WORK IN THE AGE OF DATA
The false promise of entrepreneurship:

A01: Job creation uncoupled from market cap

A11: Successful entrepreneurs create value but often few jobs

A12: Unproductive entrepreneurs create little value and fewer jobs

B: Innovation

B01: Subjective

B02: Workers see threat

B11: Consumers see abundance
The power of entrepreneurs to “create jobs” is overblown: most entrepreneurs fail, and the vast majority of those who succeed create relatively few jobs. The vast majority of jobs are “created” by legacy companies—firms that have been in business for twenty-five years or more. Still, work in a globalized, digital economy has become increasingly fragmented and unstable. Centralized workplaces—be they factories or offices—are still with us, of course, but in declining numbers. Increasingly “noncore” work functions—be it IT or transportation, food delivery or janitorial services—are outsourced to contract providers, or in some cases sent off to be done in lower-cost locations. An increasing number of us are working independently, as freelancers and contract employees. So we find ourselves faced with the challenge of making a meaning of work in which the workplace itself plays a far less central role. In a sense, we are circling back to the time of the independent tradesman, farmer, and craftsman, and toward an economy in which our working identity relies less on any particular institution and more on our relationship to the work itself.
In summer 2016, Amazon, Google, Apple, Facebook, and Google had a market cap of more than $1.8 trillion, roughly equivalent to the gross domestic product of India, which is home to more than 1.25 billion people.

While Amazon, Apple, Facebook, and Google are wildly successful at attracting both capital and the public eye, in the matter of sustainable job creation not one of these tech dynamos could hold a candle to legacy companies like IBM or McDonalds.

Andrew McAfee, coauthor of the Second Machine Age and principal research scientist at the Center for Digital Business at MIT’s Sloan School of Business, joined me to mull over the implications of this at Legal Seafoods, a popular fish restaurant just a few steps from Google’s Cambridge campus.4 At the time, McAfee seemed a tad preoccupied, as though he, too, was dreaming of Google. And in a way, he was. While simultaneously checking his e-mail and ordering a crab cake sandwich, McAfee grabbed a pen and scribbled four words on a napkin—Amazon, Apple, Facebook, and yes, Google (aka Alphabet). In the summer of 2016, these “four horsemen” (as he called them) had a market cap of more than $1.8 trillion, roughly equivalent to the gross domestic product of India. India is home to more than 1.25 billion people. In 2016 the four horsemen together employed fewer than 400,000 Americans, including those working in Apple retail stores and Amazon warehouses.5 (Amazon had yet to purchase Whole Foods or hire the 100,000 employees—most of them warehouse employees—it anticipated it would in coming years.) “That’s less than the number of net new jobs we need every three months to hold the employment rate steady,” McAfee said. Indeed, he continued, while wildly successful at attracting both capital and the public eye, in the matter of sustainable job creation, not one of these tech dynamos could hold a candle to legacy companies like IBM or McDonalds.6

McAfee is an avid booster of technology, which he habitually calls “a creator of abundance.” Certainly, it works for him, and for that happy band of Googlers hacking and snacking in Google offices next door. And he points out that it works for all of us—Instagram, Facebook, Snapchat, YouTube, Twitter, and of course Google search—are all part of what McAfee calls “the bounty.” But he acknowledges that this bounty is created through the efforts of relatively few paid employees. That is the nature of the digital age beast. “What we’re looking at is an economy that is incredibly wealthy without needing work in the way that we came to think about it in the industrial age,” he said.

So how has our thinking about work changed? Consider two companies: Instagram, a product of the digital age; and Eastman Kodak, a product of the late industrial age. Instagram, cofounded by Mike Krieger and Kevin Systrom, gathered a small team of young engineers and marketers in a small San Francisco space to create and market a single app through which hundreds of millions of people share billions of photographs. Kodak, founded by George Eastman, gathered as many as 145,000 employees in an expansive industrial park to build an iconic firm that in its heyday furnished 90% of the nation’s film, and 85% of its cameras.

