offerings, according to data compiled by Jay Ritter, a professor at the University of Florida’s Warrington College of Business, and recently featured in The New York Times. This is the largest number since the peak of the dot-com boom in 2000, when 81 percent of newly public companies were unprofitable.

The current volatility and correction evolving in the private market will be amplified for companies that have yet to make money and are burning cash faster than they're bringing it in. Growth at all costs will not weather an economic storm.

The turning point

Since the Snap IPO in March 2017 at $17 a share, when its shares surged 44 percent during its first day of trading, they have now declined to $11. Dropbox also went public. It had a first-day pop of 36 percent; however, with only 200,000 paying customers compared to its 500 million users, I would be hesitant to rush in to buy, even as it comes off that year-to-date high considerably. Another highly valued start-up, Blue Apron, went public at $10 a share in June and is now trading at $3. Remember Fitbit was a $45 stock in 2015 — it’s currently trading at just over $5.

Not all unicorns-to-IPOs have been, or will be, failures. Enterprise software company Atlassian could be a positive example of a unicorn, considering the fact the failure rate for all U.S. companies after five years is more than 50 percent. But when Atlassian paid $425 million to acquire Trello a little more than a year after its IPO, it revealed a factor that will lead to more unicorn failures. Trello beat Atlassian at their own game, with superior software functionality, so Atlassian had to purchase them before it was too late. It was a $425 million pivot, tucked into an acquisition. How many times can they perform that stunt before they are five years old? It only gets harder, as the failure rate after 10 years is over 70 percent.

It's not just the unicorns that have been vastly overvalued. Cosmetics subscription start-up Birchbox was valued at roughly a half-billion dollars by venture investors a few years ago — it just sold for scraps, and the only one willing to buy it was one of its former investors, for $15 million.

Unicorns can no longer meander along burning through private money, and if they do rush an IPO after dragging their feet for an average of 11 years, the outlook could be bleak.

"Billion-dollar start-up valuations are not an indicator of safety. They represent a huge danger of widespread overvaluation."

Large incumbent companies are learning how to adopt emerging and disruptive technologies faster than ever. Companies such as Actesy.com from St. Gallen have recently perfected and piloted new software that enables Fortune 500 companies such as Porsche, Roche and BASF to quickly and easily adopt emerging technologies while maintaining their existing highly expensive, entrenched legacy solutions.

Previously, it may have taken 10 or more years to replace enterprise-wide global systems. When large companies learn to sustain their competitive advantage through disruptive technologies, the unicorn game is limited.
The coming fall

Billion-dollar start-up valuations are not an indicator of safety. They represent a huge danger of widespread overvaluation. Companies burning more than what they raised will not be able to return to the well for more. The "get big fast" strategy that many investors and venture capital firms adopted will fail.

When reflecting on a unicorn IPO, ask the right questions.

- When did they raise their last round of funding?
- Are they successfully generating revenue, and at what growth rate?

We have already begun to see that when unicorns launch their IPOs, there is a huge risk of devaluation in the public market, which frequently prices these companies at a lower value than original investors. One recent example: Trivago, a popular German hotel search engine, which saw a huge 29 percent one-week price decline post-IPO, simply because the market dramatically disagreed with its valuation.

Research on start-ups founded between 2012 and 2015 and published in the Harvard Business Review by Vijay Govindarajan and Adam Stepinski anticipated IPO challenges: It found companies were growing in valuation twice as fast as start-ups founded between 2000 and 2013. Dartmouth business school professor Govindarajan said two years have passed since that research, but not much has changed in terms of overvaluation in the private marketplace.

The frenetic era of billion-dollar start-up unicorns is slowing significantly, according to CB Insights. The first red flag was the decline in "megarounds," of $100 million or more, beginning in Q4 2015.
Unicorns are being dramatically impacted in terms of share price by renewed market volatility in 2018. An end to the era of ultra-low interest rates from the Federal Reserve will also weigh on these overvalued names. As interest rates continue to rise throughout 2018, that will accelerate the unicorn slowdown.

Expect to see more dead unicorns. Several high-profile billion-dollar start-ups missed their 2017 year-end revenue targets, including BuzzFeed, Vice Media and Credit Karma, according to the Wall Street Journal. That causes a rift between the start-ups and their results-driven investors of multiple share classes that makes it even harder to raise late-stage capital. The WSJ found that after the second year the returns of unprofitable companies gradually declined even further.

Most unicorn companies aren't producing billions of dollars of revenue. Several financial models project that up to 80 percent of unicorn companies are set to fail within two years. Uber, the highest-valued private technology company, has rapidly growing revenue but remains highly unprofitable. With revenue of $6.5 billion in 2016, it still registered a net loss of $2.8 billion.

The truth is, when a unicorn is overvalued, it doesn't take long for the market to discover this fact. Great odds for a VC batting .300, but not great for your average investor on Main Street and potentially in one or more mutual funds that have invested retirement assets in these companies.

If you intend to invest in a unicorn IPO anytime soon, think twice. And if you haven't taken a close look at your 401(k) or IRA retirement plan investments, check to see what those mutual funds have been dabbling in.

We are now officially in a tech bubble larger than March of 2000. The term unicorn in business parlance was created in 2013 by venture capitalist Aileen Lee. This mythical animal represented the statistical rarity of a start-up company valued at over $1 billion dollars. The term may not last much longer in the financial vernacular than many of the start-ups that were — wrongly — branded with it.

— By Keith Wright, Instructor of accounting and information services at the Villanova School of Business
Representative Tim Ryan, back left in tie, organized a bus tour through the Midwest with about a dozen venture capitalists. Credit Andrew Spear for The New York Times

“Oh my god, this is so cute!”

Robin Li, an investor with the San Francisco venture capital firm GGV Capital, was standing in the lobby of the Madison building in downtown Detroit. Built in 1917 as a theater and refurbished several years ago as a tech co-working space, the Madison checks all of the aesthetic boxes of hipsterdom: reclaimed wood, exposed brick walls, pour-over coffee served by tattooed baristas.

“This is nicer than San Francisco,” Ms. Li concluded.

Last month, I accompanied Ms. Li and roughly a dozen other venture capitalists on a three-day bus trip through the Midwest, with stops in Youngstown and Akron, Ohio; Detroit and Flint, Mich.; and South Bend, Ind. The trip, which took place on a luxury bus outfitted with a supply of vegan doughnuts and coal-infused kombucha, was known as the “Comeback Cities Tour.”

It was pitched as a kind of Rust Belt safari — a chance for Silicon Valley investors to meet local officials and look for promising start-ups in overlooked areas of the country.
But a funny thing happened: By the end of the tour, the coastal elites had caught the heartland bug. Several used Zillow, the real estate app, to gawk at the availability of cheap homes in cities like Detroit and South Bend and fantasize about relocating there. They marveled at how even old-line manufacturing cities now offer a convincing simulacrum of coastal life, complete with artisanal soap stores and farm-to-table restaurants.

“If it weren’t for my kids, I’d totally move,” said Cyan Banister, a partner at Founders Fund. “This could be a really powerful ecosystem.”

These investors aren’t alone. In recent months, a growing number of tech leaders have been flirting with the idea of leaving Silicon Valley. Some cite the exorbitant cost of living in San Francisco and its suburbs, where even a million-dollar salary can feel middle class. Others complain about local criticism of the tech industry and a left-wing echo chamber that stifles opposing views. And yet others feel that better innovation is happening elsewhere.

“I’m a little over San Francisco,” said Patrick McKenna, the founder of High Ridge Venture Partners who was also on the bus tour. “It’s so expensive, it’s so congested, and frankly, you also see opportunities in other places.”

Mr. McKenna, who owns a house in Miami in addition to his home in San Francisco, told me that his travels outside the Bay Area had opened his eyes to a world beyond the tech bubble.

“Every single person in San Francisco is talking about the same things, whether it’s ‘I hate Trump’ or ‘I’m going to do blockchain and Bitcoin,’” he said. “It’s the worst part of the social network.”
The tour through the Midwest was organized by Representative Tim Ryan, a Democrat who represents northeastern Ohio. Representative Ro Khanna, a Democrat who represents Silicon Valley, came along for the ride, as did J. D. Vance, the author of “Hillbilly Elegy.” (Mr. Vance, a venture capitalist who now seems to magically appear every time the words “Midwest” and “manufacturing” are spoken aloud, has also been leading his own whistle-stop tours of the region.)

Recently, Peter Thiel, the President Trump-supporting billionaire investor and Facebook board member, became Silicon Valley’s highest-profile defector when he reportedly told people close to him that he was moving to Los Angeles full-time, and relocating his personal investment funds there. (Founders Fund and Mithril Capital, two other firms started by Mr. Thiel, will remain in the Bay Area.) Mr. Thiel reportedly considered San Francisco’s progressive culture “toxic,” and sought out a city with more intellectual diversity.

Image

The group had a roundtable discussion with business leaders in Youngstown. Credit Andrew Spear for The New York Times

Mr. Thiel’s criticisms were echoed by Michael Moritz, the billionaire founder of Sequoia Capital. In a recent Financial Times op-ed, Mr. Moritz argued that Silicon Valley had become slow and spoiled by its success, and that “soul-sapping discussions” about politics and social injustice had distracted tech companies from the work of innovation.

Complaints about Silicon Valley insularity are as old as the Valley itself. Jim Clark, the co-founder of Netscape, famously decamped for Florida during the first dot-com era, complaining about high taxes and expensive real estate. Steve Case, the founder of AOL, has pledged to invest mostly in start-ups outside the Bay Area, saying that “we’ve probably hit peak Silicon Valley.”
But even among those who enjoy living in the Bay Area, and can afford to do so comfortably, there’s a feeling that success has gone to the tech industry’s head.

“Some of the engineers in the Valley have the biggest egos known to humankind,” Mr. Khanna, the Silicon Valley congressman, said during a round-table discussion with officials in Youngstown. “If they don’t have their coffee and breakfast and dry cleaning, they want to go somewhere else. Whereas here, people are hungry.”

This isn’t a full-blown exodus yet. But in the last three months of 2017, San Francisco lost more residents to outward migration than any other city in the country, according to data from Redfin, the real estate website. A recent survey by Edelman, the public relations firm, found that 49 percent of Bay Area residents, and 58 percent of Bay Area millennials, were considering moving away. And a sharp increase in people moving out of the Bay Area has led to a shortage of moving vans. (According to local news reports, renting a U-Haul for a one-way trip from San Jose to Las Vegas now costs roughly $2,000, compared with just $100 for a truck going the other direction.)

For both investors and rank-and-file workers, one appeal of noncoastal cities is the obvious cost savings. It’s increasingly difficult to justify doling out steep salaries and lavish perks demanded by engineers in the Bay Area, when programmers in other cities can be had for as little as $50,000 a year. (An entry-level engineer at Facebook or Google might command triple or quadruple that amount.)

When you invest in a San Francisco start-up, “you’re basically paying landlords, Twilio, and Amazon Web Services,” said Ms. Bannister of Founders Fund, referring to the companies that provide start-ups with messaging services and data hosting.
Granted, California still has its perks. Venture capital investment is still largely concentrated on the West Coast, as are the clusters of talented computer scientists who emerge from prestigious schools like Stanford and the University of California, Berkeley. Despite the existence of tools like Slack, which make remote work easier, many tech workers feel it’s still an advantage to be close to the center of the action.

**Interested in All Things Tech?**

The Bits newsletter will keep you updated on the latest from Silicon Valley and the technology industry.

