

CATALYST

LEADERSHIP AND STRATEGY IN A CHANGING WORLD

CHAPTER 1

HOW CHANGE WORKS

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GRAYLINE®

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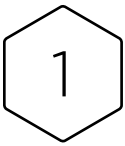
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HOW CHANGE WORKS

Change occurs in steps—long periods of incremental improvement followed by short periods of transformation that results in a new paradigm. The specific frequency of these steps differs across industries, but it is universally true throughout all industries that the time between these steps is shrinking. Technology is the primary driver for this acceleration, and globalization has created an environment where the horizontal impacts of these paradigm shifts are broader than ever before. Historically, large organizations are not adept at predicting or adapting to transformational change.

Change does not occur in a linear fashion. When we map out the evolution of an industry, region, or social system, we do not see slow and steady progress with evenly spaced technological, geopolitical, and socioeconomic developments. Rather, we see that change moves in steps. We start with an existing paradigm, then experience a period of incremental improvements, followed by an extremely important period of condensed activity that results in a leap into a new paradigm.

The energy industry, for example, has evolved slowly over

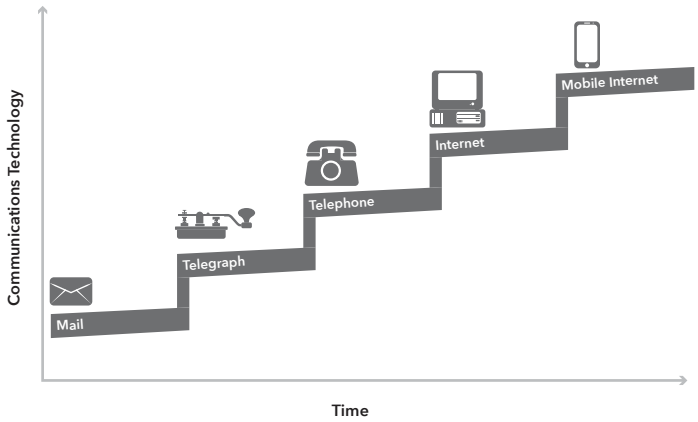
time, but each shift has changed the world. Wind was the primary transportation energy source for thousands of years. The change in primary naval locomotion from sail to steam was so important and pervasive that it literally changed the map as lumber plantations were replaced by island coal depots as strategic outstations around the world. The transition from steam to oil occurred after around 150 years and similarly reshaped the strategic and economic map of the world as oil producers replaced coal mines and coaling stations in strategic importance. We are around a hundred years into the age of oil, and the maturation of solar, wind, and energy storage technologies leads us to believe that we are approaching the next paradigm shift in the energy industry, which could have as significant of a global impact as the transition from coal to oil.

Communications technology provides us with another example to illustrate how change moves in steps. The Pony Express operated in 1859, arguably representing the pinnacle of a long series of incremental improvements to letter-delivery technology. Seventeen years later, a patent for the telephone was issued to Alexander Graham Bell, which provided near-instantaneous, one-way delivery of messages and changed the world. Business, diplomacy, military strategy, and family life all changed when the world shifted from mail to telegraph. Incremental improvements over time led to better performance and

wider adoption, and while these enhancements benefited people's lives, they did not upend industries until the next major inflection point—the telephone—which again transformed global economic and political systems.

CHANGE AS A STEP FUNCTION

KEY TECHNOLOGIES THAT CHANGED GLOBAL COMMUNICATIONS

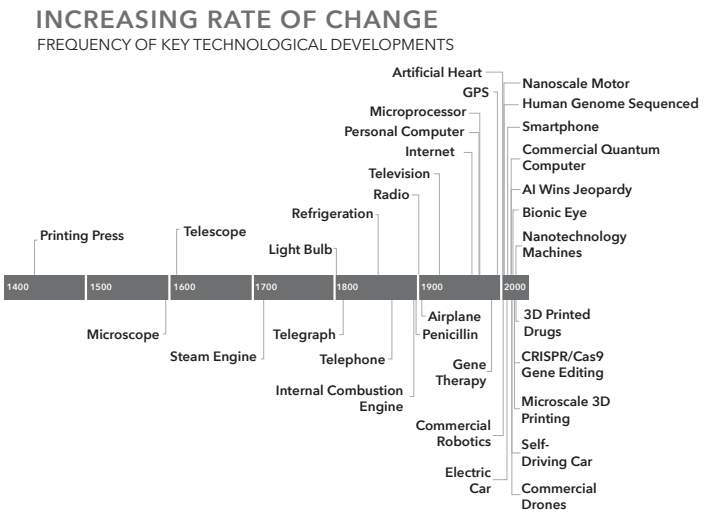


Conversely, many markets experience these transformations on far shorter timelines. The grocery business in the United States, for example, has shifted from farmers' markets, to the small-town grocery store, to the big-box supermarket, to the emerging blend of specialty plus online in the last one hundred years. Live media has similarly shifted from radio, to television, to online, to mobile. All markets evolve in shifts, albeit on different timelines. The inflection points that mark these shifts are extremely important for business and public sector leaders to understand.