Within less than two years of its founding in 2010, Instagram was sold to Facebook for $1 billion—leaving a Baker’s dozen of instant multimillionaires in its wake. A few months before the sale of Instagram, Kodak—a 132-year-old company that held 110,000 patents—declared bankruptcy, leaving scores of loyal employees in the lurch.

In the age of Kodak, productivity, employment, and median income rose as one. Company founder George Eastman felt an obligation to his employees, and also to the city where he and most of them lived—Rochester, New York. In a letter to a colleague he wrote: “I want to make Rochester for the thousands of people I have gathered here the best place on the face of the earth to live in and bring up their families.” Today, there is far less to motivate such largesse: the Internet knows no geography, and the global economy
demands far less of employers in matters of employee or community loyalty.

The digital age brings with it what one observer called the “yawning disparity” between the “subjective experience of innovation and the objective measures of its real economic impact.” That is, innovation affects us differently depending on whether we are buyers or makers. As consumers, many millions of users reap the “abundance” that McAfee described. But as workers, not so much. “Our nation is tremendous at creating abundance,” he told me. “But we have only one way to tap into it—by offering up our labor. That’s not working for everyone. I don’t think that’s a trivial problem, but it’s not my job to solve it.”

So one cannot help but wonder, whose job is it? Politicians and pundits on both sides of the aisle tend to put their faith in entrepreneurs. At the Global Entrepreneurial Summit at Stanford University in 2016, President Obama declared entrepreneurship “the engine of growth … that creates good-paying jobs; that puts rising economies on the path to prosperity, and empowers people to come together and tackle our most pressing global problems.” Two years later, presidential candidate Hillary Clinton pledged to find a way to forgive student loans to graduates who start a new company or join an existing start-up. Donald Trump built his personal brand on a boast of being a canny businessman and entrepreneur, a strategy that held great appeal for millions of voters.

Of course, America has long had a soft spot for risk-takers willing to gamble almost everything in an effort to create something new. While in Europe schoolchildren may be taught to revere poets and philosophers, in America schoolchildren are primed to lionize entrepreneurs like Steve Jobs, Bill Gates, and Elon Musk. The very term “business hero” has a distinctly American ring. And by hero, we are generally meant to think “innovator.”

Economist Joseph Schumpeter, a towering giant of twentieth-century thought, coined the phrase “creative destruction” to describe the process by which innovation creates new technologies, businesses, and jobs and destroys the old. Schumpeter was known in particular for his striking insight that innovation is the driving force of both capitalism and economic growth, and that entrepreneurs—not inventors—are the agents of that innovation. In *Capitalism, Socialism, and Democracy* (1942) he wrote: “...The same process of industrial mutation—if I may use that biological term—that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one. This process of Creative Destruction is the essential fact about capitalism.”

The idea that new, innovative firms drove the bulk of job growth continued to gather steam in the late 1970s, thanks in part to the work of David L. Birch, a business consultant and researcher at the Massachusetts Institute of Technology. In a slim, fifty-two-page report, *The Job Generation Process*, Birch estimated that only 15% of new jobs were created by established firms with 500 or more employees, and that six of ten jobs were generated by firms with twenty or fewer employees, most of them newly established firms. Later, he amended those figures to support the astonishing claim that new small businesses created fully eight of every ten new jobs.

Birch’s claim played into a David and Goliath narrative that captured both the public imagination and the approbation of policy-makers. The idea that scrappy, risk-taking entrepreneurs could—free of government intervention and union meddling—sustain and grow the nation through job creation held great appeal. Suddenly, small entrepreneurial efforts were no longer mere “Mom and Pop” anachronisms, but veritable job generation machines. And such prolific job creators, politicians agreed, should be given substantial regulatory leeway and tax-payer support.