Mike Garvey, left, president of M7 Technologies, a Youngstown company that provides precision measuring services, talking to the congressman from his district, Tim Ryan, center.CreditAndrew Spear for The New York Times

But the region’s advantages may be eroding. Google, Facebook and other large tech companies have recently opened offices in cities like Boulder, Colo. and Boston, hoping to attract new talent as well as accommodating requests from existing employees looking to move elsewhere. And the hot demand for engineers in areas like artificial intelligence and autonomous vehicles has led companies to expand their presence near research universities, in cities like Pittsburgh and Ann Arbor. Then there is HQ2, Amazon’s much-ballyhooed search for a second headquarters, which seems to have convinced some tech executives that cities between the coasts may be viable alternatives.

Venture capitalists, who recognize a bargain when they see one, have already begun scouring the Midwest. Mr. Case and Mr. Vance recently amassed a $150 million fund called “Rise of the Rest.” The fund, which was backed by tech luminaries including Jeff Bezos of Amazon and Eric Schmidt, the former executive chairman of Alphabet, will invest in start-ups throughout the region.
But it’s not just about making money. It’s about social comfort, too. Tech companies are more popular in noncoastal states than in their own backyards, where the industry’s effect on housing prices and traffic congestion is more acutely felt. Most large tech companies still rate highly in national opinion surveys, but only 62 percent of Californians say they trust the tech industry, and just 37 percent trust social media companies, according to the Edelman survey. So you can start to understand the appeal of a friendlier environment.

During the Akron stop of the bus trip, while the Silicon Valley investors mingled with local officials over a dinner spread of vegan polenta pizza and barbecue sliders, Mr. McKenna, the San Francisco venture capitalist, told me that he felt a difference in people’s attitudes in cities like these, where the tech industry’s success is still seen as something to celebrate.

“People want to be in places where they’re the hero,” he said.

**Correction: March 4, 2018**

An earlier version of a picture caption with this article misidentified the mayors of two cities in Ohio. Mayor Jamael Tito Brown of Youngstown was on the left and Mayor William Franklin of Warren was on the right.

An earlier version of this article misstated J.D. Vance’s status as an investor in tech start-ups. He is currently a venture capitalist, not a former investor.

Email Kevin Roose at kevin.roose@nytimes.com, or follow him on Facebook at facebook.com/kevinroose and on Twitter: @kevinroose.
If you want an ominous warning about the impact of the Trump era on Silicon Valley, look at a former American behemoth of innovation: Detroit.

By 1908, when Henry Ford started building the Model T in a factory there, the automobile was the most important new technology in the world. The industry coalesced in and around that city as inventors and investors rushed to the region. Out of a torrent of startups—Cadillac Automobile Co., Dodge Brothers, Durant Motors, Mercury Cyclecar Co.—a few global monoliths emerged and consolidated. For the next four decades, Ford, General Motors, Chrysler and the city’s car-making ecosystem dominated every aspect of the global auto industry—and, for that matter, the U.S. economy. Charles Wilson, who was the president of GM before becoming President Dwight D. Eisenhower’s secretary of defense, coined the phrase “What’s good for General Motors is good for the country.”

The end of the 1960s turned out to be Detroit’s apex. In the early 1970s, dubious U.S. economic and foreign policy led to disaster when the Middle East OPEC nations initiated an oil embargo. Gas became scarce and expensive, and Detroit was caught focusing on the wrong products—ostentatious gas-guzzlers—at the wrong time, giving Japanese makers of small cars an opening in the U.S. market. Pulitzer Prize–winning auto historian Joseph White wrote about two fateful mistakes that made things worse. First, “Detroit underestimated the competition,” he said. The likes of Toyota and Honda had become much more adept than industry executives realized. Second, the U.S. companies “handled failure
better than success.” Detroit’s decades of triumph set up the hubris, waste and bad practices that came to haunt it.

From there, it was a short trip to loss of market leadership, layoffs, plant closings and a city that fell into a desperate decline.

Think that could never happen to Silicon Valley? Like 1970s Detroit, Silicon Valley seems to be handling success rather badly. Look at the twisted mess at Uber and the culture wars tearing at Google’s guts. Insanely high valuations of private companies are starting to look like a perilous pyramid scheme Bernie Madoff might admire. High costs and ever-worsening congestion are making the San Francisco Bay Area nearly unlivable for all but the superrich. At the same time, much of U.S. tech is underestimating the competition, particularly from China and the European Union.

Making it all worse, the Trump administration seems to be doing everything it can to help shove Silicon Valley off its pedestal. Trump’s policies on trade, immigration and investment are giving competing nations openings to steal important chunks of Silicon Valley’s global leadership, lure away talent and divert capital to other rising tech centers—even France. (You know, the country President George W. Bush once said doesn’t even “have a word for entrepreneur.”)

The Silicon Valley tech industry isn’t going to suddenly crumble and vanish. Detroit’s auto industry didn’t disappear either. But there’s a clear demarcation point in the early 1970s, when Detroit’s worldwide hegemony ended. The CEOs, founders and wizards of Silicon Valley would be misguided to think they’re immune from any similar stumble off their pedestal.

The Un-American Dream

I first met Stepan Pachikov in Moscow in 1991. He had founded ParaGraph, one of the first private software companies in the collapsing Soviet Union. ParaGraph had developed a way for computers to recognize handwritten words—not easy in those days. Apple ended up licensing the software for its ill-fated Newton, a handheld PDA. Before 1991, a citizen of the USSR could barely dream of working in Silicon Valley. "The major obstacle between me and the world was the Soviet Union," Pachikov once told me. When the Soviets could no longer keep their people from leaving, Pachikov bolted for the most
dynamic technology center on the planet, moving his company and his family to the Bay Area. In 1997, he sold ParaGraph to Silicon Graphics for $50 million.

A few years after, Pachikov built on his knowledge of character-recognition software and founded a company you’ve probably heard of: Evernote. Based in Redwood City, California, in the heart of Silicon Valley, Evernote makes a productivity app and has around 400 employees. It has raised 10 rounds of funding from 15 investors, including top-tier venture company Sequoia Capital. The story is Silicon Valley at its best: lure great innovators; make capital available; let the startup draw from a local milieu of the best engineers, coders and MBAs; and watch as the enterprise moves the world ahead a few steps.

Fast-forward a couple of decades. Included in the family that Pachikov moved to the U.S. was a son, Alex, now 37. Alex Pachikov recently started Sunflower Labs, a company that marries artificial intelligence and drones to create a new kind of home security system. But to him, the tech scene looks different from the one his father embraced—it’s now spread across the globe. “My R&D office is in Zürich,” he says. “My industrial design, graphic design and PR are in San Francisco. One of my investors-advisers is in Tokyo. Our manufacturing will be in China and Taiwan. Getting all the time zones right is a challenge.”

The arc of the Pachikovs suggests that Silicon Valley, once the center of the tech universe, is now just one star in a constellation. Alex Pachikov’s company-creation story is becoming more common. Tech investor Andres Barreto said he has six companies incubating inside Y Combinator in Silicon Valley, “but their engineering teams are all in Latin America or they are starting to build teams in Latin America.” The transition is reflected in tech job listings in Silicon Valley, down 5.9 percent the first half of the year, according to jobs site Indeed. The trend shows up in the number and kinds of companies started. The region’s seed and angel investors completed about 900 deals in the second quarter of 2017, down from 1,100 the same quarter a year before, according to a PitchBook report, while company creation is climbing globally.

Famed tech analyst Mary Meeker noted that 60 percent of the most highly valued U.S. tech companies were founded by first- or second-generation Americans. Those companies employ 1.5 million people and include Apple, Alphabet, Amazon and Facebook—four of the most valuable companies in America. Imagine the long-term impact if more would-be immigrants to the U.S. launch their startups from wherever they are now—if the likes of Stepan Pachikov don’t make the journey. The implications are enormous for the U.S. economy, and it could affect America’s position in the world. The U.S. projects its culture and values through its tech exports. Billions of people globally are on Facebook, use iPhones and rely on Google—all made in America. The next generation of technology, coming from nations other than America, might look and feel different.

The Un-Unicorn

If Silicon Valley’s dominance wanes, it will be in part because of what it’s doing to itself, and what is being done to it by Donald Trump.

Remember all the fuss last year about the explosion of tech “unicorns”—those privately held billion-dollar companies? The financial trap behind that trend is threatening Silicon Valley’s company-building model.

Because of U.S. regulations and shifting attitudes in the tech industry, successful startups are staying private. Initial public offerings used to be a common way for emerging companies to finance growth, but in 2016, according to a new paper by investment startup Urgent International, just 18 U.S. companies completed IPOs that raised less than $50 million, compared with 557 companies in 1996. In other words, within 20 years, an important path to expansion for small, fast-growing Silicon Valley startups has been
blocked. Instead, companies rely on rounds of private financing, which inflate or muddle valuations, leading to unicorns that shouldn’t be unicorns. Urgent has a plan to exploit Silicon Valley’s IPO problem: It is proposing a way to take U.S. companies public on other stock exchanges around the world. “It’s a huge opportunity for us as a fund amid a travesty for U.S. tech companies,” Urgent’s Jeff Stewart tells me.

The financial mess in Silicon Valley is writ large in the turmoil at Uber. Founder Travis Kalanick, who was ousted as CEO but remains Uber’s chairman, refused to consider taking Uber public. He also raised huge round after huge round of private financing, so Uber is now valued at $70 billion—more than Ford or GM. Yet, at some point, the company will run out of “greater fool” investors who will put up funding at even higher valuations, limiting Uber’s ability to raise money. New CEO Dara Khosrowshahi says Uber may go public around 2020, but public markets might value Uber lower than the private valuations, which would mean big losses for Uber’s private investors.

This tension over an IPO was at the heart of why one of Uber’s main investors, venture company Benchmark Capital, sued Kalanick in a struggle to control the company, making for a mind-jarring scenario: one of the most successful tech VC’s suing one of the most successful company founders—an epic Silicon Valley equivalent of Brutus turning on Caesar. In fact, Uber investor and Kalanick supporter Shervin Pishevar unleashed in August a Shakespearean tirade aimed at Benchmark: “Let our just cause give pause to those who would ever dream of ever emulating the shameful shenanigans of these sanctimonious hypocrites,” he fumed. You don’t often see that in business circles.

At the same time, issues of sexism and discrimination are sullying Silicon Valley’s self-image as a land of opportunity for all. At Google, low-level engineer James Damore wrote an anti-diversity manifesto that went viral and challenged the leadership of CEO Sundar Pichai. A book by Ellen Pao, who famously sued venture capital giant Kleiner Perkins for sexual discrimination, just came out, squirting more lighter fluid on that issue’s hot coals.

In another ring of the Silicon Valley circus, Tesla CEO Elon Musk has been slamming Facebook CEO Mark Zuckerberg, mocking his knowledge of AI as “limited” after Zuckerberg accused Musk of making “irresponsible” comments about AI being dangerous to humanity. This would be as entertaining as watching Bugs Bunny debate duck season vs. rabbit season with Daffy Duck, except it reflects a growing and sometimes hostile divide in tech over whether AI needs to be tamed or let loose.
Most damaging of all may be the policies of the Trump administration, which has been implementing or proposing one policy after another that puts the industry at a competitive disadvantage.

