The Fourth Economy

Inventing Western Civilization

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This sample contains only three of the twenty-seven chapters in The Fourth Economy, available at Amazon.

This sample contains the introduction and the first chapter about social invention taken from the introductory section, a chapter on the information economy taken from the section on the third economy, and then the book's penultimate chapter on how the fourth economy will transform business and the corporation.

Please feel free to share this sample with anyone curious about how we got here and where we are going. And welcome to the fourth economy.

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Introduction

You have to ignore history to be pessimistic about the future. One big reason to write this book is to tell the story of how we in the West made so much progress. It is a fascinating story. A baby born today is about 75X more likely to live to 75 than was a baby born in medieval times. Even the progress made since 1900 is incredible.

One of the many reasons that life expectancy is 30 years longer than in 1900 is because of government programs. Potable water, polio vaccines, social security, Medicare, even school lunches. One of the big reasons governments in the West have the money to fund such programs is because of the spread and success of the corporation. Governments and businesses alike know that their success depends on winning our loyalty as voters and consumers and that drives progress. Institutions continue to evolve – sometimes subtly and sometimes radically. To think that we have suddenly hit a point at which our institutions will stop improving is like thinking that smart phones or cars will never get any better.

We have made incredible advances on nearly every front in the last century. We have fought and won against communists, anarchists, fascists, royalists, and robber barons. We have beat back rampant inflation and oppressive gold standards. We have opened the stock market to the average person. The average person can even invest in IPOs or startups now. We have made credit as easy as the swipe of a card. You have never been less likely to die a violent death. A century ago, child labor was the norm, 9 year olds working 9 to 12 hour days. For adults, six 12-hour days a week were the norm. Formal education stopped for over 90% of kids before the age of 14. The average salary was $750 a year and it took about half of that to feed a family of five. We did not have antibiotics. We did not teach evolution and had not discovered DNA. No one had dreamed of genetic engineering. Space flight was the stuff of science fiction, not something for which they were selling tickets. It makes you question why people are so pessimistic about the future, why people are so timid about what we can do next.

We worry about debt for our grandkids. If median income grows at the rate this century as it did in the last, those poor grandkids will be making an inflation-adjusted, median wage of $400,000 a year. (It only takes growth of 2.1% a year to raise wages by 8X in a century.) Wages this century could even grow at 3% a year, which would mean inflation-adjusted incomes of over a million per year. You might think that this sounds fanciful but imagine this conversation in 1900 if someone were to tell you that by 2000 we would have GPS, virtual technology, penicillin, airplanes, microwave ovens, 3-car garages, electricity at the flick of a switch, the internet in our homes or even our pocket as we wandered about town. Imagine they told you that the poor were not starving but

were instead suffering from an obesity epidemic because food was so cheap. Then on a social front, imagine them telling you that Asian kids were getting into universities at a faster rate than WASPs, or that a Hispanic could be on the government's list of preferred - rather than banned - contractors. Or that women could open a checking account without their husband's signature, get a no-fault divorce, take a pill to keep from getting pregnant, or work as a police or military officer. Or vote. Our social and technological inventions have changed and improved so much in the last century that we do not just get to enjoy all this. We get to take it all for granted and somehow assume that all of this is petty, obvious, and of no consequence. We live in a world transformed and yet we think it is normal – because it is, for us, such an everyday occurrence.

But progress isn't done yet. No more so than it was in 1900 or 1700 or the year 1.

Another big reason to write this book is because the progress of the last 700 years has played out in a pattern that is repeating again, a pattern that will define the next 30-some years.

This pattern suggests policies that will make a huge difference, the sort of thing that could do to unemployment and underemployment what progress since the Dark Ages has done for starvation and malnutrition.

There is a catch though. We have to adopt new policies that are more fitting for an entrepreneurial economy than the information economy. Information was scarce in 1900 and more of it so easily informed us then. More than a century later, additional information is more likely to distract us than make us productive. The limit to progress has shifted.

The good news is that people are already moving in the direction of this new economy and this book will include very recent history of this adaptation along with a history of medieval popes and renaissance kings.

The countries in the West are emerging from the Great Recession at various speeds. The Eurozone is barely moving while the US is once again (and Canada and Australia are still) thriving. One reason for this is the level of entrepreneurial activity. By one measure of entrepreneurship[1], Canada and the US are three times as entrepreneurial as Spain and Italy. Spain's unemployment is over 20% and Italy's economy is still contracting.

During the 1970s, 1980s, and 1990s, the US economy created an average of nearly 2 million jobs per year. In the first decade of the

[1] Total Entrepreneurial Activity as reported by Global Entrepreneurship Monitor (GEM) at http://www.gemconsortium.org/visualizations using the TEA value after subtracting necessity-driven entrepreneurship (people forced into entrepreneurship because they cannot find a job).

21st century, it averaged job *losses* of 109,000 per year. 3 billion people around the world tell Gallup that they either work or want to work. The problem is, "there are currently only 1.2 billion full-time, formal jobs in the world,"[2] which leaves a shortfall of 1.8 *billion* good jobs. Job creation has been problematic for countries in the West. It remains a huge challenge to developing economies around the globe, particularly those countries with higher birth rates. It is true that traditional economic policies like education and access to capital will remain important. It is not true that such policies will be enough. In the last century, leading economies made huge gains by popularizing knowledge work. In the next generation, the leading economies will make huge gains by popularizing entrepreneurship. Not just within the West. Not just within countries. This will happen within companies. As it turns out, one key to creating new jobs is to change the definition of jobs. Employees will become more entrepreneurial and what happens within companies may be as important as what policy makers in any other institution define or pursue.

Since the Dark Ages, the West has invented three market economies: an agricultural, an industrial, and an information economy. Now, a fourth, entrepreneurial economy is emerging, but to realize this potential (and it really is an economy of incredible potential) will necessitate a variety of big, sweeping changes.

Period (roughly)	Market Economy	Develop & Acquire
1300 – 1700	First, Agricultural	Land
1700 – 1900	Second, Industrial	Capital
1900 – 2000	Third, Information	Knowledge Workers
2000 – 2050	Fourth, Entrepreneurial	Entrepreneurship

Each economy has required communities to shift their focus to developing a new factor of production. An agricultural economy is defined by developing land, an industrial economy by developing capital, and an information economy by developing knowledge workers. In the fourth, economy, we will need to develop and popularize entrepreneurship.

Develop in this context is a big word. It encompasses technological invention and social invention (a notion explored more fully in chapter one). An agricultural economy may develop land by adopting three-field rotations and seed drills (examples of technological inventions) or by developing private property rights (a social invention). Both kinds of inventions always force a change in thinking and sometimes in institutions, neither of which is particularly welcome. Talk of

[2] Jim Clifton, *The Coming Jobs War* (Gallup Press, Kindle Edition, 2011) Location 45.

revolution in this book is not a metaphor.

Scarcities of land, capital, and knowledge workers have each – in turn – limited progress. (The second chapter explains the limit to progress.) Communities that focused on overcoming these limits by developing more land, capital, or knowledge workers prospered. In addition, overcoming an old limit shifted the limit to something new. Communities that overcame the limit of capital – communities that had built factories able to make more product than they could sell – had to shift their efforts to overcoming the new limit of knowledge workers. The industrial economy led to the information economy.

Economic change shows little respect for popes, kings, bankers, or even the modern CEO. It does not matter if the person is divinely appointed or board appointed. It changes lifestyles and incomes, brings new and previously unimagined products into the world. It even creates a different person. The impoverished peasant without choice about her beliefs or even the concepts of a career, voting, or family planning would find her 21st century peer baffling.

There are big differences between an industrial economy and an information economy. Economic change is never just about economic change. To suddenly have a car or access to social media or even enough to eat is very personal and always has implications that are not just economic.

The progress through the first three economies has transformed how the West defines religion, politics, and finance. The fourth economy will change how we define business, redefining notions like work, ownership and wealth creation. Economic change will again disrupt our sense of normal.

Back in 2005, there was a tsunami in the Indian Ocean. It began with an underwater earthquake that people did not notice and ended with a tsunami that people could not avoid. Economic change seems to work in the same way. The underwater earthquake that few notice is the shift in the limit to progress; the tsunami that people cannot avoid comes in the form of a new economy.

This history book uses a pattern of change to predict the future.

The introductory section, including the first three chapters, explains social invention, limits to progress, and the pattern of progress. The first chapter argues that social invention is as important as technological invention. The second chapter defines limits to progress and how they shift and the disruptions that follow. The third and final chapter of the section briefly tells the story to follow – the history of Western Civilization since the Dark Ages told as a pattern of revolutions.

After that introductory section, there are four sections to tell the story of the four economies. The first three sections illustrate how sweeping

are the changes of a new economy. The last section of the book predicts the future through roughly 2050 based on this same pattern of progress.

The next chapter explores the acts of social invention that give us institutions like the nation-state, bank, or corporation. Social inventions are the creative acts that have defined and invented what we know as Western Civilization. Social invention does not just help us to understand our past; it is how we will create our future.

1. Social Invention

Social invention is the companion to technological invention in the story of economic progress.

There are these two young fish swimming along, and they happen to meet an older fish swimming the other way, who nods at them and says, "Morning, boys, how's the water?" And the two young fish swim on for a bit, and then eventually one of them looks over at the other and goes, "What the hell is water?"
— David Foster Wallace

Progress has always depended on technological invention. It is obvious that the wheel and pottery made life better. It is less obvious that social inventions like the tribe or city were just as important to early man's progress. The history of Western Civilization is punctuated by big social inventions and reinventions.

The Invention of Invention

By the time he died, Thomas Edison (1847 – 1931) had an astounding 1,093 patents. The man did not just have a single light bulb moment of inspiration; his lights stayed on.

It is not easy to say which of his technological inventions was most impressive. He invented products as varied as the light bulb, phonograph, radio, and even an early model motion picture projector.

As it turns out, though, Edison's character flaw seemed to obscure what was by far and away his most impressive invention. Edison did not like to share credit and those of us not really paying attention would observe this great body of work and conclude that the man was an invention factory. In fact, his greatest invention was just that: an invention factory that was the first Industrial Research & Development lab. He hired people to invent things. Some of the things that he invented he really did invent on his own; at other times, he held patents for products his employees had invented or to which they had significantly contributed.

The R&D lab was more impactful than were any of Edison's technological inventions because it became the source of great technological

inventions through the course of the 20th century. Edison's lab became a model for in-house R&D labs that sprung up within modern corporations and universities. The R&D lab is a social invention.

In 1900, Edison's R&D lab was exceptional. By 2000, it was the norm. Before 1900, the sole inventor working with a partner or two and perhaps a few investors was the norm. During the twentieth century, companies and universities began to manage and finance technological invention within R&D labs.

A technological invention is a novel design that allows parts to do jointly what they could not do on their own.

A social invention is a novel design that allows people to do jointly what they could not do on their own.

Naked Facts and the Emperor's New Clothes

The philosopher John Searle (b. 1932) makes the distinction between brute facts and institutional facts.[3] Brute facts – the sun is 93 million miles from earth, hydrogen has a single atom – exist independently of what we think or agree. Institutional facts, by contrast, depend upon agreement. "The meeting is adjourned," for example, is a fact because someone with authority made that very declaration.

Searle further makes the distinction between rules that create behavior and rules that merely regulate it.[4] Rules only regulate the fact of people driving cars but they actually create the game of chess. Driving might be chaotic without rules but it could exist. Chess, by contrast, is defined by and dependent on rules. People were not pushing wooden pieces around on a checkered board when someone came along with the rules of chess to regulate what they were doing.

When an offensive linemen pulls off the line to block a defensive end, his action makes no sense independent of the team. His actions are part of a collective effort and only make sense within the context of the game. Most economic behavior is like this – meaningless on its own. Imagine the lineman "pulling off the line" without any other players or imagine a person trying to use money to "buy" something among people

[3] John R. Searle, *The Construction of Social Reality* (The Free Press, New York, NY, 1995), mostly drawn from the first two chapters, "The Building Blocks of Reality" and "Creating Institutional Facts."

[4] Rules that create reality Searle calls constitutive and those that regulate it he calls regulative.

who have no concept of money. The fact that the offensive lineman pulled off the line is an institutional fact, dependent in this case on the institution of football.

A lot of economic behavior falls into the category of institutional fact. Money is only money because we agree it is money. As soon as we all agree that Confederate currency no longer has any value, it no longer has any value. When we agree that information on magnetic strips affixed to plastic has value, it has value. Whether someone is a slave, employee or owner of an enterprise is not inherent in any physical reality or dependent on any brute facts, but is – instead – true only as an institutional fact. Someone sweeping the floor of a business could be a slave or the owner.

I will piggyback on Searle's distinction between brute facts and institutional facts to make a distinction between technological invention and social invention. A technological invention results in a product that you can observe independent of any agreement about it. You can see a tractor even if you do not know what it is. Technological inventions are like brute facts. By contrast, a home loan is an institutional fact. Without a contract specifying terms and even who owes what to whom, the loan makes no sense. Further, the loan assumes a whole other set of institutional facts, including the ideas of money, banks and a real estate market to determine the value of the home for which the loan exists. Social inventions are like institutional facts.

Through the Looking Glass

"U.S. Economy Grinds to a Halt as Nation Realizes Money Just a Symbolic, Mutually Shared Illusion."
– Onion Headline from 2010

When we step into a car, we are fully aware that we have entered into a piece of technology. We know that someone once invented this. Whe new pull out of the driveway, it is less obvious that we are driving into a set of social inventions. Do we drive on the left or right? At speeds suitable for the autobahn or a school zone? Social inventions and technological inventions shape each other. Andrew Marr, offers one reason that Britain lagged France, Germany and the US in automobile inventions.

"It was also because of the equally out-of-date state of transport law. In the 1860s self-propelled vehicles had been given speed limits of 2 m.p.h. in towns and twice that in the county, in both cases to be preceded by a walking man carrying a red flag or (at night) a red lantern. The flags were later made voluntary but the enthusiasm of the British police for apprehending and fining early motorists was vigorous

long before the speed camera. In 1895 John Knight successfully built his own petrol-driven car and triumphantly rode it through the streets of Farnham at eight miles an hour. He was promptly arrested and fined for speeding."[5]

To limit the speed of a car to the speed of a man walking has little to do with technology and everything to do with social norms. Yet it was this social invention – cars could not travel faster than someone walking – that was to limit technological invention of British innovators.

When you come home to your family, you are less aware that family is something that is also invented. In some tribes, children from numerous families grow up around common fires while the couples retire into private huts outside of these circles. In 80-some percent of cultures, some form of polygamy was – and is – practiced,6 and while most of the world defines family as only two parents, an increasing percentage of children grow up in families of just one parent. Families in different cultures and households have three generations or one, adopted children or only biological, same sex couples and no sex couples. In matrilineal cultures, the mother defines family. In some cultures that simply means that the mother's brother is responsible for the children's education, contributing to costs and such. The Mosuo people in China have a seemingly extreme form of this matrilineal culture.