SHORTENING CYCLES OF CHANGE

The pace of change is accelerating, which is shortening the cycle time between market shifts. This is happening for two primary reasons: technology and globalization.

The digital revolution, and, before that, the Industrial Revolution, created tools and systems that self-propagate, enabling faster and faster technological development. Generally speaking, existing technology has always provided the foundation for the next new generation of technologies. Computers have significantly accelerated this dynamic because, with computers, we have created not just a knowledge base to build on, but toolsets that accelerate the development of subsequent generations of technologies in all fields.

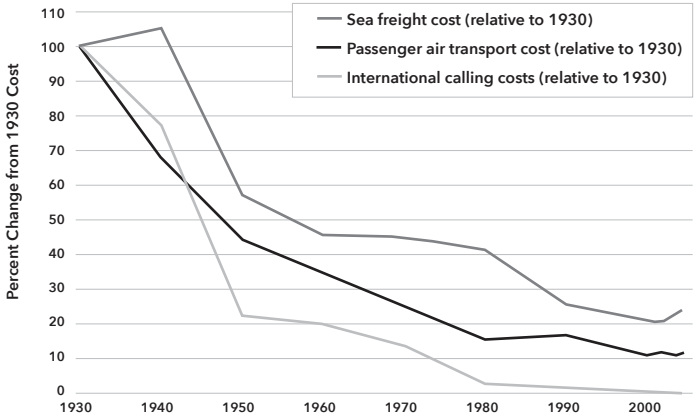


At its core, globalization is a movement toward more and more interconnectivity between markets. The greater the connection between peoples, countries, and global markets, the faster the diffusion of innovation through the global system.

Interconnected supply chains and globally specialized companies and, in some cases, countries have created a different environment than humanity has ever operated in. This provides great efficiencies for companies, as they are able to source components globally and sell into international markets. But while companies and nations share in the positive, global interconnectivity creates and magnifies risk. A disruption in one market has global spillover effects to an extent that had never before been possible. The financial crisis of 2008 provides us with a remarkable illustration of this truism, as a disruption to the American real estate market affected everything from Chinese manufacturing employment to worldwide oil prices.

GLOBAL CONNECTIVITY

REAL TRANSPORT AND COMMUNICATION COSTS, RELATIVE TO 1930



Source: Jean-Yves Huwart, and Loic Verdier, *Economic Globalism: Origins and Consequences* (OECD Publishing: Paris, 2013), http://dx.doi.org/10.1787/9789264111905-en.

There has always been change. Change itself is not what is different about the current world in which we live; it is the rate of change we now face that is a unique and unprecedented phenomenon. It is increasingly difficult for leaders today to project how the world, and by extension their industries, will evolve in the next decade. Leaders used to have the luxury of assuming general continuity within most industries for decades. Now, in an environment where business models are being disrupted more and more frequently, predicting even a few years into the future may prove futile, which significantly affects how organizations plan and implement strategy.

This is the dilemma leaders face: forward planning and

strategic agility is both more important and more difficult than ever before. However, despite the challenge, they must engage with and plan for change proactively. If they do not, they risk missing these market transitions entirely, which will cause their organizations to share the same fate as countless other companies and governments that failed to adapt in previous periods of transition.

There is no single industry, country, or region that will not change significantly in the next five-to-ten years. Organizations that believe they have the luxury of time and that change will never impact their way of life simply will not last long in the emerging world. Organizations have an imperative to evolve to match the pace of change of their surrounding environment. Strategic evolution is not a luxury that will differentiate the outstanding from the average performers in an industry; it is a matter of survival.

THE TRAP OF LINEAR FORECASTING

Humans are generally not very good at predicting how the future will look. The natural inclination is to anticipate the future through the bias of the present with advances that are enhancements of current systems and trends, rather than leaps of innovation to fundamentally new technologies and environments. A walk through Violet Brown's twentieth-century experience illustrates how different the future is from what is commonly envisioned.