Earlier this year, the president initiated a review of H-1B visas for foreign workers, which tech companies rely on to bring in talent. More recently, the Trump administration delayed —and may kill—the International Entrepreneur Rule, which would make it easier for foreign company founders to bring their startups to the U.S. “At a time when countries around the world are doing all they can to attract and retain talented individuals to come to their shores to build and grow innovative companies, the Trump administration is signaling its intent to do the exact opposite,” said Bobby Franklin, president and CEO of the National Venture Capital Association.

And in early September, Trump said he will end the Deferred Action for Childhood Arrivals program, which has allowed undocumented immigrants who were brought to the U.S. as children to stay. Now, they may be deported. Some are valuable employees of tech companies. Microsoft pledged to pay the legal expenses of any employees who face deportation as DACA ends. Microsoft President Brad Smith called Trump’s decision “a big step back for our entire country,” and the industry worries that it will further discourage talented foreigners from coming to the U.S.

Other countries have started pursuing international talent like sharks circling surfers at dusk. “I myself hope that many of these engineers will come to China to work for us,” said Robin Li, CEO of Chinese tech giant Baidu. Canada’s minister of innovation, Navdeep Bains, launched a recruitment program, saying, “We want to be open to people.” French President Emmanuel Macron announced that tech talent can “find in France a second homeland.”

Even more detrimental to U.S. tech are two other Trump decisions: pulling out of the Paris climate accord and dumping the Trans-Pacific Partnership (TPP) agreement on trade with Asia.

Clean energy technology and innovations that solve climate change will be among the greatest business opportunities of the next two decades. Trump signaled that the U.S. won’t welcome new energy innovations, which, again, clears the way for overseas competitors and makes it less likely American companies will develop energy solutions for their home market. A Trump America will just keep mining coal nobody else wants.

As political pundits point out, abandoning the TPP decreases the leverage for U.S. companies in the exploding tech markets in Asia and instead hands those opportunities to China’s ever more powerful tech industry. The U.S. has nurtured monoliths like Apple, Google, Facebook and Netflix. But China’s big three tech companies—Baidu, Alibaba and Tencent—are chasing down Silicon Valley much the way Toyota, Honda and Nissan reached out from Japan in the 1970s and sucker-punched Detroit. Alibaba and Tencent are already more than twice as valuable as Intel or IBM.

The Un-Intelligent Approach

For decades, the home market has been one of the great advantages to starting a tech company in the U.S. Nowhere else on earth could you find a single market with so many people with means hooked to the internet.

China now has nearly 750 million internet users, more than double the size of the entire U.S. population. India, with 1.3 billion people, boasts the fastest-growing internet population, now at about 300 million, and it still has less than one-third of its people connected. So Silicon Valley’s advantage of a big home market for launching products is over.

How about its advantage in scientific research and technical wizardry? That’s looking shaky as well.
The Chinese government is investing in a national AI plan, spending billions of dollars on research and startups. A report last October from the Obama administration found that China overtook the U.S. as the world’s most prolific producer of research papers in deep learning publications sometime in 2013. (Deep learning is a type of machine learning.) And the gap continues to widen. China’s vice minister of industry and information technology, Liu Lihua, reported that China has applied for 15,745 AI patents. A report by American consulting company PwC predicts that by 2030 AI-related growth will increase global gross domestic product by $16 trillion, and nearly half of that growth will accrue to China.

The key to creating the best AI is being able to feed it massive amounts of data from the ongoing behavior of users. The AI learns from the data and gets better. In that realm, whoever has the most and best data usually wins. Now that China has two or three times more users just in its home market, it will have the most data by a big margin.

China’s tech companies attracted a record-high $56 billion in disclosed investments last year, according to Tech in Asia. Beijing-based Didi Chuxing, China’s Uber-like company, has raised about $10 billion and bought Uber’s Chinese operations last year after Uber realized it could not compete in that country.

At least the burgeoning Chinese startup scene may have woken up Silicon Valley. In September, a major San Francisco tech conference, TechCrunch Disrupt, will give over its main stage to interviews with top tech companies from China, including bike-sharing company Ofo, education startup VIPKid and investment company ZhenFund.

And if you want a fun fact with spooky historical echoes, consider that Chinese companies will be making 49 of the 103 all-electric cars expected to be on the market in 2020.

While China will throw up the most likely challengers to Silicon Valley, dozens of other countries are right behind it. For years, other nations have tried to emulate Silicon Valley, even adopting some version of its name, like Silicon Roundabout in London. Now, countries are increasingly playing to their cultural and market strengths while pointing to the dysfunctional political climate in the U.S. and the high cost of running a company in Silicon Valley. "I want France to attract new entrepreneurs, new researchers and be the nation for innovation and startups," France’s Macron told CNBC. He has taken bold positions that stand in contrast to the U.S., like laying out a plan to ban fossil fuel cars by 2040.

Finland now hosts the highest-profile startup conference outside the U.S., called Slush. It attracts 20,000 people to Helsinki in December, when nobody should want to be in Helsinki. Canada has a growing AI community and committed $100 million this year to develop AI companies, and Canada is home to D-Wave, the best-known startup working on the difficult but potentially world-changing technology of quantum computing. Israel spits out 1,000 startups a year and ranks second in the world in innovation, behind Silicon Valley, according to the World Economic Forum.

The fact that technology companies get created all over the globe is not new. But the momentum has shifted. Silicon Valley and its sister U.S. regions—Seattle, Boston and Austin, Texas—used to win all the time and march their software and services out to every corner of the planet. Today, that kind of total victory is not so certain.

It’s possible the momentum shift is temporary. Maybe the developing cultural backlash in Silicon Valley will root out discrimination, and Trump’s immigration stance will get reversed, and the world’s talent will again dream of working in an open office in Atherton, California. Maybe a financial downturn will reset tech’s business practices and make America sane again. Maybe all that will happen before it’s too late, and Silicon Valley will prove resilient.

“My reading is optimistic,” says Enrico Moretti, author of The New Geography of Jobs and a University of California, Berkeley, professor. “Current administration policies, however incompetent, aren’t likely to
make a big dent on the concentration of technology jobs and firms in Silicon Valley, at least for the next five to 10 years.” Yet, Moretti notes, it’s likely that Silicon Valley will find itself in a new era of sharing the tech industry with others.

No one in the late 1960s would’ve thought Detroit was going to have to face a harsher future. In 1965, GM, Ford and Chrysler sold 90 percent of the cars on America’s roads, according to Ward’s Automotive. That’s now down to about 40 percent. So in years to come, don’t be surprised if you’re in Kansas City or Phoenix or Baltimore and you get a ride in a Didi while using apps from Tencent. You might even, if things get really crazy, depend on software from some company in France that was started by someone the French might call an entrepreneur.
It's time to use technology to help the homeless. Shutterstock

In November, California voters will be asked to approve $2 billion in bonds to combat homelessness in the state. Nearly a quarter of all homeless people in the United States live in California, and about 70% of them are “unsheltered,” meaning they live in vehicles, abandoned buildings or parks or on the street. (The rest live in shelters.)

It’s sadly not surprising in a state where the median house price is $600,860 — more than double the national median — that even a small crisis can topple people into homelessness. Roughly one in five California households in 2016 paid over 50% of their household income toward housing costs, and more than half spent at least 30%. Prices have only continued to rise — a whopping 9.2% from May 2017 to May of this year, according to the California Association of Realtors.

Homelessness is a humanitarian crisis but it’s also an expensive problem. Los Angeles alone budgeted $430 million for homeless programs and projects for the 2018-2019 fiscal year.
So what’s the solution? Everyone agrees it’s more housing. A RAND report last year found an almost 60% drop in costs for public services used by people who were given so-called supportive housing, which is subsidized housing tied to social support services such as health care, education and job training. Supportive housing improves stability and physical and behavioral health outcomes and requires fewer crisis interventions. Some of the hoped-for bond money will go into these sorts of developments.

Perhaps there are other ways to combat homelessness that augment these approaches. Where are the hackathons to alleviate homelessness? Tech entrepreneurs could be applying technology to finding a solution and governments should be forging public-private partnerships to fund these innovations.

There are sensors that tell farmers when crops need fertilizer, apps that track our sleep cycles and predictive algorithms that target ads to highly specific demographics. Why not use technology to predict who may be on the edge — and stop homelessness before it happens — or find a way to help the homeless get back on track? California is home to Apple, Google, Cisco and dozens of other tech companies. It’s the perfect state to lead the way in using technology to solve these seemingly intractable problems.

There are platforms already in place that could help the homeless be more self-sufficient and deal with barriers to staying in their homes or getting back on their feet.

Big data has a role to play. Most cities perform an annual homeless survey. If instead they collected more data daily — on ER visits, police encounters and public services used — what insights or new solutions would present themselves when artificial intelligence is analyzing terabytes of data?

The “tiny house” movement, with its ethos of renewable energy and a low carbon footprint, potentially could be a solution to high housing costs and the need for expansive and expensive land for low-income developments.

The advent of blockchain and cryptocurrency also offers a type of financial independence for the homeless, so they can escape a cash economy. They no longer need a traditional bank account to save their money or be paid for work they do. They need not fear being attacked for whatever cash they manage to accrue. Many homeless people can handle short gig projects. Blocklancer, a freelancing platform built on blockchain, is helping individuals do just that, starting a program targeted at the homeless population to help those interested in freelancing start earning money.

Peer-to-peer has the potential to be life-altering for the homeless as well. OpenBazaar is a completely free e-commerce site using blockchain and peer-to-peer tech for buying and selling just about anything. Without fees, profits aren’t diminished. Kiva also uses p2p technology, to offer microloans so people can go to school, start small businesses or even pay the rent in an emergency and avoid becoming homeless in the first place.

There is some movement on this front. Assemblyman David Chiu of San Francisco has proposed bills to fast-track affordable construction by allowing developers to bypass the lengthy approval process for development if they set aside 35% of units in new affordable housing for homeless people. He’s also working to allow every homeless person to receive a certified copy of their birth certificate for free.

Whether or not these bills pass, it will be fascinating to see how far California can go once technology starts to play a bigger role in helping to solve this very serious problem.

I’m a data privacy law and policy expert. As a consultant, I advise startups, apps and Fortune 500s on the introduction of novel, data-driven products while navigating data policy and government regulations. I also serve as Senior Policy Fellow at CALinnovates. In past lives...
Silicon Valley faces make or break moment amid big tech backlash

Gone are the glory days of glowing praise and good PR for big tech companies.
by Alyssa Newcomb / Feb.27.2018

For years, tech giants and their CEOs could count on glowing praise and friendly media coverage that hyped up just how much their products would change the world.

Those changes are now the subject of growing skepticism from politicians, academics and that same media. Election meddling, concerns about privacy and questions about technology's role in our daily lives have muddied the waters for the Silicon Valley giants, which now face tough questions and scrutiny like they've never seen before.

The technology industry could be in the midst of the biggest corporate backlash in decades. While big banks were the targets of scorn after the financial crisis, public contempt is now focused squarely on Silicon Valley and big tech.
"All of this combined to be a perfect storm," said Jonathan Taplin, director emeritus at the Annenberg Innovation Lab and author of "Move Fast and Break Things: How Facebook, Google and Amazon Cornered Culture and Undermined Democracy."

Even some high-profile voices in Silicon Valley, who started their own companies or were early employees at Facebook and Google, agree — and are doing so vocally. A number of early employees from Facebook and Google launched the Center for Humane Technology earlier this month, with the goal of "reversing the digital attention crisis and realigning technology with humanity's best interests."

Salesforce CEO Marc Benioff, an influential figure in the tech community, likened Facebook last month to Big Tobacco and said there's a need for regulation.