"The Mosuo are a matrilineal, agricultural people, passing property and family name from mother to daughter(s), so the household revolves around the women. When a girl reaches maturity at about thirteen or fourteen, she receives her own bedroom that opens both to the inner courtyard of the house and to the street through a private door. A Mosuo girl has complete autonomy as to who steps through this private door into her *babahuago* (flower room). The only strict rule is that her guest must be gone by sunrise. She can have a different lover the following night—or later that same night—if she chooses. There is no expectation of commitment, and any child she conceives is raised in her mother's house, with the help of the girl's brothers and the rest of the community."[7]

You might find yourself horrified or delighted by the thought of this Mosuo arrangement. I will just point out two things. One, apparently for the Mosuo this is normal. Some probably like it and some probably hate

[5] Andrew Marr, The Making of Modern Britain: From Queen Victoria to VE Day, Pan Books, London, 2009, p. 94.

[6] Laura Fortunato, "The ancient roots of monogamous marriage," **http://www.santafe.edu/news/item/fortunato-origin-monogamous-marriage/** 8 July 2011.

[7] Ryan, Christopher; Jetha, Cacilda (2010-06-29). Sex at Dawn: The Prehistoric Origins of Modern Sexuality (Kindle Locations 2141-2146). Harper Collins, Inc., Kindle Edition.

it – just as individuals feel about most any social norms they find themselves participants in, from compulsory education to working in a corporate cubicle. Two, you can probably think of at least one person who would do better in this arrangement than they do with our Western traditions. Few norms work well for everyone. One quarter of Americans will never marry[8] and 40 to 50% of the ones who do will divorce. If a drug failed as often and had as many side effects as western marriage, the FDA probably would not approve it.

Over time, people have invented various forms of family, nation, culture, workplace, and gang. To their children, these seemed less like inventions than simply the way things were. Social inventions less obviously exist "out there" and more subtly take root in our minds, and as such are more like an operating system that is just there when we boot up than a software application that we intentionally open. They are not so much things that we are aware of as things that define and direct our awareness.

The central claim of this book is that a fourth, entrepreneurial economy is emerging. This, in turn, rests on two claims related to social invention.

The first is that progress depends as much on social invention as it does on technological invention. Progress obviously depended on technological inventions like the mechanical clock and compass; it less obviously depended just as much on the social inventions of bond markets and nationality.

The second point is that we are entering a century in which social invention will become as intentional and as normal as technological invention became in the last century. What Edison did for product invention, this next generation will do for social invention. Entrepreneurship is a form of social invention. We tend to think of it as something that occurs in the business domain but as we become more adept at and conversant with social invention, we will do more than simply create more and better business ventures. Already the term social entrepreneur has entered the language, and the notion of social invention as something broader than business will become increasingly normal. Imagine social invention applied to schools, with people designing, creating, and customizing learning around individual children, an explosion of educational entrepreneurship that means more options for more kinds of learners. Imagine employees who act like entrepreneurs, creating new products, markets, and business units from within their corporations. Imagine new ways to govern. Imagine that we will explore some of this in the final section of the book.

[8] Pew Research, Wendy Wang, Kim Parker, September 24, 2014 "Record Share of Americans Have Never Married," http://www.pewsocialtrends.org/2014/09/24/record-share-of-americans-have-never-married/

The past is a foreign country. They do things differently there.
— L. P. Hartley

Our prehistoric ancestors had to worry about wild beasts crashing through the bushes. They did not have to worry about being late for work. Increasingly, our inventions do more to define our daily lives than does the natural world. Sunsets do not determine when houses go dark and sex does not define when women get pregnant.

Like the microwave oven and air conditioning, churches, banks, and corporations have made this a different world. In fact, social inventions like churches, ATMs, jobs, roads, and department stores have become such ingrained parts of our lives that we can scarcely imagine a world without them. It's harder still to imagine that they might all be radically reinvented, a process guaranteed to be more disruptive than the transition from 8- track to iPod.

Technological inventions change parts; social inventions change people. For this reason alone, social invention is trickier than technological invention and rarer.

One consequence of overlooking social inventions as inventions is that we are less inclined to think about the need to change them. We are used to technological inventions continually changing: we shop for new cars, new computers, and new clothes that reflect the latest and greatest idea and execution. We do not have this same expectation with social inventions; we somehow are startled whenever the norms and practices for religion, government, or business change. In fact, while we expect a stream of new products, we tend to consider social inventions so disruptive that we give them labels like revolution.

Everything is Just Made Up. And That's a Good Thing

After WWII, the Japanese fascination with American culture led them to adopt parts of it. Like language, culture can be lost in translation. Someone reported a Japanese store with Christmas decorations, complete with Santa on a cross.

Initially, biological evolution defined change. About 100,000 years ago, *Homo sapiens* brain was anatomically fully formed. Since then, culture – the product of social invention – has grown at an exponential rate, from a handful of stone and bone tools at the beginning of this period to millions of patents today.[9] At some point, social evolution began to

[9] Edward O. Wilson, Consilience: the Unity of Knowledge [Vintage Books, New

shape behavior more than biological evolution. Imitation and then instruction began to supplement and then become more important than instinct. Today, biology evolves so slowly as to be nearly invisible in a lifetime, whereas cultural and social evolution is not only visible but also accelerating.

After discovering a polio vaccine, Jonas Salk (1914 – 1995) had a blank check to pursue whatever he wanted. As it turns out, he wanted to establish an institute overlooking the Pacific Ocean across the street from the University of California at San Diego. He wanted to populate this institute with some of the most interesting and eclectic minds on the planet. (For instance, James Crick, co-discoverer of DNA, spent his last years working at the Salk Institute.) Finally, he wanted to base this institute on two principles: one, it would be devoted to the study of social evolution (what he called meta-biology), and two, it would be democratic. Sadly, for Salk - and for us - he did not clearly subordinate the one goal to the other. That is, he did not say, "We will pursue the question of social evolution in a democratic way." Once he had assembled these great minds, they listened to his goal and quickly dismissed it. They thought that social evolution did not deserve to be the focus of the Salk Institute.

Among the lessons of history is this: although social inventions are "just made up," the consequences of adopting or discarding these social inventions are not. At one level, declaring "this meeting is adjourned" seems arbitrary; at another level, though, even a social invention as simple as declaring a meeting adjourned depends on layers of social inventions as varied as the idea of a chairman with the authority to make such a claim and, of course, the idea of a meeting or even an authority. At one level, social invention might appear to be "just made up," but as with technological invention, it is involved and always depends on a sequence of previous inventions and the context of the times.

A tyranny and a democracy are both "just made up" but the consequences of adopting one or the other are very profound and lead to very different experiences for the individual living within them. A tricycle and a luxury car, too, are both "just made up," but that does not make them any less real or the differences between them any less stark. And just as someone who has only known a tricycle can't just declare that they're going to invent a luxury car without lots of intermediate inventions, so it is with simple communities that have only known tyranny and want to create a modern democracy. Inventions are complex and build on one another. Social inventions are dependent on both seemingly ingrained tendencies (genes rather than social messages seem to account for the persistence of boys' tendencies to fight and

York, NY, 1999] p. 145.

girls' tendencies to negotiate) and a sense of normal more defined by history than possibility. Social invention can be more difficult than technological invention.

Things that are made up can create experiences that are quite real. The people on Easter Island somehow "made up" a religion of ancestor worship that led them to decimate all the trees in order to build statues. The ensuing loss of resources and topsoil that wiped out a huge percentage of their population was not made up. It was very real. There are very real rewards for getting social invention right and very real penalties for messing it up. The success of a plane does not depend on imagining a world without gravity any more than the success of an economy depends on imagining a world without greed. Inventions have to address current reality in order to change it or rise above it.

It is not just the things that we can see that are made up. Even the way that we see is made up. An ATM is a technological invention yet the idea that we need money (even the idea of money itself) to buy something as essential as food is a social invention. People in a village centuries ago would not have sent away a hungry person because of a lack of money. (They may have sent him away because of a lack of food.) The way we see the world, our worldview, has changed. The medieval mind made sense of the world very differently than does the modern mind. (Well, than do some modern minds.) Among other things, we invent meaning, explaining our world and our roles in it. Social norms, too, are just made up but have very real consequences.

The medieval mind believed that man had fallen from grace and, now expelled from the garden, was destined to a life of misery as a test of worthiness for the afterlife. The Enlightenment mind, by contrast, believed that progress was possible and desirable, believed that this life could be good and made even better. These beliefs, too, are social inventions. Whether we call them beliefs or philosophies or mental models, these might be the most pervasive social inventions of all, changing how we make sense of the world and even what we think is possible or desirable.

A set of inventions defines a culture or civilization.

We recreate civilization in each child. We call it education. Look at the huge amount of time and attention that we devote to "civilizing" a baby to become a member of society. The gross effort it takes to recreate society in each child should be testament to the fact that a specific culture is not a "natural" or spontaneous state; Culture is a social invention that takes great effort. Specific language and manners, what we question and what we accept, social roles - all of these end products represent the teaching of parents, authorities, and even the media and are essentially conventions that work to construct meaning, to create the modern life.

"Each society creates culture and is created by it." There appear to be

universals of human culture. As a species, we are apparently ready for language, gestures, cooperation, division of labor, funerals, joking, meal times, property rights, soul concepts, trade and 57 other universals.[10] It is possible that such things are constants. How they are observed does vary by culture and can be reinvented.

Rather than see them as inventions, we often see social inventions as simply "the way things are." Should you want a reminder that social inventions are just made up, however, raise a child. Parents know that the curious, rebellious, stubborn, and lazy child will challenge social inventions. My family lives close to the Mexican border and when my daughter was protesting her car seat, she would say, "Mexican kids don't wear seat belts." She, like every child, knew that things could be different and questioned why they were not. Of course, travel, news reports, novels, and history all remind us that our social inventions are not universal or even stable. What makes you successfully fit into your neighborhood in Manhattan would make you stand out in Afghanistan. Or even Montana. What made you fashionable in 2015 would make you look silly in 1915.

Social invention - this story of the rise and transformation of institutions – offers the potential for huge and powerful payoff. Portraits of luminaries who attended Oxford cover the walls of Oxford's Christ Church College Dining Hall. John Locke's is among them. Even if every other graduate of Christ Church had been a slacker who smoked opium and played video games, Locke's ideas would have ensured England's positive return on their investments in Oxford. It would be hard to overestimate the value of John Locke's ideas, which did so much to create modern democracies. Social invention has huge potential, and because of its record of accomplishment, we nearly deify social inventors like America's founding fathers. Here is something to consider. If social invention make this much difference, why not make it an intentional part of life rather than something that happens only on rare occasion? When we create institutions to overcome limits, we make progress. When we transform institutions to make them tools available to many, we are better off. Social invention, just as assuredly as technological invention, facilitates progress. It makes little sense to confine it to history books when we can make it a part of our lives.

Progress and Social Invention

The first human who hurled an insult instead of a rock was the founder of civilization.

[10] Wilson, Consilience, pp. 142, 160.

Sigmund Freud (1856 – 1939)

Perhaps teachers and parents should add this to their list of admonitions and lessons: "Warning: contents of this society have been known to create feelings of stress and alienation; provoke wars, homicides, and suicides; and pollute the habitat you need for survival. Most of what we tell you, you should question. You can improve it. This is, really, just the best we have been able to do up until now and it could be that improvement will actually overturn much of what we now accept and advocate. Learn about your culture and your place in it, but do not cling too tightly to it. What we're teaching you probably needs to change, and soon."

History is not a set of static stories about the way the world once was. Told right, history is the story of how we came to live the way we do, and it might even predict our future. Most of us define our lives by the social inventions that shape us. I am an American, we might tell people, or a Baptist, or a teenager or an engineer, or an employee of IBM. Yet these are often just phases that we are going through. We had the potential to be something more or perhaps someone different, and had we been born into a different time or place we would have been. Through history, the ways of being - the options for how we live our lives - have changed dramatically. What is perhaps most interesting about this change is that in each succeeding generation, one's way of being has been defined less by the society one is, by chance, born into and defined more by personal choice. There is little reason to believe that the ratio of intentionality and choice to chance and destiny will not continue to rise. Increasingly, individuals will define their lives rather than leave that definition to the society into which they are born. This is already happening.

Consensus Reality

Culture is roughly anything we do and the monkeys don't.
- Lord Raglan

A $20 bill is worth exactly $20 for no other reason than this: we all agree that it is worth $20. As soon as we stopped agreeing that it was worth $20, it would no longer be worth $20. One day a Confederate dollar is worth a dollar and the next day it is worthless. The thing itself did not change - only what everyone agreed about it.

This is an oddity of social reality. It people do not make it out of a material like wood or metal. Instead, they make it out of consensus.

One day, everyone agrees that a certain amount of gold is worth $20.

The next day, everyone agrees that mere paper will be worth $20. In one generation, polygamists populate the world and in the next generation, it is monogamists. These sorts of changes are the stuff of progress.

Social invention has almost magical properties. A group of people cannot just gather around a fish and declare that it is a desk. (Well, unless they are merely changing its name.) However, a group can gather around one woman and say that she is a queen and around another woman and say that she is a president and then agree that the two have very different rights and responsibilities. Or groups can gather around one man and say that he is a slave and around another and say that he is a wage earner, and explain the demands that can be made of each, the rights each does or does not have, and the compensation each deserves.

Charles Tart makes the point that a hypnotist, in a matter of minutes, can program you to do things you do not normally do and to believe what is not so.[11] He then asks, how much more powerfully can society program you during the course of your life, given that it has so much more time and so many more persuasive tools at its disposal than does a hypnotist?

The fact that the self is itself a social invention suggests something curious about the next stage of progress. If social invention is to become more widespread, the individual will have to become more aware of how his or her life is also an invention. Up until now, it is the few who have defined society and the many that have been defined by it. A few receive divine revelation and the many receive Mass. Think about a world in which this direction is increasingly reversed, a society in which the individual is less social invention than social inventor. Imagine a world in which more people engage in acts of social invention. If social invention becomes to this century what technological invention was to the last, we will witness such a change. Or, rather, we'll cause such a change.

If daily life is an invention, the question is, whose invention is it? It is hard to underestimate the importance of inertia in defining society. Yet entrepreneurs challenge this inertia and invent something new.

As I left school, the headmaster told me, "Branson, I expect to either see you on the cover of a business magazine or in jail."
— Richard Branson (b. 1950), founder of Virgin, who has, incidentally, been on the cover of quite a number of magazines

[11] Charles Tart, *Waking Up: Overcoming the Obstacles to Human Potential* (New Science Library, Boston, MA, 1987) 98-100.

Entrepreneurship and Social Invention

We have been intentional about technological invention through much of the twentieth century. Corporations budget for it and assign project teams to develop new products. By contrast, social inventions come from entrepreneurs and revolutionaries - from outside the system.

There might be at least three phases to social invention becoming more normal. In the first, communities will do more to support traditional entrepreneurship, realizing that the real leading indicators of job formation are measures like venture capital investment and collaborations between research universities and startups. In the second, we will popularize entrepreneurship further, making more employees more entrepreneurial, doing within corporations what we have begun outside of them. This will drive, and be driven by, multiple big changes to the corporation, a transformation of today's dominant institution. Third, this matter of entrepreneurship will be more clearly seen as a an act of social invention and communities will begin to transform education, government, and the public sector through acts of entrepreneurship, acts that might have been considered revolutionary in past centuries. We will popularize entrepreneurship and social invention.