In 2010, The Ewing Marion Kauffman Foundation published findings that seemed to bolster Birch’s already wildly popular theory. In a widely quoted analysis, Kauffman economist Tim J. Kane concluded that for most years between 1977 and 2005 established firms fired a million more people than they hired, while start-ups created an average of three million jobs annually. In the words of Kauffman economist Tim J. Kane: “Start-ups aren’t everything when it comes to job growth. They’re the only thing.”
It is nearly impossible to overstate the influence of Kane’s report, the conclusions of which galvanized thinkers—and informed public policy—around the globe. In the US, the Kauffman Foundation was called upon to help craft the bipartisan Startup Acts 2.0 and 3.0, legislation aimed at (among other things) exempting individual start-up investors from capital gains tax and reducing other regulatory burdens, as well as making it easier for foreign entrepreneurs to acquire US visas. The foundation was also behind the 2012 Jumpstart Our Business Startups Act (JOBS) also aimed at reducing regulations on new businesses. And the passage of the tax cuts put into place by the Trump administration relied heavily on the central claim that reducing taxes on corporations and wealthy individuals would spark entrepreneurship that would generate jobs.

The problem with all this is that the link between entrepreneurship and job growth is far more tenuous than many policy-makers contend. The question is: are start-ups really creating permanent jobs, or do we simply believe they do, and cherry-pick our facts to “prove” it? Before tackling that vital and enormously complicated question, it is helpful to acknowledge that the terms start-up and “entrepreneur” mean different things to different people.

Hearing the word “start-up” we may think of companies like McAfee’s “four horsemen”—dazzlingly innovative firms with sky-high market caps. But technically, a start-up is any newly registered firm with at least one employee (often the founder). Broadly defined, entrepreneurs include anyone who creates that business—be it a hot-dog vendor or a maker of a groundbreaking medical device. Economists make a distinction between “replicative” entrepreneurs and “innovative” entrepreneurs. Replicative entrepreneurs (for example, the hot-dog vendor) reproduce an existing business model, while innovative entrepreneurs...
Our misplaced obsession with the new—be it a new app, a new diet aid, or a new video game—risks undermining innovation of the sort that can create real value and lead to lasting jobs.

Clinging to the idea that the future of work hinges on a spirit of entrepreneurship risks incentivizing what economists call “unproductive entrepreneurs” who create little value and few if any new jobs. (like the medical device maker) create something new.

For the purposes of his survey Kane counted as a “job creator” any new business that created at least one job, including that hot-dog vendor who, like most entrepreneurs, “created” a job only for himself. Moreover, under his logic a company that went bust and let all its employees go—as do most new businesses within five years—also counted as a “job creator” because it had, after all, created at least one job. It is unclear why he chose to proceed in this fashion, but what is clear is that measuring net job creation—new jobs created minus old jobs lost—is far more difficult than simply counting the total number of jobs created. And once the calculation of net new jobs is made, it is fairly clear that entrepreneurs actually create very few lasting jobs in the US, or, for that matter, in other nations of the world.

In fact, a nation’s level of entrepreneurship tends to be negatively correlated with its competitiveness. In Uganda, the world’s most entrepreneurial nation, more than 28% of workers are entrepreneurs. The world’s second most entrepreneurial nation is Thailand, followed by Brazil, Cameroon, Vietnam, Angola, Jamaica, and Botswana. Few of us would mistake these nations as powerhouses of innovation or prosperity: in 2018, Uganda had a per capita income of roughly $720. Nor would we mistake most American small-business owners—of nail salons, barber shops, cafes, cleaning and landscaping services, Airbnbs, and the like—as what Schumpeter called “engines of progress.” These replicative small businesses may well be entrepreneurial, but they create few jobs, and fewer still living-wage jobs. The truth is that the vast majority of new small-business owners have no intention of building a company, but rather essentially engaged in what would otherwise be called self-employment.

Perhaps surprisingly, start-ups are neither more innovative nor more productive than legacy companies. On the contrary, innovation and productivity of firms tends to increase with age. And while many things—even start-ups—improve with age, keep in mind that in the US the typical start-up is dead long before its fifth birthday.