"We're the same as any other industry," Benioff told CNBC. "Financial services, consumer product goods, food — in technology, the government's going to have to be involved. There is some regulation but there probably will have to be more."

Facebook appears to already be trying to get in front of any potential regulation in the United States. CEO Mark Zuckerberg has pledged to "fix" Facebook this year to focus on "time well spent." Facebook said time spent by its users on the platform dropped 50 million hours per day after the company retooled its algorithm to focus more on friends and family, and less on publishers and brands.

Big tech may already simply be, well, too big, according to Taplin.

Facebook and Google combined to grab 88 percent of all new online advertising revenue last year, he said, and that may be a problem.

"The original idea of the internet was a very decentralized system and a democratic space where everyone could have a place to talk," Taplin said. "The big three online, Google, Facebook and Amazon, are more and more becoming monopolies, so it is a winner-takes-all business."

Corporate America is also getting in on the tech backlash. Unilever, the multibillion dollar consumer goods company that makes everything from food to cleaning and hygiene products, warned tech giants that it was willing to use its $9 billion advertising budget, much of it spent on Facebook and Google, as leverage to get the tech giants to clean up their acts. Last year, several consumer brands pulled their ads from Youtube after an investigation by The Times of London found that their ads were running next to videos of scantily clad children. YouTube vowed to urgently fix the issue.

Facebook executives have said they're already taking steps to address the same concerns Unilever's chief marketing officer raised at the Interactive Advertising Bureau's annual leadership meeting.

But when Congress called on Twitter, Facebook and Google to testify last year, on Oct. 31 and Nov. 1, none of the CEOs showed up. Instead, each company sent their general counsel to be hammered with questions that were met with little substantive answers.

When Big Tobacco was called to testify in 1994, the companies sent their CEOs.

**The backlash overseas**

While technology companies have largely avoided regulation in the United States, they're already in the crosshairs of European regulators.

Google was hit with a $2.7 billion fine last year over charges that its search engine unfairly favored its shopping business over competitors. Another EU ruling last year called on Apple to repay the Irish
government $15.4 billion in back taxes, over charges the company benefited from unfair tax loopholes — even though the Irish government doesn't want the money.

The EU is also about to establish a new rule in May called General Data Protection Regulation, or GDPR, which covers how companies store data, and requires them to alert authorities within 72 hours of a data breach.

Even without regulation being passed in the United States, the new rule is expected to have serious impact on American companies, which could be fined 4 percent of their global revenue or 20 million euros — whichever is higher — if they don't comply.

"The interesting thing is, as the Europeans regulate these platforms, much of that regulation applies to the platforms globally," Taplin said. "The effect of European regulation will be felt here in the United States."

The first big attempt at regulation, the Honest Ads Act, was introduced last year. The bill would require technology companies to be more transparent about who is paying for online ads. It could change the way tech companies, which rely heavily on advertising, conduct business, but four months after it was introduced, it's still lingering in the Senate.

"Slowly but surely, they are coming around to accept responsibility," Taplin said of the big tech companies. "But they are also trying to avoid having any regulations passed."

Re-evaluating the role of technology in our lives

Big tech's business practices are being put under the microscope, but so is the presence of technology in our daily lives — particularly with the emergence of smartphones.

Last month, active investor JANA Partners and the California State Teacher's Retirement System sent Apple's board of directors a letter asking them to "think differently" when it comes to kids.

The letter pointed to a number of studies purporting to show the effects technology has on children and teenagers.

"There is also a growing societal unease about whether at least some people are getting too much of a good thing when it comes to technology, which at some point is likely to impact even Apple given the issues described above," the letter said.

The groups said there is "no good reason why you should not address this issue proactively" and noted the notoriously secretive company could perhaps already be working on the issue.

Apple has had parental controls available in iOS, the operating system used on the iPhone, for the past decade. A statement issued by Apple last month, in response to the letter, said the company has "always looked out for kids ... while also helping parents protect them online."

In addition, Apple's statement said there are "new features and enhancements planned for the future, to add functionality and make these tools even more robust."

The former Facebook and Google employees who mobilized to start the Center for Humane Technology are working alongside Common Sense, an advocacy group focusing on children and technology.

But addressing those concerns could mean rethinking what has made tech companies so successful. Tech business models "often encourage them to do whatever they can to grab attention and data and then to worry about the consequences later, even though those very same consequences may at times hurt the
social, emotional and cognitive development of kids," James Steyer, CEO and founder of Common Sense, said this month. He called on the industry to "change its ways and improve certain practices."

And if ever there was an inflection point, and a critical and necessary place to do it, that time is 2018, according to experts. How tech companies handle this year could potentially be do or die.

"Initial reaction from the platforms was, 'We have nothing to do with this, or this was just imaginary,'" Taplin said. "Then slowly but surely, they are coming around to beginning to accept some responsibility."

"What they are really trying to do is avoid having any regulations passed because they have lived in a world without regulation for 25 years — and they don't want it to start now," he said.
Universities across the country are graduating record numbers of computer scientists, many of whom are finding employment in Silicon Valley. At the same time, we are seeing alarming failures of corporate responsibility on the part of the largest Silicon Valley companies. What role do we in the academy have in fueling the crisis in Silicon Valley and what can we do about it?

Silicon Valley companies have allowed their platforms to be used for a range of troubling activities from child exploitation to child sex trade, revenge porn, radicalization and recruitment of extremists, fake news, trolling, bullying, and election tampering. Technology companies have cultivated and tolerated misogynistic work cultures. Until increasing public pressure forced them to relent, technology companies fought against the passage of sensible legislation, the Stop Enabling Sex Traffickers Act, to make it possible for victims of sex trafficking to hold online enablers accountable. Facebook has enabled target advertising to self-identified “Jew haters” and has allowed advertisers to illegally target housing ads to “whites only”. Google recently admitted to tracking Android users even when users explicitly disabled location services. Twitter remains stubbornly oblivious to its platform being used for abuse, harassment, bullying, propaganda, and fake news. YouTube, until just a few months ago, has allowed videos of al-Qaeda recruiter Anwar al-Awlaki to remain on its platform. And, adding to their growing bad behavior over the past few years, Uber recently admitted to concealing the theft of personal data from 57 million people.

The failures of Silicon Valley have become so alarming that the Senate Judiciary Committee, and the Senate and House Intelligence Committees recently held several hearings where representatives from Facebook, Google and Twitter were grilled on a variety of topics, from data privacy to election tampering. In January, the Senate Commerce Committee held a hearing to specifically examine the problem of extremist propaganda on Google, YouTube, Facebook and Twitter.

These concerns are not limited to the United States. Reeling from the third terrorist attack in three months in which terrorists were, in part, radicalized and recruited on-line, and citing the failures of Silicon Valley to rein in abuses on their platforms, British Prime Minister Theresa May recently called for regulatory legislation to prevent terror groups from continuing to weaponize the internet. Similarly frustrated by inaction in Silicon Valley, Germany passed a law imposing fines up to $59 million on sites that don’t remove hate speech within 24 hours of notification. At the same time, the European Union has slapped Facebook with a $122 million fine for providing misleading statements during its acquisition of WhatsApp, Amazon with a $294 million fine for unpaid taxes, and Google with a record $2.7 billion antitrust fine.
It is the juxtaposition of Silicon Valley abuses and indifference and the funneling of students and faculty to Silicon Valley that should give academia pause. We are developing the latest technologies that are in turn being commercialized by Silicon Valley, many of us are working directly for or receiving funding from Silicon Valley, and we are directly or indirectly funneling our students to Silicon Valley.

Academics, therefore, hold some responsibility for the ultimate actions and failures of Silicon Valley.

As we ride the wave of enthusiasm for computer science, we should not overlook the broader impact that our own innovations and students are having on our society.

To this end, I suggest that we as educators (1) incorporate into our curricula ethics training in technology (as we do with bioethics) so that the next generation of innovators and entrepreneurs are better prepared to tackle the complexities of ubiquitous technology in our lives and society; (2) provide more leadership in the private and public spheres on pressing issues, including privacy, the ethical use of artificial intelligence, and the abuse and harassment that is all too common on social media; (3) present to our students—particularly during campus recruiting events—a broad range of options for internships and post-graduation employment that go beyond Big Tech; and (4) provide on-campus resources to encourage entrepreneurship among our students and faculty with a focus on social entrepreneurship focused on solving pressing social, cultural, and environmental issues.

We should celebrate the growing interest in computer science.

Computing technology has and will continue to lead to insights and innovations across many disciplines. Studying computer science is vital to teaching strong analytical and critical reasoning skills.

At the same time, however, we in academia should think carefully about our role as individuals and educators in fueling what appears at times to be a morally bankrupt technology sector.

Dr. Hany Farid is the Albert Bradley 1915 Third Century Professor and Chair of Computer Science at Dartmouth College and a senior adviser to the Counter Extremism Project.
What does the fate of Detroit tell us about the future of Silicon Valley?

By Andrew L. Russell and Lee Vinsel

There was a time when California’s Santa Clara Valley, bucolic home to orchards and vineyards, was known as “the valley of heart’s delight”. The same area was later dubbed “Silicon Valley,” shorthand for the high-tech combination of creativity, capital and California cool. However, a backlash is now well underway – even from the loyal gadget-reviewing press. Silicon Valley increasingly conjures something very different: exploitation, excess, and elitist detachment.

Today there are 23 active Superfund toxic waste cleanup sites in Santa Clara County, California. Its culture is equally unhealthy: Think of the Gamergate misogynist harassment campaigns, the entitled “tech bros” and rampant sexism and racism in Silicon Valley firms. These same companies demean the online public with privacy breaches and unauthorised sharing of users’ data. Thanks to the companies’ influences, it’s extremely expensive to live in the area. And transportation is so clogged that there are special buses bringing tech-sector workers to and from their jobs. Some critics even perceive threats to democracy itself.

In a word, Silicon Valley has become toxic.
Silicon Valley’s rise is well documented, but the backlash against its distinctive culture and unscrupulous corporations hints at an imminent twist in its fate. As historians of technology and industry, we find it helpful to step back from the breathless champions and critics of Silicon Valley and think about the long term. The rise and fall of another American economic powerhouse – Detroit – can help explain how regional reputations change over time.

The rise and fall of Detroit

The city of Detroit became a famous node of industrial capitalism thanks to the pioneers of the automotive age. Men such as Henry Ford, Horace and John Dodge, and William Durant cultivated Detroit’s image as a centre of technical novelty in the early 20th century.

The very name “Detroit” soon became a metonym for the industrial might of the American automotive industry and the source of American military power. General Motors president Charles E. Wilson’s remark that, “For years I thought what was good for our country was good for General Motors, and vice versa,” was an arrogant but accurate account of Detroit’s place at the heart of American prosperity and global leadership.

The public’s view changed after the 1950s. The auto industry’s leading firms slide into bloated bureaucratic rigidity and lost ground to foreign competitors. By the 1980s, Detroit was the image of blown-out, depopulated post-industrialism.

In retrospect – and perhaps as a cautionary tale for Silicon Valley – the moral decline of Detroit’s elite was evident long before its economic decline. Henry Ford became famous in the pre-war era for the cars and trucks that carried his name, but he was also an anti-Semite, proto-fascist and notorious enemy of organised labor. Detroit also was the source of defective and deadly products that Ralph Nader criticized in 1965 as “unsafe at any speed”. Residents of the region now bear the costs of its amoral industrial past, beset with high unemployment and poisonous drinking water.