The next chapter explores why some social inventions give communities more wealth and power.

17. The Information Economy

The manipulation of symbols became to the new economy what the manipulation of goods had become to the last.
The changes this wrought were more than symbolic.

Economy	First	Second	Third	Fourth
Period	1300 – 1700	1700 – 1900	1900 – 2000	2000 ~
Limit to Progress	Land	Capital	Knowledge Workers	Entrepreneurship
Type of Economy	Agricultural	Industrial	**Information**	Entrepreneurial
Intellectual Revolution	Renaissance	Enlightenment	Pragmatism	Systems Thinking
Big Social Invention	Nation-state	Bank	Corporation	Self
Social Revolution	Religion	Politics	Finance	Business

The turmoil and change in the decades around 1900 was overwhelming. Freud and William James were exploring consciousness and other products of the mind, James publishing *The Principles of Psychology* in 1890 and Freud publishing *The Interpretation of Dreams* in 1899. Marconi transmitted and received radio signals across the Atlantic in 1901. Karl Benz invented the automobile in 1885 and by 1900, automobile factories were producing cars for the public. The Wright Brothers demonstrated heavier than air flight in 1903. In the first decades of the new century, modernists like Picasso, Matisse, and Kandinsky were redefining how people look at art. Henry James (William's brother), James Joyce, and Virginia Woolf were transforming literature in a similar way, these artists and writers part of a larger movement of modernism, all stretching the limits of what symbols could convey. Kurt Vonnegut said that thanks to TV, there are only two kinds of people: conservatives and liberals. In 1900 political activists espoused ideas as different as anarchy and aristocracy, free markets and tariffs, communism and socialism,

theocracy, democracy, and republics. As they had done with royalty and religion, social experimenters rejected the institution of marriage, promoting such seditious ideas as free love and birth control. Even more alarming for some was the fact that women wanted to vote. And if in the face of this tsunami of change you could remain serene, your peace would have been literally shattered by the outbreak of the First World War in 1914, a war that produced casualties at a scale that mimicked the new factories.

One thread throughout all of this was the disruption of knowledge and the manipulation of symbols – from art to design and political propaganda – that was to characterize and define this new information economy.

The information economy was not just about information. It was about knowledge. Information has to be processed in order to become knowledge and as knowledge work became more essential, tools that facilitated the creation, storage, transmission, and access of information became more important. Rapidly evolving information technology was important because it did so much to enable knowledge workers to be more productive.

Education was enormously important to this new economy, but we are unlikely to ever again get such dramatic gains from education. In 1900, only 10% of 14 to 17 year olds were enrolled in formal education. By 2000, less than 10% were not. We could try for similar gains for 24 to 27 year olds (or even 34 to 37 year olds) in this century, but that seems less promising. If we increased the level of education in this century as much as we did in the last, we would be keeping people in school until the age of fifty. That is not likely to happen. As we did with the industrial economy in about 1900, we may be reaching a point of diminishing returns for the creation of knowledge workers. The information economy may already be history. While it worked, though, the information economy was the most extraordinary economy yet.

Two social inventions were particularly notable during the third economy. The modern university created knowledge workers. The corporation gave them a place to work. The university gave them knowledge. The corporation translated that knowledge into market value. It is not enough to say that these social inventions were as important to the information economy as was the computer. The computer was a product of these social inventions.

The information economy changed what was meant by "labor productivity." The defining figure in an agricultural economy is the farmer with a hoe. The defining figure in an industrial economy is the factory worker helping to manufacture hoes. The defining figure in an information economy is the engineer who works on design plans for a

backhoe.

This Railroad Will Take You into the Next Economy

The bond markets created to finance war turned out to be perfectly suitable for financing railroads. As it turned out, laying down rails across continents was even more capital-intensive than the Napoleonic Wars.

Railroads connect consumers and suppliers, connect town to town, and connect factories and stores. Railroads gave inland areas access to products and ideas they had previously lacked. This is part of what enabled Germany—a largely landlocked country—to become a rival to the British Isles in trade and industry. Suddenly, seaports did not automatically confer an insurmountable advantage in economic development. As it turns out, an economy is kind of like the brain: the value of the connections *between* the parts is at least as high as the value of the parts being connected. Brain cells get smart when they are part of a web of dendrites that connect them. Communities get rich when they are part of a web of trade patterns that connect them.

Yet railroads required enormous investment. Nothing previous had ever been quite so expensive. It was possible to build a factory and then gradually expand the market and the size of the factory. When connecting Chicago to New York, it was tough to build out just the first hundred miles, pay that down with freight and passenger revenue, and then build another hundred miles. Building railroads between big cities required laying down a lot of – very expensive – track all at once. Very quickly, the railroads became the property of parties most willing to take on debt. No one person had money enough to build cross-continental railroad lines with the money in his or her safe. Railroads required lots of capital from lots of people. Bond and stock markets were designed for this very task. The New York Stock Exchange began to rent space on Wall Street in 1865; the nation's first transcontinental railroad was built between 1863 and 1869. The railroads connected more than just towns.

Capitalism Creates Demand for Creating Demand

Continuous production technology after the American Civil War was not just better, it was radically better. It was the culmination of two centuries of progress in overcoming the limit of capital.

Henry Crowell (1855-1943) was one of the first to apply continuous production methodology to a factory that brought raw materials into one end and sent packaged goods out the other. His factory coalesced all of the production steps into one facility. Before this, production was not continuous but instead generally required that the product being made move from one factory to another as it progressed through production steps.

Even though his factory was amazing, at first it looked like Crowell had made an expensive mistake. The factory he built could make twice as many oats as Americans consumed. Americans generally dismissed oats as food for horses or Scots, and demand was low. To flood the market with so many oats could easily drive down prices so much that Crowell could never hope to recoup the investment in his amazing new factory.

So Crowell shifted his attention from the problem of how to make more to the problem of how to sell more. The task of making more had been a problem of overcoming the limits of capital, of manipulating things and machines to stimulate more production. The task of selling more was a problem of knowledge work, of manipulating symbols to stimulate more consumption and open up new markets.

Crowell may have been the first to use scientific endorsements about the health benefits of his product. He advertised on the side of trains. He was probably the first to send samples to households, sending packages of oatmeal to homes throughout Portland, Oregon (turning his excess productive capacity into a marketing advantage.) Furthermore, he created an image that "branded" his product into the American consciousness: the symbol on the side of his Quaker Oats products became synonymous with oats.

Soon, Crowell had stimulated demand enough to meet the incredible capacity of his factory. And as he pioneered the process of managing demand, he created breakfast cereal.[12] Eventually, Kellogg, Post, and others were to duplicate—and even surpass—his enormous success.

What Crowell quickly realized was that the triumph of the second economy led to the challenge of the third. Unprecedented levels of production necessitated unprecedented levels of consumption.

As an affable-looking Quaker led America into mass consumption, the problem of increased production increasingly took second place to the problem of increasing sales through product design, advertising, distribution, marketing, sales, and consumer credit.

Crowell's success was to become an example for a wave of new

[12] Beniger, The Control Revolution, 265–66.

companies. Ford is most often associated with the assembly line and to be fair, assembling a car is more impressive than assembling a box of cereal. Yet in between the simplicity of oats and the complexity of cars were a host of products. Many of these products used continuous production technology, and product by product, industry by industry, the limit to the economy shifted from the productivity of capital to the productivity of knowledge workers.

Telegraphs and Catalogs – the Information Economy in its Infancy

The railroad was nominally about moving stuff. Very quickly, though, the telegraph evolved beside it, a system designed to move information. Advances in the second economy quickly brought demand for the advances of the third: as speed, complexity, and scale of production and distribution increased, it drove a need for better communication and information technology.

Making a lot of product without good information is dangerous. Sears (1863-1914) got his start working in a telegraph office. A company delivered a shipment of watches to Sears's railroad stop, only to find that demand there was not nearly enough. Sears ended up with the product for very cheap. (You do not make money by making a product. You make money by selling it. If the product you make does not sell, the inventory of very real goods has no real value.)

Sears figured out how to sell the watches through a very simple prototype of his iconic catalog. This catalog did at least two things. One, it helped to stimulate demand simply by making consumers aware of new products. Children were not the only ones who would circle dozens of items in the new catalog, making lists of things they wanted. Two, it enabled Sears to sell products before they were made or at least before they were shipped. Products ordered through a catalog did not have to be made in advance, which lowered costs by minimizing the production of goods that did not sell. This did so much to define American consumerism that Franklin Delano Roosevelt said that the book that he would like to send to the Soviet Union was the Sears Catalog. This was the beginning of sales through information, and there was little that Amazon and other websites did later that the Sears catalog had not done earlier in a simpler form. (The Sears catalog enabled products to be represented virtually on the printed page; Amazon's website enabled the printed page itself to be represented virtually, a second layer of abstraction. Wilhelm Humboldt, the man who originated semiotics, or the study of symbols, would have been impressed.)

Continuous production factories represented the culmination of centuries of effort to overcome the limit of capital. At this point, capital – from financial markets to factories - was so advanced that meeting demand was not a problem. Now, the problem was stimulating demand to match this new capacity.

Inventing Santa Claus

It took concerted effort to keep up with these factories. In 1899, Thorstein Veblen wrote *The Theory of the Leisure Class* and introduced the term "conspicuous consumption" to explain the West's seemingly insatiable desire for goods. His book was popular and became one more item people just had to buy. Shopping became serious recreation during the twentieth century.

Marshall Fields and Macy's were the smiling faces of the factories that could easily make more than consumers would buy. The limit to profits no longer came from how much manufacturers could make but, rather, how much retailers could sell. Consumption had to be stimulated so that stores could keep up with factories. These stores became gateways to the American Dream.

Department stores had to stimulate demand. One tool for this was the window display but even this required a change in norms. In the late nineteenth century, staring into windows was rude. To change this perception, stores hired professional gawkers whose job it was to stare into store display windows and induce others to do the same. A pioneer in store window displays was L. Frank Baum. Baum was better known as the author of *The Wizard of Oz* (1900). Both his books and his window displays invited observers into a magical world that promised to satisfy profound longings. And indeed, the average medieval peasant would have likely found the goods in these department stores more incredible than a tin man or a talking lion. The Marshall Field store in Chicago even had a stained-glass ceiling as beautiful as a cathedral of the first economy. People will aggressively seek out food, shelter, and probably clothing without prompting from any advertising. After that, they need to be made aware of needs as varied as perfume or a smart phone. These stores did just that.

One of the more curious social inventions was Santa Claus. Santa did not just make children happy. He made storeowners happy. Santa as we know him - the gift-giving saint who holds court in department stores - did not exist before factories began to produce more products than could be sold via old habits of consumption. Like Baum's display windows, Santa was part of an effort to create a fairy tale

land where consumers were convinced that shopping was a kind of magic.

Christmas gift giving helped to stimulate sales after the American Civil War. In 1867, "Macy's department store remained open until midnight Christmas Eve, setting a one-day record of $6,000 in receipts." Around 1870, Christmas made "December retail sales more than twice those of any other month."[13]

By 1870,

"The United States had the largest economy in the world, and its best years still lay ahead. ... This American system of manufacture had created, for better or worse, a new world of insatiable consumerism, much decried by critics who feared for the souls and manners of common people. The world had long learned to live with the lavishness and indulgences of the rich and genteel; but now, for the first time in history, even ordinary folks could aspire to ownership of those hard goods—watches, clocks, bicycles, telephones, radios, domestic machines, above all the automobile—that were seen in traditional societies as the appropriate privilege of the few. All of this was facilitated in turn by innovations in marketing: installment buying, consumer credit, catalogue sales of big as well as small items; rights of return and exchange. These were not unknown in Europe, which pioneered in some of these areas. It was the synergy that made America so productive. Mass consumption made mass production feasible and profitable; and vice versa."[14]

Other, less obvious inventions, made retail possible. Up until about 1830—again, the time of the railroad—products were essentially sold for whatever prices the market could bear. Yet one innovator, Reuben Vose, who specialized in hats and shoes, introduced a one-price system and listed items in catalogs. Buyers were now dealing with a standard price they could accept or ignore. Not only did Vose win business from the competition, he was able to conduct his business with cash sales rather than through granting credit.[15] People liked set prices over which they did not have to haggle or puzzle. In a world awash in information, one price for one good—rather than a number of prices that various people might negotiate—made life easier and less stressful.

Advertising, too, helped stimulate consumption at the same time that it stimulated advances in information technology.

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[13] Beniger, The Control Revolution, 260.

[14] David S. Landes, The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor (New York: Norton, 1999). 307.

[15] Beniger, The Control Revolution, 159.

The Media as the Opiate of the Masses

Everyone knows that in this information economy, programming is important but for different reasons. The audience thinks that it is viewing programming. The advertiser thinks that it is programming viewers. Consumers were being programmed long before computers existed. As Eli Pariser puts it, “If you are not paying for the service, you are the product being sold.”

Radio became popular in the 1920s and 1930s, TV in the 1950s and 1960s. Magazines and newspapers remained popular until the internet stole their readers. A single edition of the New York Times Sunday edition held more printed information than a medieval mind would have to process in a lifetime. We get our information about the world from the media.

Alain de Botton rather brilliantly captures what a shift this is from earlier times. "Societies become modern, the philosopher Hegel suggested, when news replaces religion as our central source of guidance and our touchstone of authority. In the developed economies, the news now occupies a position of power at least equal to that formerly enjoyed by the faiths. Dispatches track the canonical hours with uncanny precision: matins have been transubstantiated into the breakfast bulletin, vespers into the evening report."[16]

The media has enormous power.

The Nazis used the new technologies of mass media and propaganda for political madness. Specifically, they applied these principles to propaganda and the manipulation of mass media as a tool to create a consensus trance, to define national opinion. Used as a tool for stimulating delusions of world domination, the Nazis caused Germany to self-destruct, killing more than sixty million people before they were done.

The Allies - the United Kingdom and even more so, the United States - used this newfound power of mass psychology for something better. Rather than focus the masses on world domination, they focused the masses on consumption. Advertising, branding, and admonitions to “go shopping” kept the populace focused on the importance of making and spending more money. It was still manipulation of the masses, but it was far more benign.[17]

Advertising financed these media, from newspapers and radio to TV and

[16] Alain de Botton, *The News: A User’s Manual,* [Vintage Books, 2014, Kindle Edition], Location 67.

[17] This contrast in the use of psychology and propaganda is covered in the BBC documentary “The Century of Self.”

the internet. Particularly in the US but all throughout the West, everyone consuming media was continually bombarded with ads. When they had had enough, they turned off the TV and went shopping.

George Orwell thought that consumerism had distracted the masses from seizing power. "Gambling and cheap luxuries had been very fortunate for Britain's bone-headed rulers: 'It is quite likely that fish and chips, art-silk stockings, tinned salmon, cut-price chocolate ... the movies, the radio, strong tea and the Football Pools have between them averted revolution,'"[18] he wrote.