Consider 1900, the year Violet Brown is born. The British Empire is the center of the universe. In fact, the worldwide system of time zones is centered in Greenwich, England. Great Britain launched the first and second industrial revolutions. The women's rights and suffrage movements are also emerging. And at the dawn of the twentieth century, it is that clear Violet has been born into an era of unparalleled peace and prosperity. Globalization and the economic interconnections that have been established in recent decades make the idea of war sound impossible and irrational. Ms. Brown's parents and their neighbors anticipate a continuation of the British century; they imagine the many awe-inspiring ways in which the world will develop. At the dinner table, they talk about the inventions of the day: electric lights making the whole city glow, men developing and testing the very first machines of flight, and the automobile, a fantastic luxury product for the wealthy. There is an air of excitement, forward progress, immense positivity, and optimism; the accelerating rate of change around the world is almost difficult to believe, and life feels increasingly like a joyride in the automobile so few, as of yet, are able to own.

Now jump to 1920. The future predictions from 1900 have proven to be fantastically incorrect. World War I has been a watershed global event, a catalyst that fundamentally changed the entire global system into something that is nearly unrecognizable. The modern technologies that had

been so eagerly anticipated two decades before evolved into instruments of destruction to support the needs of the war. Industrial Revolution technologies applied to warfare have turned much of Western Europe into a pitted, smoldering wasteland; tanks, barbed wire, and machine guns transformed battlefields into what soldiers at the time called meat grinders; the machines of progress and innovation that earlier represented the boundless progress of humanity have found their primary use as instruments of horror and bloodshed.

Europe as it existed in 1900 is gone. Long-standing regimes across the continent have evaporated; the governmental and business landscape is a whole new frontier. In Britain, between 700,000 and one million people, or around 2 percent of the population, have been killed. The British Empire gained significant territory during the war, but the war's strain on resources has cost the empire its position as the world's preeminent military and industrial power. The decline of the British Empire has clearly begun, an evolution that no one would have predicted in 1900.

Still, there are hopeful signs for the future. Most observers—having witnessed Europe's self-immolation, the state of revolt of many European armies, and financial exhaustion—agree that a war of the great powers on such a massive scale will never happen again. And progress marches on, following an albeit altered path: car man-

ufacturers assembling cars their workers can actually afford, and the very first radio stations receive broadcast licenses the following year. The common view in 1920 is that the costs were proven too high and there will never again be a large-scale war; they anticipated a future built around renewal and reconstruction.

Fast forward to 1940. The people of Europe despair as the German army sweeps across the continent, and the most common forecast was that Germany would win the war and rule Europe. The reconstruction effort following World War I did not progress as quickly as many anticipated and was accompanied by poverty, famine, and massive hyperinflation, leading to disenfranchisement and unrest. This has contributed to the rise of Hitler and Mussolini. A year into World War II, it seems clear to most observers that the world is entering the German era.

Welcome to 1960. Germany does not control Europe; in fact, it does not even exist as a country anymore. It has been split into two separate countries, in an arrangement that characterizes the world's current division. The threat of another Great War is enhanced by the new threat of a nuclear war. It is now clear that Great Britain's days of dominance are entirely over, but the United States, physically separated from much of the military action, has been spared from similar levels of destruction, outside of Pearl Harbor. Although large parts of Europe and the

Pacific were destroyed—with some fifty to eighty million casualties—the United States emerges in a position to rebuild and remake large parts of the world order.

Nevertheless, the country finds itself in a rivalry with the Soviet Union, the world's other superpower and a country that shares similar aims. The Soviets are equally innovative, and it appears that they will win the space race. Nuclear devastation is a real possibility, as military strategies are built on the principle of mutually assured destruction. The United States and the Soviet Union are engaged in conflict across the globe, from Latin America to Africa to Southeast Asia.

Back in the United States, the popularity of the home television set has ended the golden age of radio. Thanks to the GI Bill, the Federal-Aid Highway Act of 1956, and eminent domain laws, Americans are starting to move out of the cities into the suburbs. Future predictions are biased by the present ideal of virtuous nuclear American families, stay-at-home mothers, white picket fences, and strong conservative values. The United States has never been more economically powerful.

But on New Year's Day 1980, most people see the Soviets in prime position to emerge from the Cold War as the dominant power, with the United States still reeling from a socially and politically impactful, decade-long

war in Southeast Asia. The election of Ronald Reagan means that the United States will continue to expand its military in an effort to oppose the Soviets, who have recently started a minor operation in Afghanistan. Radio has made a comeback thanks to the growth of call-in talk shows that allow listeners to interact with the hosts and guests. Deregulation in the airline industry has led to a significant drop in prices, resulting in tremendous growth in demand for airline travel. Millions of people who had never set foot on a plane are now regular air passengers. Personal computers appear in more and more homes, and young people—not guided by universities or corporations—start teaching themselves and each other how to program them.