A new chapter for Silicon Valley

If the story of Detroit can be simplified as industrial prowess and national prestige, followed by moral and economic decay, what does that say about Silicon Valley? The term “Silicon Valley” first appeared in print in the early 1970s and gained widespread use throughout the decade. It combined both place and activity. The Santa Clara Valley, a relatively small area south of the San Francisco Bay, home to San Jose and a few other small cities, was the base for a computing revolution based on silicon chips. Companies and workers flocked to the Bay Area, seeking a pleasant climate, beautiful surroundings and affordable land.

By the 1980s, venture capitalists and companies in the Valley had mastered the silicon arts and were getting filthy, stinking rich. This was when “Silicon Valley” became shorthand for an industrial cluster where universities, entrepreneurs and capital markets fuelled technology-based economic development. Journalists fawned over successful companies like Intel, Cisco and Google, and analysts filled shelves with books and reports about how other regions could become the next Silicon Valley.

Many concluded that its culture set it apart. Boosters and publications like Wired magazine celebrated the combination of the Bay Area hippie legacy with the libertarian individualism embodied by the late Grateful Dead lyricist John Perry Barlow. The libertarian myth masked some crucial elements of Silicon Valley’s success – especially public funds dispersed through the U.S. Defense Department and Stanford University.

In retrospect, perhaps that ever-expanding gap between Californian dreams and American realities led to the undoing of Silicon Valley. Its detachment from the lives and concerns of ordinary Americans can be
seen today in the unhinged Twitter rants of automaker Elon Musk, the extreme politics of PayPal co-founder Peter Thiel, and the fatuous dreams of immortality of Google’s vitamin-popping director of engineering, Ray Kurzweil. Silicon Valley’s moral decline has never been clearer, and it now struggles to survive the toxic mess it has created.

Andrew L. Russell, Dean, College of Arts & Sciences; Professor of History, SUNY Polytechnic Institute and Lee Vinsel, Assistant Professor of Science and Technology Studies, Virginia Tech.

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What makes a good start-up city?

Silicon Valley may be the tech mecca that birthed a generation of innovation, but seeds of the future are being planted across the globe in cities like Austin, Toronto, Seattle, Shanghai and beyond.

What is it that these cities have that lends themselves to being innovative start-up hubs?

Early internet and tech pioneers took advantage of “low-hanging fruit” in the Valley, occupying lucrative niches like search, social and e-commerce. But by the time later-comers like Pinterest came along, the pickings had gotten slimmer.

Fortunately for the tech entrepreneurs of tomorrow, the options aren’t limited to Silicon Valley to find funding and a community. Many other cities with lively and relevant tech scenes also have unique cultures to offer.

Look at Austin—it’s home to over 5,500 start-ups, as well as big players like Google, Facebook and Apple. Similar to the Bay Area, Austin is loaded with educated millennials who embrace the city’s vibrant scene—but at a lower cost of living. Nearly half of San Francisco’s, in fact.

Some of the most promising new tech towns have a strong focus on entrepreneurial education, a culture that encourages diversity and local policies that support both.

**Educating the next generation**

The ambition behind education is to solve tomorrow’s problems, right?
What’s necessary to create a population of problem-solvers isn’t an evolution or reform of education, it’s a revolution in what’s taught and how it’s taught.

Open-mindedness, critical thinking, challenging the status quo, iterating fast and trying different things, being data-driven—these are qualities and values we commonly see demonstrated in tech entrepreneurship. Fostering that sort of work ethic and way of thinking as a culture starts in a classroom.

In Canada, for example, policy makers recognized this and started to place a strong focus on entrepreneurial education in order to create and attract top talent. The University of Toronto now offers students a growing ecosystem of entrepreneurial support, in the form of commercialization services and incubation programs.

The University also takes care to double down on areas of technology that are driving the next frontier, like AI at the moment.

Education is vital to innovation. By committing to entrepreneurship and experiential ed, cities can develop more ripe breeding grounds for talent.

**Diversity is fundamental to innovation**

If education is vital to innovation, diversity is fundamental.

Being the center of tech for decades, Silicon Valley has lent itself to a certain degree of homogeneity. And one of the biggest threats to innovation is predictability.

As blockchain engineer Preethi Kasireddy put it in her open letter about why she left the start-up capital: “Silicon Valley is paradoxically a predictable place founded on the idea of being unpredictable.”

This notion isn’t just about Silicon Valley, but rather the industry as a whole.

According to the US Census Bureau, the US is well on its way to becoming a majority-minority nation. But that demographic shift isn’t reflected in the country’s tech and high-opportunity sectors.

Diversity reports from behemoth corporations in recent years have shown that despite big talk, the percentage of minorities working in the industry is still astoundingly low. When Google reported in 2016 that its workforce is only 3% Hispanic and 2% African-American—unchanged since their first report in 2014—the tech giant was widely criticized. Similarly to Facebook, who reported about the same numbers this year.

Suddenly the industry’s much-lauded diversity efforts seemed (and the numbers proved) to be lip service. If the biggest names in the game weren’t practicing what they were preaching, how could smaller businesses with less resources bridge their own diversity gaps?

The industry has to build with the perspectives of all that it serves. Just about everyone in the developed world uses technology, so everyone should be represented in the creation of that technology. Diversified pools of opinion are what drive powerful teams that tackle real world problems.

Chicago is a city that’s come into its own as a global start-up hub. In 2017, the city even witnessed record student interest in its thriving tech sector.

But the key to Chicago’s future is what has always been its strength: a rich culture of diversity in people, industries and ideas.
Jason VandeBoom, CEO of Chicago start-up, ActiveCampaign, has explained Chicago’s draw this way: “It helps that we have a thriving incubator culture, where people from a diverse range of backgrounds can come and change career paths, nurture new talents and transform into tech professionals. A former painter, math teacher, video editor and a limo driver are all now highly talented developers at ActiveCampaign. This diversity of unique skill sets, thoughts and experiences has not only bolstered the quality of our product, it’s made our culture what it is.”

Some diversity backlash is still stinging in Silicon Valley, and entrepreneurs are more thoughtfully considering where they set up shop. It’s become increasingly important for cities to demonstrate an appreciation for diversifying.

A more entrepreneur-friendly destination

A city establishing itself as a beacon of innovation and entrepreneurship is a long-term play. The work doesn’t stop at learning opportunities and diversity efforts. Committing a culture to this kind of growth and transformation comes down to programs and policies that hold a city accountable to the promise of opportunity.

AKA, funding and accessibility—cities need to put their money where their mouth is.

Washington State’s FundLocal program has Seattle business owners bypassing old-school lenders in favor of crowdfunding. Likewise, in Toronto, Prime Minister Trudeau has actively developed policies that foster values around opportunity, announcing fast-track visas for high-skilled workers in 2017.

With proposals from the highest seat in the country for deep cuts in innovation programs, it’s becoming increasingly important for local governments to advocate for and implement policies at a regional level.

Policy advocacy isn’t easy work, but tax credits, grants, loans—think of them as tools for young leaders.

Entrepreneurs are made, not born. It’s the DNA of a city and the opportunities it cultivates that sets the foundation for innovation.

The diversity of tech across the country stems from one common need: Making life better for the future.

If the tech industry, one of the most high-opportunity sectors in the US, can set the standard for progressive and accessible change, it may have a positive ripple effect on everything from culture to economy.

Silicon Valley was an entrepreneurial north star for decades, but it’s time to admit that it isn’t the only place that world-changing technology and engineering is happening.

It was the perfect place to take risks. And it created a future. Now that future is limitless.
Dear Silicon Valley:  
America’s fallen out of love with you

Ross Baird  @jshieber  October 2017

Ross Baird is the founder and executive director of Village Capital.

Dear Silicon Valley,

You used to be the envy of the world. Over the last decade I’ve seen countless cities try to become you, from the Silicon Savannah to the Silicon Bayou.

At last year’s Global Entrepreneurship Summit on Stanford’s campus, hundreds of entrepreneurs from Mongolia to South Sudan came to listen to President Obama and Mark Zuckerberg and get a touch of your magic fairy dust. The American Dream — anyone with an idea, a garage and a good work ethic can build a great company — might as well have been born in your backyard. I admire your innovation, openness, creativity and all you stand for.

In case you haven’t noticed, though, you’ve changed from hero to villain. You’re too expensive and exclusive for the rest of the world: The garages that gave us Hewlett-Packard and Google now cost millions of dollars. You’ve moved from icon to joke — the show that bears your name is a cringe-worthy, true-to-life satire.
You’re churning out companies that are raising hundreds of millions of dollars, and going bankrupt in literal satires of themselves: a $700 million blood-testing company that never had any actual results; a $120 million juicer with packets that can actually be squeezed by hand.

Now Fast Company is declaring the end of the public’s “love affair” with the Silicon Valley ideal, and everyone from socialist Bernie Sanders to hard-right Steve Bannon is calling for your biggest companies to be heavily regulated, and your reputation is fast approaching that of Wall Street (which used to have a good reputation, too).

Here are a few places that you went wrong — and what you can do to fix it.

Courtesy of HBO and “Silicon Valley”

**Your ideas are only as good as the people in the room.**
**And your door is shut to most people.**

As evidenced by the major backlash over the recent launch of a company called Bodega — where the founders and investors genuinely didn’t understand why the name was problematic — you don’t always have the best handle on how your ideas will be received outside of the Silicon Valley bubble. You’ve got major blind spots.

Why might this be? Face the facts: When Silicon Valley investors are considering new ideas, you don’t have very many different perspectives around the table. More than 90 percent of the decision-makers in the venture capital industry are white men.

You’ve known this is a problem for a while, but haven’t done anything to fix it: Less than 5 percent of the new ideas that get funding are founded by women, and less than 1 percent of venture funding goes to Latinos and African-Americans.

You’ve concentrated capital in the hands of a few people (nearly all white guys) who have huge power to determine which people, places and industries get funding. And your decision-makers are often (unintentionally) overlooking ideas that come from people who aren’t like them, which exacerbates gender, racial and geographic divides in our country. Much worse, this financial privilege creates power...
dynamics that lead to too-frequent cases of investors sexually harassing founders or tone-deaf ideas like Bodega.

Image courtesy of Bryce Durbin

**Your rainforest of innovation has turned into a factory farm.**

Silicon Valley, perhaps your greatest achievement is that you’ve built a community where the little guy could build a great company to disrupt the establishment. Silicon Valley’s innovation engine has been driven by the creation of iconic companies — HP, Intel, Apple, Google, Facebook — that took on bigger competitors.

But that’s changing. In his famous book *Zero to One*, Peter Thiel writes, “Competition is for losers. Be a monopoly.” And that philosophy has come to prevail — the average venture capitalist would say that in a portfolio of 20, they are OK with 19 losers and one grand slam. Follow that to its logical conclusion: for every billionaire Peter Thiel, Silicon Valley, you’re OK with 19 broke people. It’s no wonder that inequality is at a 100-year high, entrepreneurial activity is at a 40-year low and eight men control half the world’s wealth.

Over the past 15 years, big has crushed little in Silicon Valley, to an increasing degree. The former giant-slayers like Apple and Google have become giants themselves, shutting out or buying up new entrants.

The worst of it: you’re even controlling which ideas get out there — as we saw when Google chairman Eric Schmidt complained to the New America Foundation for criticizing the company’s monopolistic practices. The entire team got fired.