Other evidence that a new information economy was emerging in the late nineteenth century was the emergence of trademarks and brands. The first trademark legislation was not enacted until the 1870s, and it took three months before anyone availed himself of it. However, the new products that were being generated at unprecedented rates by continuous production needed national markets. "Many of today's best-known brand names - Gold Medal and Pillsbury flour, Kellogg's cornflakes, ..., Borden and Carnation condensed milk, Campbell Soup, Heinz 57 Varieties, Proctor & Gamble soap ... began as trademarks for the fruits of new continuous-processing technology in the 1880s. As a result of massive national advertising campaigns, all had become household words by 1900.[19]

You'll need a Shopping Cart for All Those Products

As previously mentioned, Thomas Edison's great invention was the R&D Lab, a place where people came into work each day expecting to help in the creation of new – or better – products. In earlier times, communities in the West waited for individuals to invent on their own. This did not happen much. After the emergence of the modern corporation, communities systematically funded development. In this model, new and improved happened a lot.

We calculate inflation to understand how much we should discount a dollar today to make it comparable to a dollar from a year or decade before. Curiously, we have nothing akin to inflation to adjust for what a dollar could buy today that it could not buy a year or decade earlier.

This has given investors as well as consumers more options. 62% of stock market value in the US is for companies in industries that were small or non-existent in 1900. Then, the list of biggest companies included the world's largest candle maker and the world's largest match

[18] Marr *The Making of Modern Britain* p. 308.

[19] Beniger, The Control Revolution, 269

manufacturer.[20] The new industries include not just tech, but healthcare, Oil & Gas, and retail.

The list of items that people in the West could buy in 2000 that they could not buy in 1900 would easily fill the pages of this book. Here is a partial list. A surprising number of them are quite affordable. Note how very few of these could be invented by – much less manufactured by – a family business. These are corporate products and your life is different because of them.

Radio
A photocopy
Ticket to a movie
A video
TV
Airplane ticket.
Airplane
Helicopter
Rocket
Anything plastic
Air conditioner
Teabag
Microwave oven
Electric refrigerator
Safety razor

Crossword puzzle
Bra
Rocket
Penicillin Antibiotics
Hepatitis-B vaccine
Polio vaccine
Insulin
The Pill
LSD
Bubble gum
Nylons
Laser
Velcro
Credit card

Mutual fund share
Pacemaker
Valium
Viagra
Prozac
Computer
Personal computer
Smartphone
Video game
Email account
Website
Video conference
GPS

As late as 1900, the richest British peers lived lives vastly different from the average person. Some had hundreds of servants. One traveled abroad with a large personal orchestra.[21] The ability to listen to music at any time in 1900 required enough money to have an orchestra on command. By 2001, when Apple introduced the iPod, a teenager with generous middle-class parents could afford to listen to orchestras, jazz,

[20] Credit Suisse Global Investment Returns Yearbook 2015 https://publications.credit-suisse.com/tasks/render/file/?fileID=82FB3C1A-9CB1-FBA5-A70A6CA2FC94A025

[21] Marr The Making of Modern Britain p. 6.

or Alicia Keys at 2 AM any day. These are products that let us live better than kings.

Will This be Cash or Credit?

Credit was another piece of the puzzle for stimulating consumption. Credit meant that the consumer did not have to wait to buy something and the retailer did not have to wait to sell it. This sped product innovation. This new economy depended on credit to stimulate sales to the levels that helped consumption keep pace with production. Credit fueled expansion, and without credit, the entire system could grind to a halt.

Consumers were engulfed in a sea of easy credit after 1922, with installment buying, charge accounts, and a range of small loans adding up to a multibillion-dollar business. The most liberal credit policies "tended to become the rule." For the most part, though, it was stores and not banks who first extended credit.

"By the end of the twenties, Marshall Field's charge business had risen to 180,000 accounts, almost double the 1920 figure. In such New York stores as Lord & Taylor, Best's, Abraham & Straus, and Arnold Constable, charge operations made up 45 to 70 percent of their total business. Personal consumer loan departments in city banks opened for the first time, and between 1913 and 1929, the number of regulated small-loan offices increased from 600 to 3,500, with loan balances up six fold."[22]

After World War 2, this trend accelerated: "Installment credit [purchasing goods through ongoing payments] fueled the great American consumer engine; it grew from $2.6 billion in 1945 to $45 billion in 1960 and then to $103.9 billion in 1970."[23]

During the second economy, capital had been scarce and bankers derived power from this fact. They did not lightly grant credit or make loans. Through the course of the third economy, credit became abundant and bankers, eager to make loans in order to capture a share of this new market in consumer credit, increasingly had to compete for "sales" of credit just as the retail merchants they financed had to compete for the sales of goods. By the end of the twentieth century, consumers were more likely to suffer from too much debt than too little credit.

[22] Leach, *Land of Desire*, 299–300.

[23] Robert Manning, *Credit Card Nation: The Consequences of America's Addiction to Credit* (New York: Basic Books, 2000), 38.

Fashion – a Social Invention that Keeps You Warm

"Everything – even lunacy – is mass produced here. But everything goes out of fashion very quickly."

- *Einstein, writing to his son about the US.*

The purpose of fashion is to stimulate demand. It is a pretty brilliant ploy, really, to compel people who have a perfectly good product to replace it.

The new production methods worked very well for making clothes. In the decades after Crowell's success with continuous production, the textile and garment industry grew about two or three times as rapidly as any other industry. By 1915, in terms of sales, only steel and oil were larger industries than the clothing trade.[24]

"'The way out of overproduction,' wrote one fashion expert, 'must lie in finding out what the woman at the counter is going to want; *make it*; *then* promptly drop it and go on to something else to which fickle fashion is turning her attention.'" Constant change was essential to the prosperity of manufacturers and retailers.[25]

The information economy was rich in symbols used for communication and computing. The genius of fashion is that it made the consumer's goods themselves a symbol, one they would pay dearly to enhance and maintain. In an age that was increasingly democratic, fashion was an important symbol of status, signaling rank. Fashion became fashionable as aristocracies faded.

The Rise of Information Technology

During medieval times, "A letter sent by the emperor from Aachen to Rome would take two months on the way, and a reply would take just as long."[26] This trip from Aachen, Germany to Rome is a journey of about 1,500 km and now takes 14 hours by car, and 14 nanoseconds by email.

The telegraph was the first technology that made communication across a continent about as fast as a shout across the canyon. In 1831, the first practical, coal-burning locomotive was introduced. In 1837, the

[24] Leach, *Land of Desire*, 93.

[25] Leach, *Land of Desire*, 94.

[26] Schulze, States, Nations and Nationalism, 5.

telegraph was first demonstrated and patented, and within about a decade was essential to the railroad. This made the world bigger and more complex.

By the 1850s, "railroads [had] come to employ more accountants and auditors than any government, federal or state."[27] Paperwork was the lifeblood of organizations. In 1868, the "Type-Writer" was patented, and the earliest patent for carbon paper was issued the following year.

The railroad and telegraph were instrumental in uniting a country as broad and sprawling as the United States without resorting to an imperial government. California, now the largest state in terms of population and GDP, did not become a part of the United States until 1850, after the railroad and telegraph were already spreading across the continent.

Two inventions that defined the information economy have their roots in Germany, at the University of Berlin that Wilhelm Humboldt had founded in 1810.

Hermann von Helmholtz was a professor at the University of Berlin. He had done research on sound frequencies and published a paper on his experiments. Alexander Graham Bell (1847-1922) was doing research on hearing and speech and read – but misunderstood - Helmholtz's paper (Bell's German was not very good.) He thought he was struggling to replicate Helmholtz's results but in fact, he was struggling to do something unprecedented: transmit the sound of a human voice down a wire.

In 1875, Bell patented the telephone. In 1885, he founded AT&T.

AT&T was a legal monopoly until the 1980s. One condition the government had for granting this monopoly for the American telephone system was that AT&T would fund research that it would share openly.

Bell was able to invent the telephone working with just one assistant and a couple of investors. That was the invention in the second economy.

By 1947, it was not an individual named Bell but a research laboratory with his name that would create the technology that most defined the third economy.

Knowledge Workers Create IT for Knowledge Workers

Bell Labs – named after AT&T founder Alexander Graham – employed 25,000 employees at its peak, including 3,300 PhDs.[28] Bell Labs was a

[27] Leach, Land of Desire, 282, for this and all other facts in the paragraph.

[28] Time, Jon Gertner, "How Bell Labs Invented the World We Live in Today,"

paragon of knowledge work, a place where people were paid to think. In 1947, the lab produced two innovations that became the paragon of information technology.

The first innovation was conceptual. Claude Shannon coined the word "bit" in an attempt to do something no one had ever done. His was the first attempt to quantify information. With the right pattern, 1 and 0 could be used to describe any letter or number (a combination that would come to be known as a byte). This was interesting.

Then, in that same year, Bell Labs produced another innovation that would – when coupled with Shannon's bit – enable the computer.

Three of its employees would eventually share a Noble Prize for inventing a product Bell Labs thought might might "have far-reaching significance in electronics and electrical communication."[29] The transistor was a simple replacement for the bulky vacuum tubes and given it could easily be turned on or off, it could easily be made to represent a 1 or 0 – a bit.

By the 1960s, multiple transistors were joined together on a computer chip, the heart of a computer. No invention would better define information technology.

Yet even with the advent of this new technology, something was missing. Technological invention alone is rarely enough; to make real gains from the computer chip required social invention, a change in corporate culture.

One of the three co-inventors of the transistor began a company to exploit this new technology.

William Shockley (1910-1989) was co-inventor of the solid-state transistor and literally wrote the book on semiconductors that the first generation of inventers and engineers would use to advance this new technology. He had graduated from the best technical schools in the nation (BS from Cal Tech and PhD from MIT), and was the epitome of the modern knowledge worker.

Shockley hired the best and brightest university graduates to staff his Shockley Semiconductor Laboratory. Yet things were not quite right. It was not technology, intelligence, or money that his company lacked. It was something else.

To answer what it was leads us to the question of why information has so much value.

One of the beliefs of pragmatism is that knowledge has meaning only

March 21, 2012. http://business.time.com/2012/03/21/how-bell-labs-invented-the-world-we-live-in-today/

[29] James Gleick, *The Information* (New York: Pantheon Books, 2011), 3.

in its consequences. This suggests that information has value only if it is acted upon. Information that is stored in secret has no consequences. By contrast, information that informs action needs to be both known and acted upon. The more people who have access to this information and can act on it, the more value it has.

What was missing from Shockley's approach to this brand new technology was a management style that took advantage of an abundance of information. He did not like to give up control or information but that was exactly what this new computer chip he'd helped to invent was perfectly made for. Largely because of this, it was not Shockley who would become a billionaire from computer chips. Instead, it would be a few of his employees.

The Summer of Pocket Protectors

1968 was the kind of year that would have made even today's 24-7 news coverage seem insufficient. In January, the North Vietnamese launched the Tet offensive, making it all the way to the U.S. Embassy in Saigon; this might have been the first indication that those unbeatable Americans could be beaten. Civil rights demonstrations that devolved into deadly riots were the backdrop for Lyndon Johnson's signing of the Civil Rights Act. Martin Luther King, Jr. and Robert Kennedy - iconic figures even in life - were assassinated within months of each other. The musical Hair opened on Broadway and Yale announced that it would begin to admit women. For the first time in history, someone saw the earth from space: astronauts Frank Borman, Jim Lovell, and William Anders became the first humans to see the dark side of the moon and the earth as a whole, an image that transcended differences of borders and even continents. Any one of these stories could have been enough to change modern society. Yet in the midst of all these incredible events, two entrepreneurs quietly began a company that would transform technology and business, a company that would do as much to define Silicon Valley as any other.

Gordon Moore (b. 1929) and Robert Noyce (1927-1990) founded Intel in July 1968. Moore gave his name to "Moore's Law," a prediction that the power of computer chips would double every eighteen months. Here was something akin to the magic of compound interest applied to technology or, more specifically, information processing.

Moore and Noyce had originally worked for Shockley, but they left his laboratory because they did not like his tyrannical management. They then went to work for Fairchild Semiconductor, but left again, because, "Fairchild was steeped in an East Coast, old-fashioned, hierarchical business structure," Noyce said in a 1988 interview. "I never wanted to

be a part of a company like that."[30]

It is worth noting that Moore and Noyce did not leave their former employers because of technology or funding issues. They left because of differences in management philosophy.

Once when I was at Intel, one of the employees asked if I wanted to see the CEO's cubicle. Note that this was an invitation to see his cubicle, not his office. We walked over to a wall that was - like every other wall on the floor - about five feet high, and I was able to look over the wall into an office area complete with pictures of CEO Craig Barrett with people like President Clinton. In most companies, one can quickly discern the hierarchy based on dynamics in a meeting. The level of deference and the ease of winning arguments are pretty clear indicators of who is where in the organizational chart. By contrast, I have never been inside a company where it was more difficult to discern rank than Intel. Depending on the topic, completely different people could be assertive or deferential. One of Intel's values is something like "constructive confrontation," and this certainly played out in more than one meeting I attended. When a company makes investments in the billions, it cannot afford to make a mistake simply because people have quaint notions about respect for authority. Intel's culture seems to do everything to drive facts and reasons ahead of position and formal authority. This egalitarian style probably traces back to its founders rejection of the management style of their former employer, Shockley.

Shockley Labs no longer exists. Intel has a market cap of more than $150 billion.[31] Intel's net profit in the most recent year was over $11 billion, and it employs more than 100,000 people worldwide. Moore and Noyce's open culture made a difference.

Information technology has little value in a culture that hoards information. Information technology makes sense as a means to store, distribute, and give access to information and has value as tool for problem solving and decision-making.

The pioneers of information technology, like Moore and Noyce, understood this and realized - at some level - that it made little or no sense to create hierarchies where information was held and decisions were made at one level and people were merely instructed at another. The knowledge worker needed information technology as a basis for decisions and action. Before 1830, up until the time of the railroad, the information sector of the American workforce was less than 1 percent.[32] By the close of the 20th century, nearly everyone seemed to need

[30] Daniel Gross, ed., *Forbes: Greatest Business Stories of All Time* (New York: John Wiley & Sons, 1996), 251.

[31] This taken from stock quotes at end of 2014.

[32] Beniger, The Control Revolution, 23.

technology for storing and processing information.

By paying double typical wages, Henry Ford created a new generation of consumers for his car. Moore and Noyce did not just help to create information technology; they helped to popularize a management culture that took advantage of this amazing new technology.

On the Far Edge of the Last Continent on Earth

This new information technology did not just allow for a new style of management. It helped to create a new sort of region.

Ex-Shockley employees went on to start about sixty-five different companies in Silicon Valley - a place that was to become the model for a new kind of business ecosystem.

The information economy was never just about technology. Or rather, its technology, like that of the industrial economy before it, forced changes in how people thought, worked, and lived. Technological innovation coincided with social innovation. And some cultures are better prepared for change than others.

Decades ago, a writer at *The Economist* quipped that what America is to the rest of the world, California is to America, and what California is to the rest of the world, the Bay Area is to California. There did seem to be something to the culture in California - the Bay Area in particular - that lent itself to the inventions that allowed it to be the epicenter of recent technological and business change.