Even David Birch came to question the power of small new companies to create jobs. In 1994, he penned an essay in collaboration with one of his most vocal critics, Harvard economist James Medoff, in which they concocted a sort of taxonomy of American companies: elephants, mice, and gazelles. Elephants are large, lumbering companies that employ plenty of people but do not generate many new jobs (think Walmart). Mice are small, twitchy businesses that ultimately generate little value and few jobs (think that hot-dog stand). Gazelles are nimble, rapidly expanding firms that—though far less stable than elephants—create real value and real jobs. Gazelles can be found in almost every sector, and not necessarily those we associate with innovation: in the 1990s a disproportionate number were technology firms, but in the early 2000s many were in housing-related services. Birch and Medoff concluded that high-impact gazelles made up less than 4% of US companies, and created 70% of the new jobs. On average, gazelles are twenty-five years old—elders by Silicon Valley standards.

Paul Nightingale, a former industrial chemist and professor of strategy at the Science Policy Research Unit at the University of Sussex, told me that in fact entrepreneurship has never been a powerful engine of economic growth. Jobs generated by start-ups are typically less productive and lower paying than jobs at established firms, he said, and far less stable. “Entrepreneurial firms actually tend to be less innovative than established firms,” he said. “Most entrepreneurial activity just generates churn, workers shifting from one job to another, not the creation of new jobs.” Nightingale added that the extraordinary success of a handful of firms, especially new technology and social media companies like Google, Facebook, Amazon, and Twitter, has blinded us to the reality that roughly nine out of ten new companies fail quickly and completely, dragging their workforce (if any) down with them.

As Scott Shane, a professor of entrepreneurial studies at Case Western Reserve, once coyly observed, it takes forty-three entrepreneurs starting new companies to create nine jobs that last even a decade. Not exactly, he wrote, “the spectacular yield you might think we’d get if you read the press reports about the job creation of start-ups.”

One of the artworks adorning the walls at the Google campus in Boulder, Colorado, which is expected to be completed in late 2019. The campus consists of three buildings providing over 200,000 square feet of office space.
Our misplaced obsession with the new be it a new app, a new diet aid, or a new video game risks undermining innovation of the sort that can create real value and lead to lasting jobs. But this sort of innovation does not come easy, or for that matter, cheap. The private sector once played a much greater role in basic research especially as co-investors with the public in big, risky, high-pay-off ventures such as those once conducted at research divisions of major corporations like Xerox PARC Research Center, IBM Research, DuPont Labs, Bell Labs, and Microsoft Research Silicon Valley Lab. But in recent decades, these and many similar institutions have been sold off, closed down, or cutback. In many cases, business efforts have been redirected at meeting the immediate demands of growth for investors rather than at innovations that may serve real human needs. And something similar is happening in the public sphere. The American Association for the Advancement of Science reported that as a share of the total federal budget, research and development (R&D) fell from 11.7% in 1965 to a low of roughly 3.4% in 2016. But even that was deemed far too high by the Trump administration, whose 2018 budget stipulates further cuts of up to 22% in key research agencies.

New companies can and do thrive and grow Instagram, Facebook, and yes, Google were once mere twinkle in their founders eyes. But clinging to the idea that the future of work hinges on a spirit of entrepreneurship risks incentivizing what economists call unproductive entrepreneurs who create little value and few if any new jobs. Entrepreneurship, technological innovation, and growth all contribute to what economists call the bounty. But increasing that bounty is not being shared in the form of good jobs. The truth is that start-ups employ less than 3% of US workers, a rather slender reed upon which to hang our hopes.

The technological capacity to create ever more efficient machines that shrink the market demand for human labor seems almost limitless. And it pales when compared to the capacity of digital technology to diminish the market demand for human thought. We are at a turning point, a critical juncture at which past experience is not a reliable guide to the future. We have a pressing obligation to reconsider the prospects and purpose of work in the digital age, and to lay out a plan built not on nostalgic nostrums, but on hard evidence. We can no more know the jobs of the future than we can predict the weather of the future there are far too many variables and unknowns. But we can protect ourselves from the worst disruptions of the digital revolution. The first step is to sort out the elements of work that we need to preserve, elements that extend beyond the narrow confines of what it means to have a job.