In short, your present leaders are cannibalizing your future. If a startup is raising money today, one of the first questions they’ll be asked is, “What’s your exit strategy?” Specifically, that means, “Whom among Google, Facebook and a few other companies will acquire you?” A few tech giants are dictating which problems founders want to work on, and how we’ll solve them.

The result? You haven’t produced a new firm that has cracked the world’s top 200 since Facebook’s founding in 2003.
Your insulation makes tomorrow’s problems harder to solve.

Your leaders are increasingly coming from a narrower group of universities, companies and socioeconomic classes. Your companies are now solving “my-world problems” (food delivery, cold-pressed on-demand juice) versus the “real-world problems” you used to solve (getting affordable computers in the hands of everyone; inventing the internet). Your solutions literally create the script for a satire show on HBO — and you don’t see what a big problem it is.

And because of the first problem — the lack of new ideas in the room — you don’t know how to solve this. Your best idea for social inequality: universal basic income, where the wealth of the billionaires will continue to grow, but don’t worry, the rest of the serfs (who are otherwise unable to do any work!) will receive a daily stipend.

To you, in the words of one Silicon Valley investor, this seems like “the only logical conclusion.” To the average person, this seems like the height of arrogance. People are uncomfortable with universal basic income because you’re essentially saying their labor isn’t worth anything — but you don’t see it!

So, what can you do about it?

Maybe I was a little harsh on you when I said you didn’t see any of this happening: We’ve seen the beginnings of conversations around diversity and inclusion, and mea culpas have recently been flying out of your board rooms as fast as rejection e-mails.
So now that you’re paying attention, what can you do? Here are a few ideas:

**Put as much attention into finding founders as you do deal flow.** Your leaders talk a lot about investing in diverse companies; well, that won’t be easy unless you invest in the infrastructure to find them. We spend billions of dollars to make sure that the best high school and college athletes have their shot at the pros; why don’t we do the same for entrepreneurs? Instead of asking entrepreneurs for a “warm introduction,” build technology that actively encourages cold calls and outreach from founders — and can help them.

(I’m particularly inspired by a firm, Backstage Capital, that intentionally invests in what founder Arlan Hamilton calls under-estimated founders; one of their metrics of success is the percentage of cold-emails that they fund.)

**Create conditions for the little guy to thrive.** Think about how you invest as well as what you invest in. There’s a real problem with equity investing as a one-size-fits-all model in Silicon Valley; explore alternate models like revenue-sharing, which encourages companies to build for lasting success, not acquisition ([more on that here](#)). Or make sure that your unprecedented prosperity is actually shared among the employees. From New Belgium Brewing to Chobani, there are stories across the country of billion-dollar unicorns where employee ownership is shared broadly, helping janitors and factory workers create wealth alongside management.

**Recognize that business and society are together — not in separate worlds.** You’re full of incredibly generous philanthropists. But the market value of just two companies — Google and Facebook — is more than all the charitable foundations in the world. You need to help lead society in your day job, not just at fundraisers and thought leadership conferences. For all the lip service that Silicon Valley has given to “changing the world,” when ProPublica tried to buy targeted ads for “Jew haters,” Facebook didn’t question whether this was good, or right — they asked them how they’d like to pay for it.

You own the platforms that dominate consumer behavior, and the data that can determine people’s retirements, relationships and decisions — you need to ask “is this the right thing to do?” as often as you ask “what is monetizable?” How can you help small businesses and entrepreneurs thrive as much as they used to 40 years ago? How can you help local journalists keep citizens informed and governments
accountable? You’ve connected society — how can you help us be more resilient and sustainable in the face of a dramatically shifting climate?

I’m encouraged by some early steps. Facebook, for example, is launching a pilot to help local journalism (though I’d go a hundred times further and enable success for all kinds of local businesses). PayPal has used its massive platform and data advantage to lend an incredible $2 billion to small businesses in the last two years — more than most banks. But that’s just a tiny fraction of the talent and resources in the Valley.

Silicon Valley, there’s still time to regain your image as a positive force in America and the world. Just don’t wait until it’s too late.
Silicon Valley is stalling out as the pace of innovation slows down — and it could be a good thing for humanity

Matt Weinberger
Business Insider June 10, 2018

It is a time of great tech stagnation, in part due to the scandals that have rocked Silicon Valley over the last year. Part of the stagnation, too, is that current technology is stalling out, and the next wave just isn't ready yet. After a decade-plus of the tech industry causing near-constant disruption and turmoil, the lull is offering the world a much-needed break to consider how technology is affecting society and to try to figure out what to do about it.

Apple's WWDC developer conference this week marked the conclusion of the period each year when some of the biggest technology companies lay out their agendas for the future of their platforms.

Compared with past years, the message from Silicon Valley was far more muted this time around. Last year, for example, Facebook, Google, Microsoft, and Apple were all focused on the next big things in technology, each in its own way laying the foundation for the inevitable death of the smartphone.

This year, by contrast, the companies focused on important but decidedly less flashy topics including security, privacy, and their responsibility to their users and society.

There are a variety of reasons for the tech giants' reduced ambition. Facebook, Google, and Apple each spent much of the last 12 months in various states of crisis and are now trying to patch things up. Growth in the markets for the technology products that led to the rise of the current behemoths is slowing down to a crawl. And the next generation of technology gadgets and services isn't ready for prime time yet.
That may sound depressing and disappointing. After all, much of the excitement surrounding the tech industry stems from the bold visions of the future it often offers. But from where I'm standing, this lull is a good thing for the industry and the world.

Technologies under development right now could lead to some potentially terrifying changes. This boring period in the industry gives us the time and the attention to hold the tough conversations we need to have about where the industry and society are heading.

It's clear from the past year's scandals in the industry that those conversations are overdue. Because there's growing concern about the tech industry's role in society.

Facebook was caught up in the Cambridge Analytica scandal, where as many as 87 million people had their data used improperly, and faced continuing fallout over its role in distributing Russian propaganda during the 2016 election. Google and its YouTube service saw criticism over their role in spreading hoaxes and conspiracy theories. And Apple dealt with a storm of criticism over Batterygate, its belated admission that it slowed down some iPhones with older batteries without informing users.

The future is slowing down

This concern is coming amid a transition time for the industry.

The first few slides of Kleiner Perkins investor Mary Meeker's newest State of the Internet report tell you everything you need to know, which is that overall, the growth in many of the most important tech products and services is flat-lining. Global smartphone shipment growth? Almost precisely flat. Global internet user growth? Flattening out, with a relatively meager 12% year-over-year-growth.

Additionally, both the PC market and the tablet market are declining.

Oh, sure, there are some bright spots in tech. Meeker's report estimated that the installed base for the Amazon Echo line of smart speakers hit 30 million users by the end of 2017. Other technologies, including streaming video, smartwatches, and cryptocurrencies, are also growing in fits and starts.
But as big a number as it is, 30 million Echo users is a drop in the bucket when you compare it to the more than a billion devices in use running Apple's iOS software, and the more than two billion gadgets in use that run Google's Android.

Likewise, the total value of all the bitcoin in circulation — about $131 billion — sounds like a lot. But it's still less than a tenth of the US dollars in circulation in the form of coins and paper bills. And its less than one one-hundredth of the M2 money stock, a measurement of the amount US dollars in use that includes those held in savings accounts and mutual funds as well as in the form of travelers checks and checking accounts.

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Mary Meeker and Kleiner Perkins Caufield & Byers

That's not to say that some of these newer technologies will never replace the old. It's just that right now, even though many of the older technologies are seeing stagnating sales or use, the Next Big Things aren't close to displacing them.

In other words, things are changing super slowly, and what we have now is roughly what we'll continue to have for a while to come.

**What's next isn't ready**

We've already gotten glimpses at what the next wave of technology will bring.
Many companies are focused on technologies that will immerse us in digital images. Facebook has bet big on virtual reality. It's already been selling its Oculus Rift VR headset and is promising big things for the next iterations of it. Microsoft, which is betting on both virtual and augmented reality, is already offering its HoloLens AR smart goggles. Google and Apple are both working hard to incorporate AR features into their smartphones.

At the same time, many tech companies are investing heavily in artificial intelligence and in trying to bring AI to consumers. Amazon and Google, in particular, have been going toe-to-toe with Alexa and Assistant, their respective smart voice assistants.

The problem is that so much of this forward-looking stuff just isn't that useful yet.

Oh, I have no doubt that Facebook CEO Mark Zuckerberg is right that by 2027 or so we'll have smart glasses that are as thin and light as a pair of normal sunglasses. And I'd bet that Amazon will one day succeed in its quest to turn Alexa into the superintelligent supercomputer from "Star Trek."

But back here in 2018, those cutting-edge technologies are still lacking.

Using augmented reality on a smartphone means waving your phone around and looking silly. Trying to use AR via smart glasses means dealing with some significant technical limitations — and looking even sillier.

Alexa and Assistant can be helpful at times, but they're not nearly as all-around useful as a smartphone or a computer.

Cryptocurrencies come with too many complications and too much overhead to be truly useful as a replacement for regular money.

And despite all of its own investment in AI, Facebook is staffing up with thousands of humans because artificial intelligence isn't nearly as good at detecting hate speech as good, old-fashioned people.

All of that stuff will probably get fixed one day. But right now, the result is that our older technologies are growing stagnant and our newer technologies aren't ready to replace them.

**The scandals are good**
Ultimately, though, this stagnation may prove to be beneficial. This slowdown in the tech industry has given the world a chance to take a breath. And we're already using that lull to consider the roll of tech in our lives.

The string of scandals at Facebook and Google were unequivocally bad, with user privacy and perhaps the fate of democracy itself put at risk by decisions made by those tech titans. But they've triggered real and important conversations about the role of these major technology companies in our lives. Even the companies themselves seem to agree that it's time for the broader society to play an active role in shaping how technology affects our country and the world, potentially even through government regulations.

And with folks inside and outside the industry raising alarms about how our devices and apps are affecting us at a personal level — encouraging addiction-like behavior and even leading to depression among teens — there's growing discussion about "digital health." Companies including Google, Facebook, and Apple are starting to respond, giving us ways to measure and limit the time we spend with our various gadgets and services.

This is an opportune time to have those conversations. Because the next generation of tech devices and services could be even more dangerous.

When the smartphone dies and augmented reality devices replace it and we're all wearing our Apple AirPods all the time, the technology companies will have unprecedented access to our brains. When you wear a pair of Facebook's — or Apple's or Google's — smart goggles, you're going to be letting the company behind them determine what you see and hear. The company and the other tech giants will, in a very literal way, be controlling your perception of reality.

Now is the time to think through the implications of that control — and what could go wrong.

I'm hopeful. Now that we've started talking about how to fix our relationship with technology, I don't think we're going to stop the discussion anytime soon.

That's a good thing — as long as we all get on the same page before the next generation of tech is finally ready.
A Start-Up Slump Is a Drag on the Economy. Big Business May Be to Blame.

By Ben Casselman Sept. 20, 2017

Unemployment has fallen, and the stock market has soared. So why has the economic expansion since the recession been so tame, with sluggish productivity and, at least until recently, anemic wage growth?

Economists say the answer, to some degree, can be found in a start-up slump — a decline in the creation of new businesses — and a growing understanding of what’s behind it.

A total of 414,000 businesses were formed in 2015, the latest year surveyed, the Census Bureau reported Wednesday. It was a slight increase from the previous year, but well below the 558,000 companies given birth in 2006, the year before the recession set in.