It is plausible to draw a line through the free speech and counterculture movements in the Bay Area of California in the 1960s, the EST seminars and Esalen Institute efforts to change consciousness in the 1970s and 1980s, and then the tech boom in the 1980s and 1990s. What all of these movements have in common is a ridiculous amount of optimism about the extent to which individuals can change the world in order to realize their own potential and express their own individuality. I believe the line connecting these things starts with a kind of reinvention of self and ends with a reinvention of organizations and markets.

Steve Jobs embodied various technological and cultural trends and eddies that swirled through the Bay Area. He grew up there and liked to surprise people by saying that one of the two or three most important things he had ever done was drop acid. He dropped out of college and traveled to India to delve deeper into teachings on meditation and intuition. He thought that a computer was like a bicycle for the mind, something that enabled people to be more

productive, creative, and free. IBM's mantra was "Think." Apple's was "Think Different." Knowledge work comes from the mind and any tools – from LSD to meditation to personal computers – that change and enable the mind have the promise of creating value. The Bay Area was perhaps the place in the West where one would be least mocked for mention of a change in consciousness. It seems unsurprising, in retrospect, that it would become host to a tool that informed consciousness.

I do not pretend to know any place as intimately as I do California. My children are fifth-generation Californians and I have lived in four distinct regions within the state. That said, I do not know of another place on the planet where people seem so full of possibility. People have historically come to California to reinvent themselves. Captain Sutter did much to define northern California (it was in Sutter's fort that the gold was discovered that triggered the gold rush of 1849) but he was not actually a captain. So far from his home in Switzerland, he presented himself as a captain to other Californians and was accepted as such. Doctor Marsh was one of the early, defining characters in Los Angeles but, as you might guess, was not actually a doctor. Like Sutter, he came out to California and reinvented himself.

California is where Marion Morrison from Iowa could become John Wayne, or where Norma Mortenson could grow up to become Marilyn Monroe. It is easy to say that Hollywood traffics in illusion, but it reminds us that symbols that have meaning in a culture are not limited to numbers or the alphabet. Lives, too, are symbols, whether they are fictional or real or exist in some hard to define place between the two.

California is also where - for a time in the final decade of the twentieth century, at the end of the third economy - a person could come to invent a new technology, new company, and new market and in the process transform lives everywhere a little bit and transform one's own life incredibly. At the end of the continent, the far edge of the new world, it is a place of invention, and before the stock market bubble burst in 2000, California was "inventing" millionaires at a rate never before seen in all of history.

What happened in the 1990s in Silicon Valley was not just a perfect storm of technological and social invention: it was a culmination of the forces of the third economy, from financial innovations that treated capital as abundant rather than scarce, to changes in how corporations were founded and run, a place run by and for knowledge workers.

The inventions of the third economy include recreational shopping and employee stock options, the MBA degree, and the personal computer. The social inventions that were the most defining, though, were actually

part of larger sets of inventions, and each gets its own chapter. This third economy, and the rise of the knowledge worker within it, fed and was fed by the invention of the modern corporation, the transformation of finance, and a change in thinking. A new, American philosophy of pragmatism was to define the world of the third economy, and it, described in the next chapter, would make sense of all of these twentieth-century changes in ways that Enlightenment thinkers never could.

24 Business Revolution

The corporation is today's dominant institution. What if, like the earlier church, state, and bank, it became a tool for the common person rather than simply using the individual as a tool?

Economy	First	Second	Third	Fourth
Period	1300 – 1700	1700 – 1900	1900 – 2000	2000 ~
Limit to Progress	Land	Capital	Knowledge Workers	Entrepreneurship
Type of Economy	Agricultural	Industrial	Information	Entrepreneurial
Intellectual Revolution	Renaissance	Enlightenment	Pragmatism	Systems Thinking
Big Social Invention	Nation-state	Bank	Corporation	Self
Social Revolution	Religion	Politics	Finance	**Business**

The social revolutions of the first three economies have come to define how we think about religion, politics, and finance. There is a clear difference between Sharia Law in Saudi Arabia and Sudan and secular laws that govern the Netherlands and the US. This difference is a result of the first economy revolution that made religion a private rather than public matter.

There is a very real difference in political freedom in North Korea and Iran and freedom in Germany or France. This is the result of the democratic revolution of the second economy.

It is terribly difficult to get financial credit in countries like Haiti or Chad where financial markets have yet to develop, much less democratize.

Different people around the globe enjoy very real differences in levels of autonomy in regards to religion, politics, and finance, and very real differences in levels of affluence as a result. Freedom in these spheres is both a measure of and means to economic progress. There is one more big revolution remaining and it will change our relationship to the

corporation in the same way that the first three economies changed our relationship to church, state, and bank.

Ask a CEO what sort of community or country they prefer. They will describe a place that gives them the freedom to hire and fire, invest and divest, enter, leave, and create markets, begin or halt product development … all with minimal regulation and oversight. They will describe, in other words, a country that is very different in its relationship to its citizens than their company likely is in relation to its employees. Most CEOs would leave a community that defined, regulated and constrained their role, possibilities, and income as much as they define such things for their employees.

While millions of Americans make more than their president, no employee within a Fortune 500 firm makes more than their CEO. That will change as employees become more entrepreneurial. In the 20th century, the corporation institutionalized innovation, making the creation of new products a regular part of business. In the 21st century, corporations will institutionalize entrepreneurship. They will become vehicles for new equity creation, not just new product launches. This will mean that more employees will have – and take – the opportunity to make more money in any given year than their CEO.

Employees typically work within the system. CEOs define that system. Employees are responsible for creating and making products and providing services. CEOs are responsible for creating equity. What it will mean for employees to become more entrepreneurial is for employees to take on more of the roles typically assigned to the CEO – a person who, it is worth remembering, is also an employee. Each social invention dispersed power from the top. The transformation of business will do the same. People will eventually judge a corporation the same way they do a country. They will want to know how readily it enables its employees to create a desirable life, to pursue something akin to the American dream.

When this happens, it could change a reality that has defined the American economy for decades. Since 1980, big businesses eliminated 4 million jobs and small businesses created 8 million.[33] The general rule is that big existing companies are better at expanding businesses by lowering unit costs by – among other things - automating jobs. New businesses, historically, have been the jobs creators. If employees of these big companies become more entrepreneurial, that could change.

[33] SBA *Small Business Trends*
https://www.sba.gov/offices/headquarters/ocpl/resources/13493

The Recurring Pattern of Dispersing Power and Ownership

Again, the pattern of progress in social invention seems to be this: elites invent an institution able to overcome the new limit to progress. As a result, those elites become rich and powerful. Generations later, power and ownership of those institutions is dispersed. For example, monarchs and their ministers invent the modern nation-state; generations later, democratic revolution makes political policy subject to popular vote rather than the divinely ordained kings. One wave of social change and economic progress comes from the invention of a new, effective institution. The next wave comes from the democratization of that institution.

The West has been transformed by the invention and emergence of the modern corporation in the last century. It will be changed again by its democratization, a transformation most easily defined as the popularization of entrepreneurship.

These great institutions of western civilization are powerful and useful. They give meaning and coherence to life and create value. The corporation provides a parade of new products and income and wealth. It gives us work and a sense of identity. It is an incredibly powerful and positive tool and as more people are able to use it as a tool, it will become more so.

Of all of big institutions – church, state, and bank – the corporation most defines the modern world. Corporate pricing policies for drugs literally determine who can afford to live. (And its R&D and investment policies determine which lives it is *possible* to save.) Its employment practices do a great deal to determine whether individuals live below the poverty level or like kings, and how much time parents have with their children. It designs and produces our houses, clothes, cars, entertainment, and working conditions, and between assignments at work and media content at home, even shapes the content of our thoughts, directing our attention towards one set of issues and away from another, determining not just what topics we think about but how we think about them. The corporation does wonderful things like create wealth, products, services, markets, and jobs. It also does awful things, like pollute the environment, erase local cultures, and define and finance political campaigns. Measured by influence, no institution ranks higher.

The corporation makes communities more powerful. Two countries with identical forms of government, one with corporations and one without, would have very different resources to draw from. Wealth makes a community powerful and jobs and products make them happy.

Corporations create all of these more effectively than any other institution.

The corporation has adapted to globalization, expanding rapidly in a new environment that has made it possible to ship a sweater across the ocean for 3½ cents or a can of beer for a penny.[34] From 1990 to 1998, the number of transnational companies rose from 37,000 to 60,000 and the number of affiliates from 170,000 to 500,000.[35] No *one* government regulates such corporations. The transnational corporation in a very real way transcends national sovereignty.

It is not just that the corporation is powerful. It has become an example – perhaps the example – that changes our expectations of every institution. Politicians promise to run governments more like a business (and with the second Bush administration, for the first time in history the president had an MBA and the vice president was a former CEO). Schools talk about their students and communities as "customers."

During the last half of the nineteenth century, legislators in the United States, the United Kingdom, Germany, and France created the legal frameworks for modern corporations. One of the key legislative innovations of this time was freeing corporations to practice business outside of the confines of their original charters. No longer did corporations have to apply to governments to make changes in business location or products. They were free to change. This advance helped to usher in a new era of corporations that created wealth, jobs, and innovations unprecedented in human history. In this era of accelerating change, government control over business charters made little sense. And of course this made corporations more independent of the nations whose laws had first created them.

There were, however, problems from the start. One of the fundamental problems of corporations is that they separate ownership and management. The heads of corporations are just employees, yet their positions give them power typically associated with owners.

CEOs: The Last of the Monarchs

CEOs are the last monarchs. Within open democratic societies, people can and will malign authorities. George Carlin could say, "I have as

[34] Rose George, Ninety Percent of Everything: inside shipping, the invisible industry that puts clothes on your back, gas in your car, and food on your plate (New York Metropolitan Books, 2013).

[35] John Micklethwait and Adrian Wooldridge, A Future Perfect: The Challenge and Hidden Promise of Globalization (New York: Random House, 2000), xxi.

much authority as the pope, only not as many people believe it," and fear no visit from the Spanish Inquisition. Pundits can say vile things about George Bush or Barack Obama without fear of losing their citizenship. Yet a CEO within a company is unlikely to be openly questioned or confronted by his employees, especially those who wish to keep their jobs. For the most part, even the owners (the investors) of the corporations employing these CEOs have little influence over them. In the last couple of decades, the ratio of CEO pay to that of the average worker has ranged from 200 to 600 times[36] and even that ratio tends to understate differences between CEOs and the average employee in terms of influence over policies and strategies.

CEOs making millions are able to enjoy lifestyles and technologies that Pope Alexander VI or Louis the XIV would have envied. General Electric's former CEO Jack Welch (b. 1935), even in retirement, was showered with perks. GE paid for his New York penthouse, fresh flowers, wine, laundry and dry cleaning services, a cook and wait staff, a housekeeper, country club memberships, tickets to basketball and baseball games, tickets to Wimbledon, and unlimited use of the corporate jet.[37] And the company was subsidizing his life style after already paying him hundreds of millions in salary, stock, and bonuses — nearly $125 million in 2000 alone.

I do not pick on Jack Welch because he was a bad CEO. By all accounts, he was great. GE's stock value soared during his long tenure. Yet let us contrast that with Bill Clinton's (b. 1946) eight years as president. Under Clinton, the American economy performed well on almost every measure. Welch and Clinton might have been comparable executives in terms of success but they were paid quite differently. Clinton made $200,000 a year. (Clinton's pay was not even 1% of Welch's $125 million; Welch's salary in 2000 alone could have paid Clinton for a period nearly equal to the centuries covered in this book.) During the Great Depression, Babe Ruth was asked about making more money than the president makes. He quipped, "Well, I had a better year than he did." Back then, the average ball player made 8% of what the US President made; today, he makes 8X as much. Even a MLB player's *minimum* wage – at $500,000 as of 2014 – is more than the president's pay. Centuries ago, people simply accepted that a head of state deserved enormous income and wealth. Today, we seem to have a similar belief about CEOs.

As important as jobs are to well-being, CEO prosperity is not necessarily

[36] See, for instance, J.S., "The ratio of CEO to worker compensation: Are they worth it?" *The Economist* 8 May 2012. **http://www.economist.com/blogs/graphicdetail/2012/05/ratio-ceo-worker-compensation**

[37] William G. Flanagan, *Dirty Rotten CEOs: How Business Leaders Are Fleecing America* (New York: Citadel Press, 2004), 49–50.

linked to employee prosperity. Former Labor Secretary Robert Reich writes of one CEO he faced on *Nightline* in 1996:

"If 'Chainsaw Al' Dunlap didn't exist, I'd have to invent him. In less than two years as head of Scott Paper, he fired 11,000 employees (one-third of the workforce), slashed the research budget, moved the world headquarters from Philadelphia (where it was founded in 1879) to Boca Raton, Florida (where he has a $1.8 million house), eliminated all corporate gifts to charities, and barred managers from being involved in community affairs. Then he sold what was left of the company to Kimberly-Clark, which promptly announced it would cut 8,000 of the combined companies' workforce and close Scott's new headquarters in Boca Raton. For his labors, Dunlap has just walked off with a cool $100 million."[38]

Al Dunlap's story illustrates how isolated a CEO can be from the misfortunes of his employees. Before each of the big social revolutions in the first three economies, leaders of the dominant institution became isolated from the realities of "the little people." Renaissance popes and Enlightenment-era monarchs lived lives that – in terms of wealth, power, and immunity to misfortune – were very different from those of the average person under their rule. The average Fortune 500 CEO made $10.5 million in 2012, an amount few of his (it is so often his) employees could imagine getting even once, much less annually.

Putting aside the fact that because of their power, CEOs can make money even when they are not worth it (think Ken Lay at Enron), CEOs actually are worth a great deal of money.

A systems approach explains why CEOs make so much more than the average employee does. The CEO is the one employee who is able to look at and interact with the company as a system. Other employees are hired to fill particular roles within that system.

The CEO has a unique perspective on the corporation. Alone among the employees, he deals with the corporation as a system. He's able to target or exit markets, make decisions about how to allocate scarce resources between opportunities to develop the high-end, breakthrough product or rework the product design to lower production costs by 5% a year, or outsource this process while making that other process the basis for the company's competitive advantage. It is the job of clever employees (often scientists and engineers who understand concepts the CEO does not) to find a way to solve the problems inherent in the CEO's new strategy. These employees are working within the system, specialists who pragmatically fill a particular role. The CEO is Beethoven composing the symphony. The employee plays bassoon. The CEO – when he is doing it right – creates enormous value with a single decision.

[38] Robert Reich, *Locked in the Cabinet* (New York: Alfred A. Knopf, 1997), 294.

Put in terms of the fourth economy, the employee is the knowledge worker and the CEO is the entrepreneur.

This, of course, exaggerates the difference between the CEO and the average employee who makes about as much in a year as the CEO makes each calendar day. But it gets to the problem. It is not that the average employee does not have the potential to create value in the same way. It is that the CEO alone has the power to act this way. Employees are hired to design and create products. CEOs design and create businesses.

Martin Luther famously said, "We are all priests." Perhaps the biggest reason he could say this is that the Guttenberg press had broken the church's monopoly on the Bible. Everyone and anyone had access to its secrets and could reason through its stories without dependence on a priest.

What the Guttenberg press did to the church, the internet may do to the corporation. It could devolve power once reserved for the CEO to more and more employees.