Centralized workplaces be they factories or offices are still with us, of course, but in declining numbers. Increasingly noncore work functions be it IT or transportation, food delivery or janitorial services are outsourced to contract providers, or in some cases sent off to be done in lower-cost locations. An increasing number of us are working independently, as freelancers and contract employers. So we find ourselves faced with the old challenge of making meaning of work in which the workplace itself plays a far less central role. In a sense, we are circling back to the time of the independent tradesman, farmer, and craftsman, and toward an economy in which our working identity relies less on any particular institution and more on our relationship to the work itself.

In the late 1970s, Hungarian-born psychologist Mihaly Csikszentmihalyi made note that while 80% of adults claimed they would prefer to work even if they did not need the money, the vast majority also said they could hardly wait to leave their jobs every night. From this he concluded that while humans very much desired work, many did not desire their jobs. So he set out to uncover what it was about work that held such appeal, and what it was about jobs that did not. To that end, he studied people at work, and was struck by several factors. One thing in particular surprised him: that some of the happiest and most satisfied workers feel no real connection to the product of their labors.

Early in his career Csikszentmihalyi observed a group of visual artists, with the goal of figuring out what motivated them. He noted that these artists pursued their work with great intensity, so much so that they sometimes forgot to eat or sleep. That was hardly surprising. But he was surprised that the artists seemed to pay almost no notice to the fruits of their labor. That is, rather than proudly display their paintings, they stacked them in piles like so much cord wood, then went back to work on yet another piece. What made this behavior so intriguing was that it seemed to contradict a widely held paradigm of behavioral psychology: that is, that people are motivated to work by the expectation of a desirable external be it food, sex, money, or praise. But the artists did not seem to care all that much about food, and sex, while always welcome, did not come into play in this case. And the artists acknowledged that their paintings were unlikely to be purchased or even noticed by the general public so it was not money or praise that kept them going. For them, it seemed the process of creation was an end in itself. It was the practice of art not the art itself that made meaning for them.

So why do so many of us fail to find a meaning through our jobs? The problem, as framed recently by Princeton University political philosopher Elizabeth Anderson, is that the amount of respect, standing, and autonomy workers receive does not depend on their essential humanity, but is roughly proportional to their market value. The centerpiece of Andersons argument is that the free market economic system was designed for a preindustrial world in which workers were essentially free agents farmers, tradesmen, and craftsmen who were basically self-employed. The industrial revolution changed all that, of course, but the free market system remains. Within this system today, she contends, most workplaces are essentially dictatorships in which bosses are unaccountable to the employees they govern. Certainly, there is some truth to this as we all know, under capitalism, most workplaces are autocratic, and some of the most successful companies are headed by enlightened dictators: think Steve Jobs or Elon Musk. And yet, since at least the industrial age, quite a number of us have knowingly traded our independence for a secure and stable working life. Today that stability is fading, and more work is returning to the free-agent model of our preindustrial age ancestors. The difference is that in the modern global economy, free agents can reside and do business almost anywhere, and in a
digital economy not all free agents need to be human. So what happens to our sense of self when our job identity fades?

Psychologist Sally Maitlis of the Said Business School, University of Oxford, addressed this question obliquely, through the life stories of forty performing artists she had followed over the course of nearly two years. Half of these artists were professional dancers, the other half professional musicians. And each one of them due to illness or injury had been forced to abandon jobs they loved. “These were people who had devoted their entire lives to their work, who were their work,” Maitlis told me. As one horn player lamented: “I defined my whole life by this piece of metal and what I could do with it.”

Maitlis spoke to each artist twice, with eighteen months between interviews. From what she described of these conversations, it is hard to imagine individuals more forcefully called to their vocation, or more devastated at the prospect of its loss. Their responses to her questions surprised her, as they neatly contradicted what she, her colleagues, and many others had come to believe about work and its centrality in our lives. It seemed that even in the arts, passion for one’s job is truly a double-edged sword.