Fast forward to 2000. The Soviet Union did not win the Cold War as seemed likely in 1980; it fell apart. With the collapse of the Soviet Union and the Eastern Bloc countries, the United States is the unquestioned world hegemon. The country has enjoyed a decade of explosive economic and industrial growth, and the current generation of young people has never known war. The dot-com boom and advancing internet technologies represent a limitless new landscape of progress and advancement.

No one's future predictions, at this moment in time, foresee a massive global political and economic shift

twenty-one months later when terrorists hijack and fly two commercial jet liners into the World Trade Center.

The common theme of this anecdote is that the mainstream view of the future is generally wrong, even on a timeline as short as twenty years. In general, people do not imagine a world that is as utterly divergent from the current state, as is almost always the case. We tend to anticipate a future that looks like the present, with slight variations on existing themes. This predisposition leads us to underestimate how significant change will be. This becomes more and more important as the cycle time between major change shortens.

Leaders must both develop good strategy *and* have a correct understanding of the environment in which that strategy will operate. The best strategies will fail if they are built on assumptions that prove incorrect. In our experience, businesses and governmental groups tend to allocate large amounts of time, money, and personnel to strategy development, while dedicating few resources toward building a systemic understanding of the future operating environment. Organizations therefore tend to build three-, five-, or ten-year strategic plans using a future very similar to the present as their baseline projection. This approach, and the strategies it generates, is often flawed from the onset.

As we have discussed, the time between system-wide shifts is shrinking. The likelihood of being impacted by one of these shifts in the near term is high, and the likelihood of predicting them without a deliberate evaluation framework is low, given the built-in biases that prevent us from anticipating transformational change.

SOCIAL IMPACTS OF CHANGE

Technology can disrupt the foundation of not only business and national strategy but also society's institutions and norms. It took the widespread use of photography for people to understand the carnage of the Civil War and the deep implications of the savagery of slavery. Photographers such as Sojourner Truth used still images distributed on postcards as fuel for the fire of the antislavery sentiment that helped ignite the Civil War.[12]

Later, radio, which provided a cheap and efficient way to communicate with large groups of people, played a similarly important role in the history of social movements, such as women's suffrage and the organization of unions. More recently, Twitter and other social media tools have been regarded as important enablers of the 2010–2012 so-called Arab Spring.

Put simply, some technologies change the dynamics of interaction between people. Our social, educational, and

governmental structures are built around the way people work and interact. When technology changes, these structures also need to change. Unfortunately, social structures now take longer to evolve than technology, and the gap is widening.

For thousands of years, men and women have inhabited culturally defined roles based on gender. This is how most societies were structured until the last one to two generations. Several technological and socioeconomic shifts occurred over the past fifty years that resulted in women moving into the workforce in significant numbers.

The positives of this development are obvious. An extraordinary amount of human capital was unleashed as women moved into the workforce and new roles in society. This has enabled an explosion of capacity and productivity in both the public and private sectors. Still, there are some second and third order effects that have not been fully addressed to this day, such as fair pay and benefits for women, high divorce rates, more children raised in daycare, and the breakdown in the "traditional" family structure. We still have work to do in order to reshape our social institutions to adjust to the revolution that happened more than half a century ago.

No more than thirty years ago, people needing a phone number had to look it up in the Yellow Pages. If their child

was doing a report for school, they would pull out the encyclopedia, if they had a set at home. If not, they would have to travel to the local library. Now, smartphones allow people to have the entirety of the world's information in the palm of their hand. Although this is a benefit from an information and accessibility standpoint, it also carries a negative component. Technology applications are rapidly changing the way we interact with one another, and with our environment. Take the question of the impact of screen time on children, or the fact that while there is a lot of good information on the internet, there is also a lot of disinformation. We will continue to move on to newer technologies, such as embedded devices or contact lens overlays, which will raise new questions before we have fully incorporated the current technologies into our societal standards and structures.

The media is another area where this social dynamic plays out. At one time in the United States, most of the country gathered every night in front of the television to hear Walter Cronkite report on the day's events. Back then, people on all sides of political discourse viewed the same news and operated from a common base of information. There were disagreements, to be certain, but dialogue was enabled by a common set of "truths" from which people formed their different conclusions.

In contrast, today, media has transitioned from a public

service into a 24/7 entertainment business. There are many competing entertainment channels, each of which reports on different topics with different views selected to entertain their audience. People read papers and websites that conform to their existing views, from which there are thousands to choose. They lean into the echo chamber that validates their own opinions and perspectives. This means, ultimately, that people watching left- and right-leaning news networks operate based on different facts, making informed and civil debate deeply challenging—to the detriment of social cohesion.