It may be that the ratio of CEO pay to that of his average employee simply reflects market realities. It seems more likely that it reflects the power structure within the corporation, the fact that the CEO is the only one given the power to create equity. This pay gap could be less about market realities than the fact that the corporation has yet to be democratized.

The idea of employees making more than senior managers is not unique. On every NFL, NBA, and MLB team, there is at least one player who makes more – often considerably more – than the General Manager. When performance matters, traditions break down.

If CEOs are worth 365X as much as the average employee then we need to redesign the corporation to allow more employees to add this sort of value. It would be silly to enable only one person to add so much value that he was the only one whose fair market value was in the millions. We should want that for dozens – hundreds – of corporate employees.

As employees become more entrepreneurial, they will make more money. It is only about 2% of Americans who make more than their president does and perhaps it will be a similar percentage of Fortune 500 employees who will make more than the CEO will in the fourth economy. Still, that would be about 1,000 employees within the average-sized Fortune 500 Company. That alone would be revolutionary and could do a great deal to ameliorate income inequality, one of this decade's big issues. If corporations become a place that rely on the entrepreneurial skills of employees rather than their place in the org chart as a means for calculating compensation, it could happen. It will never be the case

that employees will all make similar amounts or have similar levels of responsibility. It is clear that there are real differences between people's capacity for leadership,[39] or entrepreneurship just there are differences between people in terms of their capacity to sing, sprint, or paint. But there is a big difference between acknowledging such real differences and letting them fluctuate with market realities and institutionalizing them by putting a C before someone's title.

If it is true that reforms are about correcting abuses of power and revolution is about transferring power, popularizing entrepreneurship is revolutionary. Of course, each of the previous three economies dispersed power from the elites of the dominant institution. There's no reason the fourth economy should be any different.

Inheriting Old Goals: Church, Bank & Corporation

After the nation-state emerged as more powerful than the church, it took centuries for monarchs to let go of the idea that its goal was the same as that of the church. For the longest time, monarchs thought it their obligation to protect the faith of their citizenry. It would have seemed irresponsible not to. "Bloody" Mary used violence to move England towards Catholicism, and her younger half-sister Elizabeth used violence to move it back towards the Church of England. Both felt responsible for protecting the souls of their subjects.

Once the nation-state became a tool for improving one's condition in this life and not the next, once rulers gave up on dictating religion, a great deal of grief was avoided and a great deal of good was done. That is, once they gave up on pursuing the goal of the church and defined and pursued the new goal of the nation-state, they made life better.

It is probably not surprising that the newly dominant institution would think it should prove itself by meeting the goals of the previously dominant institution. It is hard to imagine a Renaissance king dismissing religion as unimportant for policy, saying that he would focus on GDP growth instead. (For one thing, GDP is a measure we did not have until about a century ago.)

The corporation followed the bank just as the nation-state followed the church. And like the nation-state, it initially pursued the goals of the dominant institution whose place it took. Simply put, the corporation's initial purpose was to make money.

[39] Elliot Jacques, Executive Leadership: A Practical Guide to Managing Complexity (Oxford: Blackwell Publishing, 1994).

On the surface, this hardly seems problematic. It is, you might say, a fact of life. But as John Abramson points out, the purpose of pharmaceutical companies is not to maximize the health of Americans; it is, instead, to maximize profits. This is problematic. He cites a World Health Organization study that ranks the US health 15th overall in the world, a ranking that drops to 37th if that ranking adjusts for per person spending on healthcare.[40] This in spite of the fact that US healthcare costs per person are double that of any other developed nation. Maximizing profits does not automatically maximize health.

The former management gurus Peter Drucker and Russell Ackoff both have claimed that profit is to a corporation what oxygen is to a person: vital but by no means its purpose. Companies have to make a profit but they do not have to subordinate everything to it.

Robert Beyster, a man who helped to create billions in wealth, wrote that profit was a clear goal for the divisions within his company SAIC, but the goal was not profit maximization. He acknowledges that being privately held by employees exempted them from many of the pressures that publicly held companies feel to subordinate everything else to profits. (And curiously, SAIC's performance with such an approach was such that any investor would have been lucky to hold its stock. More on this later.)

Profits ought to be the consequence of a more interesting goal of making life better. Not just for customers but for employees. This, in turn, suggests that the corporation could be a tool to enable the individual to create a life of her own choosing, a tool for autonomy.

But it is not just the bank that still informs the design of the corporation.

The medieval church had popes and priests who discerned the will of God and directed the congregants; the modern corporation has CEOs and managers who discern the will of the market and direct the employees. Vision comes from the top and is translated into instruction for those lower in the organization. Vision of the elites is more important than the experience of the masses. The job of the ordinary person is to conform to the vision of those in power.

Worldwide, a ridiculously small number of people are engaged at work. 13% of employees worldwide and 29% in the US and Canada report feeling engaged.[41] It is hard to get excited about someone else's vision.

Job dissatisfaction hardly compares with burning at the stake. In the

[40] John Abramson, MD., *Overdosed America: The Broken Promise of American Medicine* (HarperCollins, New York, NY, 2004) 46.

[41] Steve Crabtree, Gallup, "Worldwide 13% of Employees are Engaged at Work," October 8, 2013, http://www.gallup.com/poll/165269/worldwide-employees-engaged-work.aspx

grand scheme of history, it is a fairly petty and pathetic complaint to be unhappy at work. It is not the Spanish Inquisition. Yet if one cannot enjoy what one does all day - what defines one's life - it makes one question progress up to this point. Is this really the culmination of thousands of generations of genetic and social evolution? To sit in cubicles, feeling disengaged and frustrated? The church did not have to defend misery, because happiness was to be reserved for the next life. Yet the corporation whose ads promise happiness through consumption can hardly be so dismissive of its own employees' happiness. This would further buttress the claim that the transformation of work - what it means to create value and to be valued - is the next personal frontier, the domain for the next great institutional revolution.

A couple of decades ago, I went into one of the Big Three automakers to do some training and consulting work. I left dismayed. The managers were conscientious and the employees seemingly sincere, all good people and yet they seemed more like parents and children than consenting adults. It left me thinking that the traditional distribution of power constrains employees from acting like adults and puts managers into the role of parent. Everyone is made less effective.

The corporation could learn something about needed change by looking at the huge transformation of the church over the last half millennia.

Two big changes to come out of the Protestant Revolution were the entrepreneurial approach to religion and the shift in authority to the individual. These two are inextricably linked.

Religion in the wake of the Protestant Revolution has been wildly entrepreneurial. Luther claimed that we are all priests, and the germ of this idea - the notion that individual revelation and conviction ought to be the root of religious belief - continues to spark new denominations. The World Christian Database now tracks nine thousand denominations.

For all the dismissal of churches as archaic, in terms of freedoms granted, the church may be the most evolved and modern of our institutions. Churches either meet the need of their congregants or the congregants go elsewhere - or nowhere. We have freedom not just across religions, but also within. For instance, two people who both call themselves Catholic can profess and practice very different things.

In America, after each presidential election it seems that about half the population feels dismayed and alienated. This less often happens in the church, where people can easily change affiliations or even personal practices within a particular church.

In consumer markets, the corporation does an incredible job of facilitating choice and freedom. Just think of the variety of choices one has for food, for instance. Do you want prepared food or raw food?

Organic or processed? Indian or BBQ? The consumer has an incredible array of choices for something even as simple as dinner.

By contrast, think of the paucity of freedom that each employee has. The amount of freedom varies across corporations but still the corporation generally defines for the employee everything from processes to dress code. If the consumer has a choice among a cornucopia of foods, the employee, by contrast, has very little choice. The consumer gets to choose among a dozen dishes with ingredients as varied as pork belly and salmon, kale or sweet potatoes, cinnamon or kimchi. The employee essentially can say that she does or does not want fries with that. The lack of choices and freedom of the employee is in stark contrast to the plethora of choices and freedoms of the modern worshipper or consumer.

If the medieval church is a model for the current corporation, we can expect that the post–Protestant Revolution church will be the model for the future corporation - a place of huge variety and freedom.

A great deal will be different in the next version of the corporation, but most of the changes will begin with a shift in the notion of where authority ought to lie: in central authorities or with the individual. This means trusting the individual with true freedom. All the design changes that may occur in the corporation will be meaningless without this profound and important shift.

Overcoming the Limit of the Fourth Economy

The most powerful social inventions help communities to overcome the current limit to progress, not the past limit. The limit now is entrepreneurship and social invention.

Business is the area in which entrepreneurship is most obviously allowed and rewarded. Although we typically think of entrepreneurship as something that happens within markets rather than within companies, a rapidly growing number of corporations have launched venture capital initiatives, business incubators and made their R&D programs more entrepreneurial. Some companies create new products from within and some buy smaller companies and scale up a successful business. Some big companies do create new products and services. Often they acquire and then scale up.

One compelling example of a company that does blur the boundary between running the business and creating a new business is Google. Google has a curious rule that allows them to promote entrepreneurship from within the company: they ask programmers and engineers to devote about one day per week - on average - to pursuing a project of their

own. This is not the classic R&D that managers approve and fund centrally. These are projects conceived and pursued by individuals without going through central boards for approval. This is Google management showing the same kind of confidence in individual initiative as do capitalist governments. Gmail and Google Earth are among the initiatives that began as individual projects.

One of the fascinating things about this is that Google is treating the resource of knowledge workers like venture capitalists do money. That is, Google is using a scarce resource - its programmers and engineers - and investing a portion of their time into new ventures that have a very high probability of failure. This seems like a silly short-term policy. Odds are good that they are just diverting precious attention into projects that will not pay back. Long term, however, this seems brilliant. They need only one spectacular success every five to ten years in order to maintain a growth trajectory that even corporate giants like GM and Microsoft have been unable to sustain. And in truth, Google may not pull this off. What If this meme catches on and many companies try this, we will have more entrepreneurial ventures and as a result will have more products, services, jobs, and wealth created than we otherwise would. It seems a fact that any one venture like this is destined to fail and any larger community that regularly invests in such ventures is destined to thrive.

The important question in the eighteenth and nineteenth century was "how do we create and attract more capital and make it more productive?" At that stage of development, all other advances followed from smart and creative answers to that question.

The important question in the twentieth century was "how do we create and attract more knowledge workers and make them more productive?" At that stage of development, all other advances followed.

Now the question ought to be, "how do we create and attract more entrepreneurs and help them to be more successful?" At this new stage of development, all other advances will follow.

Stages of Wealth Creation

Apple is worth about $650 billion and the Apple store has 1,200,000 apps. This seems to suggest that the greater the number of people vested in your success, the greater your success.

Amazon's market value is about $170 billion. Apple's value is $700 billion. Microsoft's value is about $350 billion.[42]

[42] Market cap as of 10 Feb 2015.

Among the many reasons for such value, one is worth emphasizing.

Bezos at Amazon has created an ecosystem as much as he has created a company. If you were to count each self-published author in addition to more traditional retailers, he has hundreds of thousands of entrepreneurs who use Amazon, people whose drive for success drives Amazon's success. Bezos has created value in no small part by creating a platform for entrepreneurship. He has made it easier for entrepreneurs to try their hand at a new venture or product. Given his square footage is virtual (and nearly infinite) he welcomes everyone who wants to sell in his store.

A similar thing has happened with Apple. Even though Jobs' products epitomized the "closed" system in which software and hardware were all integrated and controlled, he, too, created a platform for the sale of music and apps that gave thousands of entrepreneurs a forum for their products. In addition to the million+ apps, iTunes has a catalog of about 26 million songs. No record store could have ever hoped to offer so much selection. No business could hope to have a greater number of aspiring and established programmers and artists channeling their customers through their store. (Well, no business except the ones – including Apple – who grow from that base in the future.)

Microsoft's operating system was, along with Intel's CPU, a crucial part of the open system that surpassed Apple's hold on the personal computer market back in the 1980s. Part of what fueled the rise of that open system was that thousands of entrepreneurs linked their innovations and hopes to it. Anyone could offer boards, chips, software, and peripherals that worked with Microsoft's operating system and they all hoped to get rich with such products. As with Amazon and Apple, it wasn't just Microsoft who had a vested interest in the success of Microsoft.

This matter of shared success is not limited to the tech world. Sam Walton became rich in part because he thought to make his employees part owners. They pulled with him in his quest to create value and if Sam were still alive today, he would be history's first centa-billionaire. (His heirs are, as of this writing, worth about $140 billion.)

We are already living into the emergence of the fourth economy. The information economy was a place where communities that actively developed knowledge workers surpassed those that did not. In this fourth, entrepreneurial economy, it is the communities that do the most to develop entrepreneurs that will most prosper. And by communities I mean everything from nation-states to neighborhoods to corporations.

Bezos, Jobs, and Gates went beyond the model of shared ownership that typified the stock options and wealth creation of Silicon Valley at its peak. They created ecosystems that gave entrepreneurs

incentive to create wealth - wealth that would only make the ecosystems stronger and more valuable as it was created.

If stage one of more entrepreneurial employees was shared stock with employees and stage two was creating ecosystems in which outside entrepreneurs could create wealth, then stage three may be transforming the corporation itself into an ecosystem in which employees can create such wealth. Why should these metapreneurs only make it easier for people outside of their company to create the wealth that enhances their own? Why should they not make it easier for their own employees to do something similar?

The Internet and the End of the Information Age

It seems likely that the Internet will do for the corporation what the Guttenberg press did for the church. That is, it will break up structures we had always assumed were permanent: it will render temporal what we assumed was timeless.

Ronald Coase won a Nobel Prize in Economics for his work on the firm. The question he asked is, "Why, if markets are so effective, do companies have employees?" The simple answer is that information costs are too high to turn every task into a transaction, making it cheaper to rely on contracts than markets. That is, it is simply too hard to coordinate the work that goes on inside of a company any way other than through job descriptions and assignments. Yet Coase's work was largely done long before the internet as we know it. Information costs have plummeted in the last couple of decades. One consequence of these falling information costs may be a growth in the portion of the economy that is managed by the invisible hand of markets rather than the visible hand of management. Corporations are already tapping this potential to create a growth in market forces within corporations.

What does this mean in practical terms? For now, more work is contracted out. In my work with product development teams over the last couple of decades, probably the most striking change is the portion of work that is done by outside companies rather than internal departments. A pharmaceutical company could have internal experts who manage their clinical trials or they could turn to an outside organization to manage the trials. The outside organization might be initiating trials every week whereas the internal experts might do it only once every year or two. The specialist organization might get more experience in a year than the internal experts get in their career. This is one example of how markets are increasingly replacing normal employee roles with market forces.

Companies can take this to the next level, though. Often, a team within a company solves a particular problem for, say, sharing data with a client or reviewing research literature or creating prototypes. The team is proud and the company is delighted. Their new approach could be 10% or even 50% more cost effective or add that much more value. Sadly, it is – at best – just the rest of the company to benefit from this. And even that does not always happen; the new process or app or technology or approach does not get shared widely. Something that could reduce costs by 10s or percent or result in sales 10s of percent higher. If employees become more entrepreneurial, it suggests that internal departments would market themselves within and outside the company. Imagine the demand for something that makes a company that much more productive.