The artists who felt most passionate about their former positions in symphony orchestras or dance companies were the least likely to recover from their loss. After being sidelined by their injuries, they grew frantic, dashing from doctor to doctor, and therapy to therapy in pursuit of a cure. They spent endless hours surfing the web for remedies, and complained constantly to loved ones. At least one artist confessed to thoughts of suicide. Like the “broken” factory workers of Marienthal, they saw no life for them to abandon. “These were people who had devoted their entire lives to their work, who were their work,” Maitlis told me. As one horn player lamented: “I defined my whole life by this piece of metal and what I could do with it.”

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By contrast, those artists who expressed less passion for their jobs in dance companies and orchestras fully recovered from their loss, some triumphantly. It is not that these artists did not love their work, or feel strongly about it—of course they did. Most of them had devoted their life to their art. But as Maitlis explained it, these seemingly “less passionate” individuals had uncoupled their job identity from the core of their work identities. Their relationship to their work was not defined by their job—rather, they had internalized their devotion, and no matter the circumstances, it remained part of who they were. And from that internalized devotion, they were able to create something new.

No longer able to play his instrument, the former trumpet player recognized that his love of music transcended his desire to perform. “So I’ll go back to my original love,” he told Maitlis. “I’ll go back to being a dedicated listener.” Listening did not substitute for performance; he still needed to make a living, and he did—as a teacher. But being an expert in a field he adored—and exercising that connoisseurship—gave him joy, meaning, and purpose. He and the other artists in this group had found ways to make meaning of work that did not manifest in what we would call a job. By moving beyond the job they were able to maintain control of their work, and their lives.

What shielded the second group of artists from the despair suffered by the first was not a heroic struggle to beat the odds, to somehow rise above their injuries to return to their profession. What shielded them was the optimism and self-confidence that allowed them to maintain their work identity in the absence of a formal job affiliation. They prevailed by finding new ways to reignite the passion for which the job they once held constituted only one of many possible outlets. Channeling their artistic drive in new directions, they created meaning from a genuine engagement with the art itself. The job was gone but the work—and the meaning made from the work—would always be with them.

Maitlis’s findings have implications that extend well beyond the artist’s realm, to almost any occupation or vocation. She said that flourishing in a global economy requires us to see ourselves independent of our jobs while maintaining a strong grasp of our work identity. It is not the job that defines us, but the work over which we can gain both mastery and control. By maintaining a broad view of ourselves and the work we want and are able to do, we can put our jobs into perspective—something worth doing, certainly, and a means of providing for ourselves and our families, but not to be relied on as our primary source of dignity and sense of purpose.

Where we find meaning, and how we make meaning of our work is a deeply
Flourishing in a global economy requires us to see ourselves independent of our jobs while maintaining a strong grasp of our work identity. Acknowledging this offers us a sense of liberation, the freedom to untether our very human need for a sense of purpose in our vocations from our very practical need to earn a living. While it is healthy—even essential for us all to strive to make meaning from our work—not all of us can make meaning from our jobs, nor should we be expected—or driven—to pretend to do so.

As traditional jobs grow scarcer, our response should not be to try to “make” more meaningful jobs, but to expunge the idea that “job creators” are also “meaning creators.” Our challenge is not only the obvious one of creating new twenty-first-century jobs. Our challenge is also rebalancing an economic system based on twentieth-century metrics, metrics that overvalues the importance of jobs, and undervalues vital work—care work, creative work, innovative work—from which many of us could build a sense of purpose and direction. We cannot rely on the twentieth-century concept of “job” or the promise of jobs to sustain our collective psychic buoyancy. On the contrary, reimaging work for the twenty-first century requires us to find ways to generate the psychological, emotional, and economic benefits of work outside a traditional employment context. There is no end of work needed to be done, and the world would be a far better place were each and every one of us able to indulge our natural inclination to do it. It is up to us to move beyond the structures and priorities that have trapped us in a “jobs above all” mindset, and prepare ourselves—and our children—for a life of purposeful work. And it is up to any forward-thinking government to look beyond the demands of the ever-fickle marketplace to ensure this essential human right.
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Notes

4. Google brags that its Boston office is a mere “529 Smoots (plus or minus a couple of ears)” from MIT’s main entrance. If you are among the majority who do not know what a Smoot is, you might want to Google it.

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