The disruptions to our social structures that come as a result of this tension should neither lead us to pine for the past nor prevent us from celebrating progress. Contrary to nostalgic memories of the Walter Cronkite days, the media of yesterday was also all too capable of twisting facts to suit its needs and to a much greater degree.

A famous example is when newspaper magnate William Randolph Hearst sent a journalist to Cuba to report on the Spanish-American War. The reporter sent back word that no such war existed.

Hearst told the reporter, "You furnish the pictures, and I'll furnish the war."[13]

The difficulties we currently experience do not indicate

that we should regress toward the past; rather, they signal our need for time, space, and ingenuity to allow social structures to catch up to the rapid changes. Ignoring the social impacts of rapidly changing technology is a high-risk proposition.

THE POLITICAL IMPACTS OF CHANGE

Similarly, there are very real political impacts of change that we must also consider. History teaches us that governments risk disaster if they fail to adapt to changing conditions—whether those are technological, social, or geopolitical. The political systems that have managed to evolve in the face of change provide lessons for leaders of all different types of organizations.

The founders of the United States, in an effort to come up with a political system that could endure where all others have failed, studied the history of government startups—such as Ancient Greece and the Roman Empire—experimented with town halls and representative systems, and incorporated Enlightenment-era philosophy. What resulted was the United States Constitution, a new type of governance system. The amendment system within the Constitution meant it was a living document, an acknowledgment that they did not have a perfect system and needed the ability to innovate as they continued to grow and meet new challenges.

How much easier it would be for companies to innovate if they built a framework from the beginning designed to evolve and adapt with the environment as that environment inevitably changes. A structure would be in place to reevaluate key institutions and operating principles as the environment changed, much the same way the United States Constitution has been able to respond to the myriad of significant changes it has been forced to adapt to in its history—from changing economic models (agrarian to industrial to digital) to social institutions (slavery and women's rights) to macroeconomic and geopolitical forces (from the Great Depression to the Cold War).

SEEING THE OPPORTUNITY IN THE THREAT

Change creates both risk and opportunity. Winners and losers alike emerge from market shifts. We can look at the data and find reasons to despair, or we can envision how these changes create new possibilities and opportunities.

Life expectancy is now longer than it has ever been in human history. Innovations made by businesses, governments, and academia have succeeded in suppressing violence and sickness in the world compared to earlier generations. We not only live longer, but our quality of life is also higher. This means hundreds of millions of people are now creating demand for air-conditioning, refrigeration, television, and internet access. The chal-

lenge for us is to continue improving lives without leaving people behind.

In 1942, Joseph Schumpeter coined the term *creative destruction* to describe "the process of industrial mutation that incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one."[14] In other words, companies create new opportunities through better business models, tools, products, and services that eat away at the original foundation that built the company's success. It is a difficult but healthy process. As we get smarter about using human labor and physical capital more efficiently, it frees up our resources and allows us to create. In a certain sense, the people who lose their jobs can take their knowledge in a particular industry or discipline and either find better work or create other companies related to their skills.

Regardless of whether the catalysts that we will discuss in detail manifest themselves as a threat or opportunity to your specific organization, one thing is clear: ignoring the inevitably of change is not a winning strategy.

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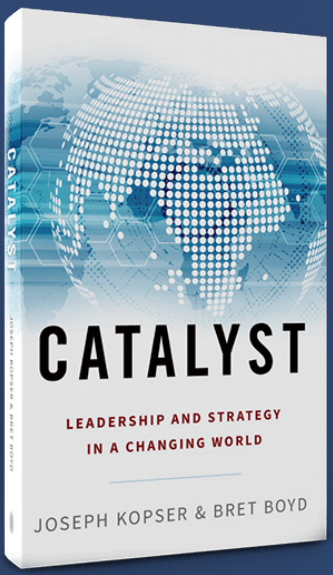
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"Joseph and Bret have brilliantly captured the forces shaping our future and the challenges and opportunities they present the private and public sectors. A must read for tomorrow's leaders."

General (retired) George W. Casey, Jr.
Distinguished Visiting Lecturer of Leadership, S.C. Johnson College of Business, Cornell University; 36th Chief of Staff, U.S. Army (2007 – 2011) and Commanding General, Multi-National Force – Iraq (2004-2007)

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Susan A. Shaheen, PhD
Adjunct professor and codirector of the Transportation Sustainability Research Center, University of California, Berkeley

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