“We’re still in a start-up funk,” said Robert Litan, an economist and antitrust lawyer who has studied the issue. “Obviously the recession had a lot to do with it, but then you’re left with the conundrum: Why hasn’t there been any recovery?”

Many economists say the answer could lie in the rising power of the biggest corporations, which they argue is stifling entrepreneurship by making it easier for incumbent businesses to swat away challengers — or else to swallow them before they become a serious threat.

“You’ve got rising market power,” said Marshall Steinbaum, an economist at the Roosevelt Institute, a liberal think tank. “In general, that makes it hard for new businesses to compete with incumbents. Market power is the story that explains everything.”

That argument comes at a potent political moment. Populists on both the left and right have responded to growing public unease about the corporate giants that increasingly dominate their online and offline lives. Polling data from Gallup and other organizations shows a long-running decline in confidence in banks and other big businesses — a concern not likely to abate after high-profile data breaches at Equifax and other companies.

The start-up slump has far-reaching implications. Small businesses in general are often cited as an exemplar of economic dynamism. But it is start-ups — and particularly the small subset of companies that grow quickly — that are key drivers of job creation and innovation, and have historically been a ladder into the middle class for less-educated workers and immigrants.

Perhaps most significant, start-ups play a critical role in making the economy as a whole more productive, as they invent new products and approaches, forcing existing businesses to compete or fall by the wayside.

“Across the decades, young companies are really the heavy hitters and the consistent hitters in terms of job creation,” said Arnobio Morelix, an economist at the Kauffman Foundation, a nonprofit in Kansas City, Mo., that studies and promotes entrepreneurship.
The start-up decline might defy expectations in the age of Uber and “Shark Tank.” But however counterintuitive, the trend is backed by multiple data sources and numerous economic studies.

In 1980, according to the Census Bureau data, roughly one in eight companies had been founded in the past year; by 2015, that ratio had fallen to fewer than one in 12. The downward trend cuts across regions and industries and, at least since 2000, includes even the beating heart of American entrepreneurship, high tech.

Although the overall slump dates back more than 30 years, economists are most concerned about a more recent trend. In the 1980s and 1990s, the entrepreneurial slowdown was concentrated in sectors such as retail, where corner stores and regional brands were being subsumed by national chains. That trend, though often painful for local communities, wasn’t necessarily a drag on productivity more generally.

Since about 2000, however, the slowdown has spread to parts of the economy more often associated with high-growth entrepreneurship, including the technology sector. That decline has coincided with a period of weak productivity growth in the United States as a whole, a trend that has in turn been implicated in the patterns of fitful wage gains and sluggish economic growth since the recession. Recent research has suggested that the decline in entrepreneurship, and in other measures of business dynamism, is one cause of the prolonged stagnation in productivity.

“We’ve got lots of pieces now that say dynamism has gone down a lot since 2000,” said John Haltiwanger, a University of Maryland economist who has done much of the pioneering work in the field. “Start-ups have gone down a lot since 2000, especially in the high-tech sectors, and there are increasingly strong links to productivity.”

What is behind the decline in entrepreneurship is less clear. Economists and other experts have pointed to a range of possible explanations: The aging of the baby-boom generation has left fewer Americans in
their prime business-starting years. The decline of community banks and the collapse of the market for home-equity loans may have made it harder for would-be entrepreneurs to get access to capital. Increased regulation, at both the state and federal levels, may be particularly burdensome for new businesses that lack well-staffed compliance departments. Those and other factors could well play a role, but none can fully explain the decline.

More recently, economists — especially but not exclusively on the left — have begun pointing the finger at big business, and in particular at the handful of companies that increasingly dominate many industries.

The evidence is largely circumstantial: The slump in entrepreneurship has coincided with a period of increasing concentration in nearly every major industry. Research from Mr. Haltiwanger and several co-authors has found that the most productive companies are growing more slowly than in the past, a hint that competitive pressures aren’t forcing companies to react as quickly to new innovations.

A recent working paper from economists at Princeton and University College London found that American companies are increasingly able to demand prices well above their costs — which according to standard economic theory would lead new companies to enter the market. Yet that isn’t happening.

“If we’re in an era of excessive profits, in competitive markets we would see record firm entry, but we see the opposite,” said Ian Hathaway, an economist who has studied the issue. That, Mr. Hathaway said, suggests that the market is not truly competitive — that existing companies have found ways to block competitors.

Experts also point to anecdotal examples that suggest that the rise of big businesses could be squelching competition. YouTube, Instagram and hundreds of lower-profile start-ups chose to sell out to industry heavyweights like Google and Facebook rather than try to take them on directly. The tech giants have likewise been accused of using the power of their platforms to favor their own offerings over those of competitors.

Most recently, Amazon openly called for a bidding war among cities for its second headquarters — hardly the kind of demand a new start-up could make. Mr. Morelix said the Amazon example was particularly striking.

“We’re saying that it’s O.K. that they shape how a city charges taxes?” Mr. Morelix said. “And what kind of regulations they have? That should be terrifying to anyone that wants a free market.”

In Washington, where for years politicians have praised small businesses while catering to big ones, issues of competition and entrepreneurship are increasingly drawing bipartisan attention. Several Republican presidential candidates referred to the start-up slump during last year’s primary campaign. Progressive Democrats such as Senators Elizabeth Warren of Massachusetts and Amy Klobuchar of Minnesota have pushed for stricter enforcement of antitrust rules. In a speech in March, Ms. Klobuchar explicitly tied the struggles of entrepreneurs to rising corporate concentration.

In July, entrepreneurs achieved a mark of political relevance: their own advocacy group. The newly formed Center for American Entrepreneurship will conduct research on the importance of new businesses to the economy and push for policies aimed at improving the start-up rate. Its founding president, John Dearie, comes from big business — he was most recently the acting head of the Financial Services Forum, which represents big financial institutions.

“Everybody loves entrepreneurship, but they’re not aware it’s in trouble,” Mr. Dearie said. “If new businesses are the engine of net new job creation, and if new businesses are the engine of innovation, and new business creation is at 30-year lows, that’s a national emergency.”
Where Are the Start-Ups?

Loss of Dynamism Is Impeding Growth

By Eduardo Porter  Feb. 6, 2018

A solar panel factory in Hillsboro, Ore. A decline in business formation has contributed to a flattening of the labor supply. Credit: Natalie Behring/Reuters

• Can the market economy still deliver prosperity?

That may seem an odd question to ask when the United States is more than eight years into a sustained expansion and the world’s major economies are finally following suit. Unemployment is at its lowest since the end of the dot-com bubble at the end of the Clinton administration. The stock market’s sugar high, fueled by juicy profits and falling taxes, is being tempered only somewhat by fear that the Federal Reserve will take the punch bowl away.

And yet a broad sweep of statistics reveals a peculiar weariness spreading through the economy. Belying breathless headlines about the fabulous opportunities that technology is about to bestow on society, it suggests that many rich market democracies have lost much of their dynamism. Their companies are getting old, and their labor markets are getting stuck. Productivity growth has slumped. And many workers in their prime are peeling off from the labor force.

The pattern is particularly striking in the United States, where the share of adults with a job remains well below its peak at the end of the 20th century, and productivity growth has trundled along over the last decade at the slowest pace since the end of World War II.
But signs of lethargy are showing up elsewhere in the industrialized world. Productivity is at a crawl in most rich economies. Though not as intensely as in the United States, men in their prime, 25 to 54 years old, are leaving the labor force across the nations of the Organization for Economic Cooperation and Development. While women have picked up some of the slack, the labor supply across the O.E.C.D. as a whole has flattened.

Most notably, the economy’s ability to generate and support new businesses — agents of creative destruction that bring new products and methods into the marketplace — appears to be faltering across the world. In the United States, the rate of company formation is half what it was four decades ago. And it is slowing in many industrialized countries.

One might blame this on the recession that crippled the world almost a decade ago, in the wake of the global financial crisis set off by the implosion of home values in the United States. But the weariness extends beyond the latest turns of the economic cycle.

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The stagnation poses a threat to the market economy’s main claim to legitimacy: that it delivers prosperity. The income of the typical American household is roughly the same as it was in the 1980s. It is unlikely to be a coincidence.

In a study published on Tuesday by the Hamilton Project at the Brookings Institution, Jay Shambaugh, Ryan Nunn and Patrick Liu explore what economists have figured out about the American economy’s inertia and the fallout for wages and living standards.

The evidence paints a distinct picture of decline: Fewer start-ups mean fewer new ideas and fewer young, productive businesses to replace older, less productive ones. Researchers have found that the decline in companies entering the market since 1980 has trimmed productivity growth by about 3.1 percent.

The dearth of new businesses is also cutting off one of the main paths to workers’ advancement: the outside job offer. Changing jobs allows workers to shift to positions in which they are more productive, and better paid. But labor market fluidity — job switching, creation and destruction — has been declining since the 1980s.

Clear though the pattern may be, the researchers acknowledge that we haven’t yet figured out what is holding the economy’s dynamism back. “This is one of those big, economywide trends,” Mr. Shambaugh told me. “There is room for a lot of stories.”

Can the corporate landscape become more dynamic again? “None of the potential policy explanations have been conclusively shown to account for the bulk of the decline in dynamism,” Mr. Shambaugh and his colleagues note. The critical question that remains is whether there is a set of policies that might restore the economy’s vitality.

This isn’t just about demographic and social change. Sure, we are aging. Older workers will be less likely to move to a new job across state lines. Families with two earners will have a harder time relocating when one gets a new job offer. Stratospheric rents will make it tough to migrate to some of the most vibrant labor markets, like New York or San Francisco.

Policy has certainly played a role: Labor market regulations can gum up the sorting of workers into the best possible jobs, where they will be at their most productive and most highly paid. Specifically, state occupational licensing rules fence off some of the most desirable, well-paid jobs.
But this alone cannot explain away stagnation. Explaining stagnation requires explaining not only why there are so few well-paying jobs but also why there are so few emergent companies ready to employ productive workers. Well into the information age, in a business ecosystem with low barriers to entry, where venture capital stands ready to throw itself at the next good idea, the economy has somehow forgotten how to create companies.

**The All-New DealBook**

Our columnist Andrew Ross Sorkin and his Times colleagues help you make sense of major business and policy headlines — and the power-brokers who shape them.

My best guess is that this is all about the decline of competition. Mr. Shambaugh and his co-authors note how noncompete agreements and other devices used by businesses to stop their employees from seeking jobs elsewhere are preventing many workers from taking the better job that pays more money. I would argue that the failure is bigger: By allowing an ecosystem of gargantuan companies to develop, all but dominating the markets they served, the American economy shut out disruption. And thus it shut out change.

This is not the only possible diagnosis, I understand. Many economists will reject my proposition that the nation’s economy has been given to oligopolies; that antitrust law has proved no match for the ferocious concentration of market power in the hands of a few businesses that have been allowed to impose their will on the economy as a whole.

It fits, however. An economy controlled by big, entrenched companies will have little place for the kind of disruption that could push productivity onto a higher plane. That description looks very much like the economy that many American workers are coping with today.
Where are all the startups?
U.S. entrepreneurship near 40-year low
by Heather Long  @byHeatherLong  September 8, 2016

Startup king: Private valuations are meaningless

**Being the next Mark Zuckerberg requires Americans to be gutsy and start companies. Lately, they're not doing it.**

New business creation in the U.S. (a fancy way of saying "startups") is at nearly a 40-year low.

Only 452,835 firms were born in 2014, according to the most recent U.S. Census data released in the past week. That's well below the 500,000 to 600,000 new companies that were started in the U.S. every year from the late 1970s to the mid-2000s.