As it now stands, companies think of the market potential of the product they are developing but generally ignore the market potential of the teams, experts, and processes they use to create that product. How might an employee make more than the CEO in any given year? One way would be to devise a process that other companies and industries are willing to pay for. It is possible for an employee within a company of 1,000 employees to create a process or tool used by a million employees across 1,000 companies. What this would be worth to the company she works for could be a multiple of that company's previous business. It would certainly be worth a multiple of that employee's previous salary.

The internet means that individual employees can more easily enter markets without resorting to the company's internal processes. The walls of the corporation are porous now, and employees can make arrangements to share profit on initiatives that have not even been considered as profit centers. The internet lends itself to self-organizing activity. That is, employees within companies are more able than ever to find and pursue market possibilities. The internet could replace organizational structures. This alone could revolutionize the corporation.

Steve Blank is a Silicon Valley entrepreneur who went on to teach entrepreneurship to students at Berkeley, Stanford, and Columbia, and has defined and popularized a Lean Startup method that has been praised in Harvard Business Review, The New York Times, and the Economist. He recently said,

"Corporate entrepreneurship and innovation will be the next big thing for the next 10 years, and the business school that sets up a program for that will be printing money from executive education and gradating a cadre of MBAs who will be snapped up by large companies that are desperate to reintroduce innovation inside their corporations."[43]

[43] http://poetsandquants.com/2014/08/08/b-schools-miss-the-mark-on-entrepreneurship-again/2/

Corporations have been involved in the popularization of entrepreneurship, but those policies generally do not design these to make the average employee more entrepreneurial.

Corporations like McDonald's and Subway sell franchises which define product and process and provide branding, lowering the risk for entrepreneurs. More recently, sites like Kickstarter have emerged to provide aspiring entrepreneurs capital and feedback on the viability of their project. An average of 325 crowdfunding campaigns start daily.[44]

Corporations are becoming more entrepreneurial in their outlook. "There are more than 1,100 corporations with corporate venture programs and more than 475 of those having been formed since 2010."[45] Google Ventures had $1.6 billion under management and 282 total companies in their portfolio in 2014, including 57 companies they newly funded. Intel Capital had $355 million in 123 investments across 27 countries in 2014. Qualcomm Ventures had investments in 122 companies at the end of 2014.

It is not just tech companies that are moving into this space. Even Coca-Cola and McDonald's are funding startups.[46] Corporations are becoming more creative with their cash.

But such initiatives still make a clear distinction between entrepreneurs and employees.

The vast majority of Americans in the work force are employees. For the most part, corporations are directing their entrepreneurial efforts outside the firm, not inside. The Fortune 500 are – for the most part – not creating jobs.[47] Startups and small companies do. It is the visible hand of management rather than the invisible hand of the market that directs us. For most people, contact with the market is meditated through the corporation and giving employees exposure to markets could make big companies more entrepreneurial.

Our working through large organizations is relatively new. As previously mentioned, the modern, multi-national corporations and large government agencies that employ us did not exist 150 years ago. During the information economy, we became organizational men and women.

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[44] http://www.entrepreneur.com/article/234426

[45] Venture Beat, Business Wire, "Corporate Venture and Innovation Initiative (CVI2), J Thelander Consulting Release Most Comprehensive Corporate Venture Capital (CVC) Compensation Report, September 25, 2014, http://venturebeat.com/2014/09/25/corporate-venture-innovation-initiative-cvi%C2%B2-j-thelander-consulting-release-most-comprehensive-corporate-venture-capital-cvc-compensation-report/

[46] Tech Crunch, Ron Miller, "Coca-Cola Hopes its Startup Incubator is the Real Thing," November 10, 2014. http://techcrunch.com/2014/11/10/coca-cola-hopes-its-startup-incubator-is-the-real-thing/

[47] Clifton, *The Coming Jobs War,* Location 321.

From 1800 to 2000, the percentage of the workforce who worked as employees rose from 20 to 90 percent. By 2000, 50 percent of employees worked in an organization with 500 or more employees. In 1800, none did.48

National policies that support and encourage entrepreneurship make a big difference. Corporate policies that support and encourage entrepreneurship could make an even bigger difference.

Examples of What Could Be

Fortunately, there are some really dramatic examples of what is possible when corporations focus on making employees more entrepreneurial.

If you had watched people working on a factory floor at Ricardo Semler's (b. 1959) Semco, you might think they were all the same. In fact, he had people working side by side under 11 different arrangements.[49] Some were working for a salary and some for an hourly wage. Some were paid for piecework and some were actually leasing equipment from him, making and selling products they sold themselves. He gave his employees autonomy to negotiate roles and gave employees the opportunity to be entrepreneurial.

Policies that give people autonomy and encourage entrepreneurship are effective, whether at the level of country or company. When Semler took over in 1982, Semco had 90 employees and sales of $2 million. By 2003, Semco had 3,000 employees and sales of $212 million. That works out to compound growth of 25% over 20 years.

There are examples closer to home.

"Much of our business culture is infatuated with power - amassing it, holding on to it, using it to vanquish competitors and dominate markets. In contrast, much of Dr. Beyster's leadership philosophy is about spreading freedom. And freedom, it turns out, packs a bigger wallop than power. Power is about what you can control; freedom is about what you can unleash."
—William C. Taylor

Curiously, SAIC founder Robert Beyster (1924-2014) received far less attention than CEOs like Howard Schultz of Starbucks or Jeffrey Immelt

48 Perrow, Organizing America, p. 1.

49 Ricardo Semler is the author of Maverick, but this tidbit was shared at the 2011 WorldBlu conference on organizational democracy.

of GE. Perhaps the big reason he received less attention is because his company was employee-owned rather than traded publically. In any case, it is unfortunate because Beyster attained stunning results by blurring the boundaries between the role of employee and entrepreneur.

Robert Beyster articulated a key challenge to his company as being the recruitment, retention, and reward of entrepreneurial employees who are also team players. For Beyster, this was not mere rhetoric. He built a company that had reached the level of hundreds of operating divisions, forty-four thousand employees, and $6.7 billion in sales by the time he retired.[50] By sharing stock, he made millionaires out of hundreds of employees. He retained only 1.3 percent of the company - an amount still worth about $100 million when he retired. SAIC's top management operated more like venture capitalists than a strategic management team anxious to impose strategic and process discipline onto lower-level managers. Market and project success were their own consequences, and shared equity helped to align the interests of shareholders, management, and employees towards the natural consequences of business success. What's more, SAIC shareholders were the employees (and vice versa). Using an internal market for share trading, only SAIC employees, directors, and consultants could own shares. (This changed shortly after Beyster retired.)

Few leaders have done as much as Beyster to make explicit the fact that at the close of the third economy, it is the knowledge workers employed by corporations who are the real investors. Even in a post information economy, capital is more abundant than knowledge workers A man who buys a machine or builds a factory line and then hires workers to come work on those machines has a very different relationship towards his employees than the man who depends on the mind of his employees for capital. Bill Gates once said, "My capital walks in and out of the office every day."

Beyster's strategy worked. From the time that Beyster founded the company to when he retired, revenues and profits had grown an average of 35 percent per year for thirty-five years, an amazing feat of business growth. It was not until his thirty-second year at SAIC that he failed to increase both revenues and profits over the previous year.

In his book, *The SAIC Solution*, Beyster in a sense compares himself to Edison. Or, more accurately, compares his employees to Edison. Instead of experimenting with light bulbs and batteries, SAIC's employees experimented with their organization - adding a new location here, reorganizing a division there - and with its programs, projects, and methods. While other companies worried about maintaining stability

[50] Founder of SAIC steps down from his position as chairman" *The San Diego Union-Tribune*, Saturday July 17, 2004, p. C-1. Numbers reported for the fiscal year ended in January 2004.

across existing lines of business, SAIC's technical managers were experimenting with new ones.[51]

This is one of the simplest examples of social invention becoming as important as technological invention. (And this is not to say that SAIC employees do not generate lots of patents and do their share of technological invention. It is merely to point out that reliance on technological innovation alone is not enough for this level of success.)

This sort of organizational innovation does not depend on hiring scientists and engineers. Leadership can do this with blue-collar workers as well.

Jack Stack at SRC in Missouri used different tactics but had a similar goal. Stack has had impressive business success focusing on teaching his employees The Great Game of Business.[52] Like Beyster and Semler, he made it possible for his employees to be entrepreneurial.

Stack was managing one of International Harvester's factories in 1983 when a recession prompted International Harvester to shut down the plant. He was able to find a loan to keep the plant running and quickly adopted an open-book approach to management. The goal was to unleash the entrepreneur within every employee.

SRC trains all employees on business realities, teaching them how to read balance sheets and profit and loss statements and then makes these numbers transparent to employees. Employees know how their own numbers affects the business and SRC ties bonuses to achieving aggressive goals. Employees get half of the profit made above and beyond the goals. This understanding of business gives employees new abilities. Employees can also propose deals to the company as if they were presenting to a bank or venture capitalist, going on to start businesses that are sometimes related to the current business and sometimes not. They have not just played the role of employee. They have learned how to run a business, to become entrepreneurs.

Once again, some remarkable results come from engaging employees in this "great game of business." Between 1983 and 2011, SRC had created 60-some new companies. As of 2011, they had gone 27 years without layoffs and paid $50 million in bonuses.

Had you invested $1,000 in 1983, by 2011 your returns would have been:

[51] J. Robert Beyster with Peter Economy, *The SAIC Solution: How We Built an $8 billion Employee-Owned Technology Company* (Hoboken, N.J.: John Wiley & Sons, 2007), 138.

[52] Jack Stack, with Bo Burlingham, The Great Game of Business: Unlocking the Power and Profitability of Open-Book Management (Currency Doubleday, New York, NY, 1992)

- $13,000 had you invested in the S&P 500,
- $87,000 if you had invested in Warren Buffet's Berkshire Hathaway, and
- $2,000,000 had you invested in SRC.

Bill Gross is perhaps the most persistent visionary in the space of business incubators. Business incubators may not become as important as corporations (or, more to the point, become the new model for the corporation). It seems clear, though, that the skills developed by creators of business incubators will become crucial to the success of a new kind of corporation.

Bill Gross has given himself an absurd task. He has created a company that creates companies. In this his work will be a model more often emulated in the future.

Idealab has launched 125 startups since it was founded in 1996 and 40 have made it to IPO or acquisition. Gross believes that having various companies on one floor promotes learning, allowing different ventures to share learning and resources. Gross now focuses ventures on opportunities in Internet, energy, and social change markets.

One of his latest idesa, IdeaMarket, plans to create a platform that will essentially do what he has been doing. His goal is to create a million startups. Gross is not waiting for policy changes or corporate revolution to popularize entrepreneurship.

Trese examples from Ricardo Semler, Robert Beyster Jack Stack, and Bill Gross seem worth exploring. If you are reading this book, you likely know of other examples. What these examples suggest is that the the biggest waste inside of companies is the waste of their employees' potential, waste created in no small part by limiting their role and compensation to something defined by others.

Why Corporations Could Get Higher Returns Than VCs

Daniel Kahneman is the only psychology professor to have won a Nobel Prize in Economics. His studies with Adam Tversky on how people value things is one of the reasons. They suggest something counter-intuitive about risk.

In one study,[53] Kahneman ran a few scenarios with coffee mugs from a

[53] Daniel Kahneman, Thinking Fast and Slow, [Farrar, Straus and Giroux, New York, NY, 2011], pp. 292-7.

person's alma mater. In one scenario, he gave people the mug and let them "take ownership" before offering to buy it back from them. In the other study, he let people buy the mug that was not yet in their possession. On the surface, you would think that they would value the mug the same way in both instances, but they didn't. He had to pay, on average, $7 and some change to buy the mugs back from people. By contrast, he had to sell the mug for about $3 and change to get them to buy when they did not already own it. Kahneman's conclusion was that people put a higher price on loss than they do gain. It is more painful to lose what you have than never get something comparable. He had to pay people twice as much to give up their mugs as they were willing to pay to buy them.

This makes sense. You might feel the pang of a relationship that fails to materialize but that is nowhere near as devastating as a divorce. Not getting the job is rarely as painful as being laid off. Loss is painful and we put a premium on avoiding the loss of valuable things.

This is one reason that Warren Buffet is worth so much. He sells insurance. People pay a premium to avoid loss. Richard Thaler discovered that people would not pay more than $200 to avoid the 1 in 1,000 chance of immediate death, which suggests they value this added probability about the same as a smart phone. But if you offer to pay someone to accept 1 in 1,000 odds of immediate death, they refuse it even for $50,000.[54]

Just to be clear on this oddly paradoxical approach to risk, here are the scenarios.

Scenario 1: You have a choice between two pills to cure what ails you. The $1 pill has a one in a 1,000 chance of killing you immediately. The premium pill eliminates this chance. How much extra will you pay for the premium pill?

Research suggests that the average person will not pay more than $200 for the premium pill.

Scenario 2: You are offered pay to be in a research study, testing the $1 pill that carries a one in a 1,000 chance of killing you immediately. How much will you demand to take this risk?

Again, research suggests that the average person will not do it even for $50,000.

Oddly, this does not result from a difference in the probability of death: in both cases, it is one in 1,000. These two scenarios offer the exact same risk, the exact same chance of death. One measures how little you are willing to lose to avoid the risk and the other measures how much you have to gain to accept the risk. The pain of loss is much

[54] Bernstein, *Capital Ideas Evolving*, p. 15.

greater than the allure of gain. We do not feel so bad about losing out on big gains but we desperately try to avoid even small losses.

These differences in how we value risk help to explain why the derivatives, junk bond and futures markets are worth trillions. Smart investors will buy risk from people at a discount. Now that would just be interesting if it were not for something really fascinating that it suggest about how corporations could use behavioral psychology and the popularization of entrepreneurship to earn returns that venture capitalists would envy.

The prime candidates for entrepreneurial ventures are actually people in their 30s and 40s. Their startups are less likely to fail and reasonably so. They have more experience than people in their 20s and more drive than people in their 50s. They have learned about processes, products and people and typically know at least one industry reasonably well. But they have one major disadvantage in comparison to the twenty-something crowd: they have so much to lose.

Imagine a 40 year old who has been in the industry – any industry – long enough to have a potentially lucrative idea. He knows a cheaper way to make an old product or has an idea for an innovative new product or how to create a new market. He also knows that executing this idea will require capital. And leaving his job. And working at risk for at least a year – more often 3 to 7 years. It is not hard to imagine that at 40, he has been married for 10 or 12 years. His children are 9 and 7 and he has a small amount saved for their college. He is 8 years into his 30-year mortgage. He is 10 years into his job and now gets 4 weeks of vacation and is fully vested in the 401(k), which is just starting to seem sizable – but still not enough for retirement. The man has a lot to lose. Most importantly, he puts more weight on the cost of losing all that than he does on the potential gain from his entrepreneurial venture.

The twenty-five year old, by contrast, has almost nothing to lose. For this reason alone, she might be the better candidate for entrepreneurship.

If Kahneman's studies are right, our 40 year old values what he has now vs. what he could have at a rate of about 2 to 1. If Thaler is right, he values it at a rate of at least 250 to 1. In any case, the emotional cost of losing what he already has is great. He would be sick to wake up at 47 with no 401(k), no business, no money for college for his 16 and 14 year old children, and no equity in his home. The prospect of this is more terrifying than the hope of waking up at 47 to a net worth of $5 or 10 million and the expectation of doubling that every 2 to 5 years. His preference for the second scenario is not as great as his desire to avoid the first. Loss is more sharply felt than gain.

This suggests that corporations have a great deal to make by offering

entrepreneurial opportunities to their employees. Countless employees who could be great entrepreneurs shy away from the prospect because they have something to lose. What a corporation would have to offer as a percentage of returns would be less – perhaps considerably less – than what a venture capitalist or traditional banker would have to offer. A successful venture could return considerably more to the corporation than it might to the venture capitalists simply because the employee as entrepreneur would have so much less to lose than the employee who leaves his job to become an entrepreneur.

An Entrepreneurial Model for Product and Business Development

"If I were asked to stand on one leg, like Hillel, and summarize my reading of centuries of wise reflection on what is required of an environment for it to facilitate the growth of its members, I would say that people grow best where they continually experience an ingenious blend of support and challenge; the rest is commentary. Environments that are weighted too heavily in the direction of challenge without adequate support are toxic; they promote defensiveness and constriction. Those weighted too heavily toward support without adequate challenge are ultimately boring; they promote devitalization. Both kinds of imbalance lead to withdrawal or dissociation from the context. In contrast, the balance of support and challenge leads to vital engagement."
Robert Kegan[55]

On more than one occasion I have found myself inside of a company working with a team of technical experts who are planning the development of a fairly complex new product and there is a disconnect between their perception and senior managers' expectations. Senior managers might think the product could launch in a year while the team thinks it will be more like two years, for instance. Or 95% of the team is focused on technical features and one introvert on the team is wringing her hands because the human factors suggest to her that people won't want to switch over to this new product because of a design flaw. Such gaps in perception are dangerous because senior managers invest the money.

This problem has its roots in organizational design, the allocation of power. One of the Soviet Union's major flaws was that experts who were

[55] Robert Kegan, *In Over Our Heads: The Mental Demands of Modern Life* [Harvard University Press, Cambridge, MA, 1994] p. 42.

more interested in technology than its market acceptance planned investments. A similar flaw seems to pervade corporations. Within corporations, the wisdom of the team generally has no good way to express itself.

Product development is inherently complex and there is no good way for just a few people in positions of power to fully understand it. You might hope that employees would step up to point out issues and they do. Sometimes. They might also hesitate to be so honest if blowing the whistle on a key problem results in the project being cancelled, jeopardizing the team's employment.

Product development is ripe with risk. Promising technology can fail to deliver. Given that some products are dependent on so many different technologies, it is worth remembering that it takes an unexpected failure in just one technology to drive serious delays, compromises or overruns. Debugging critical software can take longer than planned, resulting in a product offering that has missed the market by the time it launches. A key supplier can change terms, driving up costs to the point that the cost of goods sold wipes out projected profits. And, of course, the internal dynamics of the team itself can mask dysfunction until the project blows up.

Maybe the most subtle risk of all is that the team focuses on technical features without really appreciating what will drive sales. For decades, knowledge workers have pragmatically focused on their area of specialty. Pragmatism is not systems thinking. Focusing on your part does not guarantee the success of the whole. Knowledge workers are more focused on making the product "work" than enhancing market value. Employees do their job. Senior management directs them towards projects that create market value. This division of labor leaves a lot of potential untapped. What is needed are practical ways to disperse this management power to the average employee, a business echo of Martin Luther's "We are all priests."

There are alternatives.

For instance, leaders serious about making more employees more entrepreneurial could kickstart their corporation, adopting a model for product development that looks more like an episode of Shark Tank than the release of the Soviet's 5-year plan.

Imagine that rather than senior managers making funding decisions about which products to pursue, they relied on the wisdom of the crowd. More specifically, had organizations take their lead from employees whose willingness to invest - or not - would signal the new product's potential.

Imagine that anyone in the organization - from a brilliant CEO like Elon Musk to an introverted IT expert like Maurice Moss - could make

presentations to the organization proposing a development project.

The very first limit to success with this would likely be education on topics like net present value, market analysis, assessment of technology risk, creating credible schedules, and building teams. To disperse the power over decisions about where to invest would drive widespread education of business principles to knowledge workers who might know more about C+ than Profit and Loss.

Also, having employees present business plans to their peers would force people throughout the organization to think more entrepreneurially. Their plan would have to conclude in an equity event of some kind – spinning this new venture off into its own business or letting the larger company (or even a different company) acquire it. This would further the conversation from "We think this has potential" to defining the business with as much precision as the technology, taking entrepreneurship as seriously as innovation.

Even better, it would force employees out of neatly defined roles into something more comprehensive, like the role of a CEO or entrepreneur. It would facilitate the transition from knowledge worker to entrepreneur.

It would also further the trend towards the democratization of finance. Imagine that a portion (5%? 33%?) of every employee's 401(k) fund had to be invested in either the company's stock or in specific R&D projects. If you work for IBM now, investing in the company's stock means investing in the efforts of 400,000 people and who knows how many projects. Letting employees invest in specific ventures within the company would offer the engagement of a fantasy league but with actual consequences. It would give employees the chance to get in on the start of lucrative projects.

This matters because the revolution of the third economy resulted in everyday employees – and not just elites – becoming the investors who drive markets. Collectively, American workers "control" $6 trillion in stocks through pension and 401(k) funds. Directing a portion of these funds into projects employees were involved in would help to shift ownership to the folks providing the intellectual capital. And it would change their relationship to the creation of equity from passive to active.

Employees could also invest more than financial capital. They might sign on to work the project, perhaps even bidding for equity shares in return for roles. It is conceivable that an employee might contribute 2 Saturdays a month during a crunch period in return for a fraction of the future profits. Or define design features or even patents that would award the employee some portion of future profits. Willingness to invest money or time would be a signal that employees were optimistic about the profit potential of the product.

Employees have a wealth of information on complex issues, from the

technical limitations of further miniaturizing a transistor to the practical problems of outsourcing to Bangalore to the personality flaws of a technical lead. For now, organizations have no great way to incorporate those considerations into investment decisions.

Employees on the ground, able to investigate these sorts of issues could buy or sell shares of a project in the same way that you and I now buy or sell shares of a company. It would be the opportunity to invest in promising startups within the company, giving employees the chance to get lucrative returns. It would also create valuable feedback for management.

Management could follow the lead of employee investments. Whether it was matching dollar for dollar or even $100 for $1, the decisions by management about where to invest and what teams to assemble could follow the lead of the wisdom of employees. (Management, too, would be "voting" with actual investment dollars from their personal portfolios.)

Maybe the most important change in this would be the shift from the project team focusing on whether the product will "work" to whether it will sell. Specialists generally worry about how to make a product work. Entrepreneurs worry about how to sell it. The sooner market realities are incorporate into the design of a new product, the better its chances of success.

People could negotiate with project management teams for different terms. When the team was limited by particular specialists, those specialists would have more negotiating advantage and be able to get higher returns. This sort of natural market signal would direct hiring, training, and re-allocation of scarce resources from potentially less lucrative projects.

Given that they will have the option to invest their labor or capital, employees will have much greater influence over the company. More importantly, they will have much greater influence over their own work and lives. It would help to shift the locus of control from management to employees.

In practice, the result of this would be that employees would have greater risk and return than traditional employees but less than traditional entrepreneurs. The firm gets the benefit of the wisdom of crowds to help shape their investments and – one expects – more entrepreneurial ventures.

Imagine that the result would be that R&D funds were more strategically allocated, based on richer and more nuanced understandings than any senior managers might have. And imagine, too, that such proposals would occasionally make certain teams or team members rich. Perhaps even give some internal entrepreneurs more money than the CEO. This could not only give employees more control over their retirement, but

it would give a company a way to become "a land of opportunity," where employees could hope to get rich.

Imagine that such mechanisms would help to popularize entrepreneurship, help to distribute income and wealth more broadly throughout the organization and - at the same time - create more total wealth and income.

Whether it would make employees the equivalent of venture capitalists or make R&D funding more like a Kickstarter campaign would likely depend on the culture and specifics of the process defined within any company. In either case, it would promise a less centralized, more market-driven model than what we have now.

Finally, imagine that this is just one of the more obvious ways that employees become more entrepreneurial.

The Popularization of Entrepreneurship

Entrepreneurs become entrepreneurs for one simple reason: to be free. If you give that up, then you stop being an entrepreneur, and to hell with that.

- *Wilson Harrell, founder of over 100 companies and former publisher of Inc. Magazine*

The goal of the fourth economy could be to make more people more entrepreneurial. Some employees will leave the corporation to start their own company. Some will create equity from within the corporation as more companies become more like business incubators. And some employees will simply have more choice about how to work and where to invest their time and pensions, shifting some portion of their pay into effort that includes more risk and reward.

Robert Fairlie at the University of California at Santa Cruz studies entrepreneurship on behalf of the Kauffman Foundation. Fairlie estimates that business formation among American adults was about 280 out of every 100,000 in 2013.[56] That works out to about 476,000 new business owners every month of 2013. That can compound fairly quickly when those businesses grow and thrive. But think about what these numbers mean. If the rate of entrepreneurship was increased to 1% - 1,000 out of every 100,000 American adults – think what a huge difference that could make in terms of job and wealth creation. Think about what it could mean to up this rate from 0.28% to 2.8%. The point is we do not need everyone to become entrepreneurs in order to see a real

[56] Kauffman Index of Entrepreneurial Activity, 1996-2013, Robert W. Fairlie, University of California at Santa Cruz, Economics Department. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2424834

change in economic performance and the job market. In such a scenario, our problem in the West would not be creating enough jobs. Our problem would be finding enough employees. And for most of the West, that would be different from the reality today. Among other things, such a reality would make it even more important for corporations to design work with as much care as they now design products. In such an environment, the new challenge would be creating jobs that great employees want; when entrepreneurship is popularized, the employees will create the products that customers want. With progress, everybody moves up a level.

Work is more fun than fun.
- *Noel Coward*

In *Reality is Broken*, Jane McGonigal explores why video games can be so engaging and what that suggests about the design of work and learning. Each week, people spend 3 billion hours gaming. No one pays them to do this. In fact, they pay to do this. In 2014, the revenue from mobile gaming alone was nearly as much as the revenue from cinema, $9 billion in mobile gaming to movies $10 billion.

Games have four defining characteristics. They have a goal, rules, a feedback system, and voluntary participation. If you don't have the goal of getting the ball into the hoop, basketball can quickly becoming aimless and boring. The scoreboard is feedback that can animate or deflate a team. The more fierce the competition, the more emphasis on rules; NFL commentators during a game seem to spend as much time predicting the referee's call as they do the quarterback's. And games are something we can choose to play. Or not.

In regards to voluntary participation, the church is more evolved than the corporation is. The pope continues to defend an opposition to contraceptives but in the West, Catholics simply ignore him the way you do your misinformed uncle at Thanksgiving. Not only are we free to not be Catholic but even Catholics are free to ignore particular church teachings. Post-inquisition, the Catholic Church has no good way to enforce process conformity. Corporations, though, do. Imagine work as evolved as religion, a place where people have as much freedom in the role of producers as they do in the role of consumers.

Corporate leaders have found ways to design engaging products. An iPhone, Starbucks store or PlayStation gives us consumers a dopamine rush. Many companies have greatly expanded their user experience (UX) groups to better understand how products create such a response. To successfully design a product that we find engaging is to create a millions – even billions – in value. Successfully appealing to us as consumers is essential for success.

In the fourth economy, corporate leaders will find a way to design engaging work. Some tasks engage us, calling out what is best in us, while some tasks just make our eyes glaze over. The companies that decode the design of engaging work in the same way that Apple did the design of engaging products will become the newly dominant companies. Gallup is now tracking engagement at work just as they do optimism about the economy or presidential approval. In early 2015, it is running about 30%.[57] 70% unemployment would be disastrous. Perhaps in a few decades we will look at 70% disengagement with as much horror.

One huge advantage that work has over games is that it can provide meaning. Csikszentmihalyi first spent decades researching flow. It is now a part of everyday conversation. People understand the importance of being engaged to the point that they lose track of time and are no longer self-conscious. It makes us happy. But Csikszentmihalyi's less known book is *Evolving Self*. This is about creating meaning. At the moment we experience flow, there is little difference between playing a video game and performing surgery that saves a life. *After* that moment of flow, there is a very real difference. The ideal is to experience flow while doing something that matters. Markets direct our attention towards creating value for other people, which has the potential to give our lives meaning, letting us point to value we have created.

Happiness comes from tasks that we are intrinsically motivated to do. Intrinsic motivation means that we have the locus of control, that we are doing something because of our own drives and motivations and not those of others. Intrinsic motivation might be the height of autonomy. But following our own bliss is not the same as ignoring others, whether the needs of others are expressed through friendship, love, markets, charity, or connection. The research McGonigal has looked at tells her that intrinsic rewards come from a combination of satisfying work, the experience or hope of being successful, social connection, and meaning. Entrepreneurial efforts that expand the intersection of what we enjoying doing with what other enjoy getting seems like a delightful way to realize each of these.

The revolutions of the first three economies have already changed religion, politics, and finance. Now, the fourth economy will change work in the same way, making it something personal. Imagine choosing a corporation the way you might choose a gaming console. Imagine that people use corporations as tools that enable to them to create value and find meaning. Once people have a few creature comforts, they are likely to seek engaging goals that make them happy. Probably few people will feel as unimpressed with new found wealth as video game designer

[57] Gallup Daily: US Employee Engagement, http://www.gallup.com/poll/180404/gallup-daily-employee-engagement.aspx

Jonathon Blow, who referred to getting rich as "having a big high score in my bank account," saying that wasn't interesting to him because money is just a tool.[58] We can conceive of tasks as engaging as games, tasks that let us run up the "big high score" in a our bank account. We can conceive of this. The question is, which corporate leaders will make it a goal to design such work?

The invention and reinvention of institutions has created our modern world. But it is worth remembering Blow's insight that money – like every other institution – is just a tool. Now, the question is what you are going to use those tools to create.

Turn the page. The next chapter, about the eclipse of the corporation by the individual, is quite personal.

[58] Taylor Clark, The Atlantic, "The Most Dangerous Gamer," Apr 2 2012.

The Author

Working as a business consultant for Franklin-Covey and ProChain Solutions, Inc., Ron Davison has worked with some of the world's largest and best-performing corporations (and a couple of not so great performing companies). For Covey, Ron had the good fortune to lead the *7 Habits of Highly Effective People* and *Principle Centered Leadership* seminars. With ProChain, Ron works with project teams inside of Fortune 500 firms and startups to accelerate their development of new products as varied as diapers, computer chips, pharmaceuticals, and stents.

Ron has hosted a radio show, taught macroeconomics, was part of the organization to first host a trade show featuring American companies in Hanoi, and spoken in a variety of venues that include systems thinking conferences and Deming User Groups. Ron has previously created *A Change in Thinking*, a video on systems thinking.

The Fourth Economy: Inventing Western Civilization is his most audacious attempt yet to make this a better world before he is done enjoying it.

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