"There's been a long-term decline in entrepreneurship," says Arnobio Morelix, a senior research analyst at the Kauffman Foundation, which tracks startups.

The **Great Recession** was a great killer for startups. Americans didn't start new businesses because few had the money or the guts to do it in those gloomy days. But the expectation was that America's great entrepreneurial spirit would rush back as the economy recovered.

So far, that hasn't happened.

"We should be sending off yellow flares now," says Mark Zandi, chief economist of Moody's Analytics. "We're far enough away from the dark, gravitational pull in the recession and crisis. People should be more willing to take risk."

The big question is why this decline is occurring -- and what it means for jobs. Historically, new businesses were doing most of the hiring in the U.S.

**Key reasons behind the decline**

Experts like Morelix of the Kauffman Foundation and Zandi from Moody's point to three main factors that could be causing the big startup slide.

1. **The "Walmart-ization of America"** -- There's been a huge shift to national chains versus "mom and pop" shops, says Morelix. Small businesses have found it hard to compete with the Walmarts (WMT) of the world on price because they lack the infrastructure needed to source cheap goods from overseas. Plus, outsourcing and automation can now take care of tasks that young small businesses used to provide such as local accountants.

2. **Regulation** -- Opening a business, even a simple local shop, requires more and more licenses and permits. Consider that almost no new banks have opened since the crisis and Dodd-Frank. Companies
have also put more "non-compete" clauses in contracts to forbid current employees from leaving and starting their own firms, at least for a few months or years.

3. Big companies are getting more entrepreneurial -- The startup culture has permeated big business now too, says Zandi. Look at Google (GOOG) and Tesla (TSLA). They have research and experimental divisions that young people are hungry to join as opposed to doing it on their own.

Where are the startup jobs?

On top of the factors hindering startups, the new businesses that do get off the ground don't employ as many people as they once did. Instead, established companies have been hiring quite aggressively since the Great Recession.

"The bigger guys are creating a lot of jobs," says Zandi. "We're not getting the same juice from smaller companies and startups."

The U.S. Labor Department keeps track of how many new jobs come from businesses that are less than a year old. It peaked in 1999 -- the dot-com boom -- when 4.7 million jobs came from young startups. Last year, only 3 million came from startups.
Hopeful for a rebound

There’s hope the startup slump could be bottoming out. Americans love watching TV shows about startups such as HBO's comedy series "Silicon Valley" and ABC's "Shark Tank," where entrepreneurs pitch their ideas for cash. In other words, startups still have cultural cache.

Beyond that, the Kauffman Index of Startup Activity has shown a sharp spike upward since 2014. Even the Kauffman Index isn't quite back to pre-recession levels. But lately, it's getting there.

The U.S. is also primed for a Millennial startup boom. Most people start companies in their 30s, notes Zandi. Millennials are just getting to that age.

"If policymakers did nothing, conditions for startups would likely improve," he says, although he would like to see more talk about it on the campaign trail.

Related: The grocery shopping app for the 99%

What politicians could do to help

Zandi also points to the Labor Department data, which is released more frequently than the Census numbers and has shown a "nice pick up" in new businesses.

In fact, new business "births" now significantly outpace business "deaths," according to the Labor Department. It's a positive trend that has accelerated since late 2013.

So what should the U.S. do to really turn things around?

"Immigration reform would be the single most important thing to do to juice up entrepreneurship quickly," says Zandi. Corporate tax reform could also help to level the playing field for the little guys and big guys, he argues.
Start-up rates are declining across all sectors.

Across sectors of the economy, business start-ups are less common than they were decades ago. Figure 9 shows start-up rates in 1979, 2007, and 2014; the continuous decline across those three years demonstrates that the disappearance of start-ups is an ongoing trend and not primarily a cyclical phenomenon. Additionally, the consistent fall in start-up rates across industries is suggestive of a broad-based rather than sector-specific trend.

The fall in start-up rates has had negative effects on productivity growth. Replacement of low-productivity firms with high-productivity young firms, and reallocation of workers to the highest-productivity firms, are both crucial mechanisms for raising economic output and living standards (Alon et al. 2018; Haltiwanger et al. 2017). The fall in start-ups after 2000 was particularly pronounced for high-tech firms within the industries shown in figure 9; the high-tech sector has historically been a strong source of job creation and productivity growth (Decker et al. 2016).

Though declining business dynamism is not entirely understood, several factors have been identified as likely contributors. One important possibility is that increased market concentration is making the environment for start-ups inhospitable. Controlling for region-specific factors, Hathaway and Litan (2014) find that changes in the business consolidation rate (the ratio of mean firm size to mean establishment size) are negatively associated with changes in start-up rates at the metropolitan area level from 1978–80 to 2004–06.

Another possibility is that the declining start-up rate is partially a result of declining population growth, which reduces the supply of labor and consequently the capacity for new businesses to start and scale up (Karahan, Pugsley, and Şahin 2018). In addition to demographic trends, public policies ranging from non-compete contracts to land-use policies could have important roles (Shambaugh, Nunn, and Liu 2018). As discussed in chapter 4 of this document, there are also concerns that increasing regulations may make it more difficult for new firms to start.
The entrepreneurship rate has fallen by almost half for workers with a bachelor’s degree.

The employment share of young firms has decreased by more than one-third since 1987.
As part of the blog series summarizing the Fraser Institute’s Demographics and Entrepreneurship essays, this post examines small business startup rates in Canada and beyond.

Small business startups are an essential feature of what the great economist Joseph Schumpeter called the process of "creative destruction," which involves the entry of new and relatively efficient business organizations, which in turn forces existing firms to become more efficient or go out of business.

Startup businesses are usually small and often vehicles for introducing new products and new ways of doing business into the economy. As such, small business startup rates are highly important to the long-term growth of any economy’s productivity and standard of living.

A worrisome statistic, therefore, is the fall in small business startup rates in Canada and several other developed economies (as summarized in the table below). The data are discussed and reported in Chapter 3 of the essay series.
The data above report small business entry rates per 100 small business incumbents for three-year periods. While the sample countries differ somewhat in how they define small business startups, the main point is that entry rates of small businesses are uniformly lower in the latest period for which data are available (2012-2014) compared to 2003-2005.

Also worrisome, but perhaps unsurprising, productivity growth has slowed substantially over the past two decades for virtually all developed countries. For example, multifactor productivity (a measure of the productivity of all inputs) in Canada increased at an annual rate of around 1.35 per cent from 1996 to 2000. However, the average annual increase was only 0.67 per cent from 2011 to 2015. While there are multiple causes of slower productivity growth, the linkage between the fall in small business entry rates and slower productivity growth is unlikely coincidental.

There are also likely to be different causes of the decline in small business startup rates. One cause that has not received much public policy attention is the aging of populations in Canada and other developed economies. Prominent research suggests that the prime age group for entrepreneurs is 30-39 years old. Individuals in this age group are more likely to take risks than older people and also have business experience that younger people may not have. This research is discussed in Chapter 2 of the essay series.

For the same countries listed in the table above, data show a decline in this age cohort as a share of the total population from the 1990s to the present. For example, in Canada, about 17.4 per cent of the population was in the 30-39 age cohort for the 1990s, on average. More recently, the percentage is around 13.6 per cent. By the 2040s, the relative share of 30-39 year age group is projected to decline to around 12 per cent.

Governments are obviously limited in what they can do to reverse the aging of populations. However, they can implement policies that make it more attractive for people to start businesses and make it more likely that startup businesses will succeed. The Fraser Institute essay series discusses several promising policies including slashing or even eliminating capital gains taxes, lowering personal and corporate tax rates and diminishing regulatory red tape. Declining startup rates are a canary in the coal mine, warning governments that entrepreneurship should not be taken for granted.
Are entrepreneurs a dying breed?

In “Episode 715” of “Shark Tank,” a 23-year-old Baltimore man wants to fight hunger and help the environment with his "ugly" produce subscription service. (Tyler Golden/ABC)

Robert J. Samuelson  Columnist September 27, 2017

Maybe we're not "Shark Tank' nation after all. The incredibly popular reality television series, which features budding entrepreneurs pleading for backing from wealthy investors (the "sharks"), seems to define us. We're a nation of hungry go-getters, eager to start our own business on the way to becoming multimillionaires. Everyone wants to strike it big.

There's a huge gap between perception and reality. Just recently, the Census Bureau released its latest figures for business start-ups, and they paint a picture strikingly at odds with the conventional wisdom. Instead of a boom in business start-ups, there has been a long-term decline. In 2015, start-ups totaled 414,000, "well below the pre-Great Recession average of 524,000 startup firms," as the Census Bureau puts it.

To be sure, the slump reflects the lingering adverse effects of the recession. Venture capital firms, which provide funds for new businesses, "are more risk-averse," says economist Robert Litan. But that's not the whole story. A 2014 study by Litan and Ian Hathaway found that the start-up decline dates back to at least the late 1970s, affects all major industries and has been present in 365 out of 366 metropolitan areas.
What's going on?

The answer is important not only because it alters our national self-image but also because it affects the economy's job-creation capacity. Business start-ups are constantly priming the employment pump with new jobs. If start-ups continue to decline, overall job creation may suffer.

Take 2015 — the subject of the Census Bureau report — as a case in point. Net job creation totaled 3.1 million, the Census Bureau says. But that figure emerged from a more confusing process: the addition of 16.8 million jobs minus the loss of 13.7 million jobs. Moreover, of the 3.1 million new jobs, roughly four-fifths (2.5 million) were created by start-ups, the Census Bureau reports.

As these numbers indicate, many companies were hiring and firing. But the two often canceled each out. Consider companies aged 1 to 5 years old. In 2015, they created 2.11 million new jobs and lost 2.32 million jobs, for a net loss of 212,000. Without the impetus provided by start-up jobs, total employment growth might have been much slower.

Although we tend to think of start-ups as high-tech — the next Google or Facebook — most new firms are more mundane: plumbers, electricians, restaurants and the like. The breadth of the start-up slowdown suggests that the underlying causes do not apply to just one industry or company age. Still, there is no agreement as to causes.

Slower population growth is one pressure, says Litan. Cities and regions are expanding less rapidly than in the past and don't need as many new hairdressers, construction companies, health clubs and doctors' offices. Regions dominated by a few big employers may also have fewer start-ups. People lack a "start-up culture," says Litan. They depend too much on the mega-employer.

Growing market power of existing firms is a newer theory. "You've got rising market power," Marshall Steinbaum, an economist from the left-leaning Roosevelt Institute, told the New York Times. "In general, that makes it hard for new businesses to compete with incumbents." This has long been true, but in the past, it hasn't prevented start-ups from displacing powerful industry leaders. (See, for example, Microsoft and IBM.)

Still others argue that entrepreneurship is being strangled by hostile government policies. "Entrepreneurs need three things: great new ideas; the talent and money to pursue them; and few distractions," says John Dearie, head of the Center for American Entrepreneurship, a newly formed advocacy group.

Government, he argues, frustrates all three. Federal research and development, as a share of the economy, is less than half its post-World War peak, stifling new ideas. Immigration policy keeps out talented workers; and complex regulations and taxes distract entrepreneurs from their businesses.

"Shark Tank" rests on the premise that the dream of starting your own business and getting rich through hard work and satisfying some market demand is still thriving. Many candidates on the program fit that mold. They're passionate about their products. But the evidence from the outside world suggests a more somber question: Are they a dying breed?