


# Making Sense of the Big Picture

 **T**he Badlands is a metaphor that invites us to embark on a journey of discovery. It is the context in which the complex story of globalization is unfolding.

As we look ahead to the year 2020, the Foothills of the Far Future, we ask ourselves, how do we get from here to there? Navigating the Badlands is a metaphor for taking the journey through this challenging transition zone between the end of the Industrial Era and the full promise of the Information Age. The Badlands is the rugged stretch that bridges the past with the future, a time after massive structural shifts have rendered the old economy and its social foundations obsolete, and new values and structures are not yet firmly in place. In the Badlands we experience considerable pain and bewilderment as one way of life ends and we grapple with how to create the next.

## THE JOURNEY

This book is about making the journey through today's Badlands, a journey that will last more than a decade. It delineates a set of inevitable pains that will assail individuals and organizations in this

extraordinarily turbulent environment, as well as the new capabilities we must develop to navigate this unmapped territory successfully. All of us must cross this rugged transition zone, adapting courageously and creatively to the comprehensive economic and social structural shifts under way, or perish by the wayside. Although we will take this journey as individuals, as members of organizations, as community members, and as global citizens, the focus of this book is on our roles in organizations and the challenges they will face.

These challenges are not centered in the ebb and flow of the business cycle or the stock market. This is not to say these factors will not be part of the journey, but focusing on them at the expense of understanding and responding to the bigger forces at play will not produce a good long-term outcome. By using the data and insights in this book to reach a deeper understanding of the powerful driving forces that even now are transforming the entire context of business, you will gain the opportunity to control your future rather than be controlled by it. Our new global context demands that we innovate to create and grow tomorrow's industries and organizations. It further demands that we build new social institutions, such as a better health care system and a set of global organizations that can support our shared human goals, since business cannot thrive without a vibrant society and society cannot change if the economy is anemic.

Our dream should be the creation of a vibrant, equitable, and fully integrated global society underpinned by robust economic growth worldwide. To realize this dream we need better, more, and different kinds of leaders and organizations that will match the needs we will face in the new global reality. Today we have a mismatch.

My vision of the future derives from research that I directed at the behest of a diverse group of global business clients striving to make sense of a volatile business environment and eager to know how their organizations would have to change to survive and prosper. It also draws deeply from my own life experiences. I have worked in the villages of Africa, consulted with businesses and governments of the emerging economies of Asia and Latin America, and conducted strategic sessions with technology innovators of California's Silicon Valley.

My most recent research is being conducted through Global Foresight, the think tank and strategic consulting firm I founded in 2002. It builds on research I spearheaded as a director at the Institute for the Future, a spin-off from the RAND Corporation, where I was leader of the Emerging Technologies Outlook Program, as well as research in

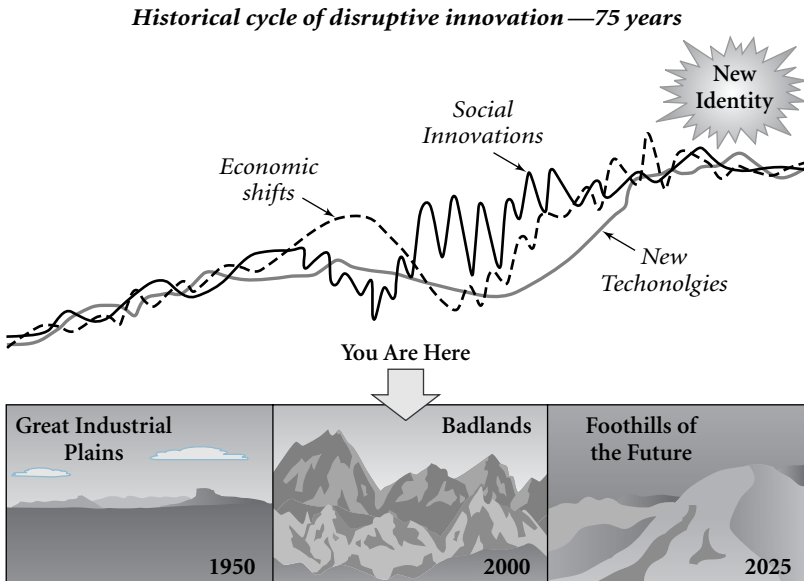
the Center for the Future of China, a nonprofit I founded in California and at Peking University in Beijing. The research that culminated in this book began in the late 1990s, when, despite the fast-growing economy, rising stock markets, and hype about the New Economy, it was increasingly apparent that the future was going to be very different from the past. As a forecaster and futurist I found it no simple matter to predict trends for the first decade of the new millennium, given the continuing surge of new technologies and the fast-expanding global economy, and with them the new driving forces that continue to shape the rugged landscape of the future into an ever more inscrutable environment. My research team included economists, technology experts, sociologists, political scientists, anthropologists, sociologists, and historians. Working across disciplines we struggled to weave our findings into a coherent pattern. But something was missing.

We were finally able to put pieces of the future together when we looked back at other periods in history notable for disruptive innovation. We examined eight such turbulent times, reaching back as far as 3500 B.C.E., when writing was invented, through our own time period, with all its breakthroughs in information, communication, and biology, ending with a forecast of the upcoming wave of disruptive technologies taking us through to 2020. This historical lens informed our insights, enabling us to make better sense of this forbidding future terrain.

Times of innovation are inherently messy, making it difficult to match cause to effect, but we ultimately developed the view that disruptive innovations are part of a bigger cycle whereby new technologies, the economy, and society churn together to create an evolutionary leap in human identity. No one knows for sure exactly how many such cycles of innovation have occurred; scholars and historians identify and count them differently. My colleagues and I settled on the belief that we are now some fifty years into a seventy-five-year historical cycle of disruptive innovation. In such cycles, surges in new technologies lead to structural shifts in the economy, which in turn hit people full force, driving rapid and monumental changes in both business and organizational life. Pushed off balance, the economy churns and spins faster than society can respond, and social institutions begin to fail. As the cycle progresses, social issues, technological inventions, and economic shifts are all caught up in the maelstrom; we can scarcely differentiate cause from effect. “Every few hundred years in

Western history there occurs a sharp transformation. Within a few short decades, society rearranges itself—its worldview; its basic values; its social and political structure; its arts; its key institutions. Fifty years later, there is a new world. And the people born then cannot even imagine the world in which their grandparents lived and into which their own parents were born. We are currently living through just such a transformation” (Drucker, 1993, p. 50).

The decisions we make during this transition period will shape the new era. At the end of this process our very sense of identity breaks apart, opening the way for the emergence of a new sense of self, appropriate to the new context. At this point social and economic drivers of change have come together again in a new, more stable pattern, bringing the cycle of innovation to a close—and another begins. If this is the case, then we as humans have been in the Badlands before many times, indeed since time immemorial, for its ravines have always been a predictable part of every historical cycle of disruptive innovation and the upset that attends it, as sketched in Figure 1.1.



**Figure 1.1. The Badlands: Transition Zone.**

Source: Global Foresight, 2004.

New technologies and their subsequent innovations don't directly cause social change; instead they create problems and dilemmas that drive society to seek new solutions from a diverse set of choices. This is the purpose of the journey through the Badlands. When cycles of disruptive innovations result in major structural shifts across all economic and social dimensions, as they are doing today, they create enormous transition costs as society struggles to move from one era to the next. How well today's leaders manage the transition through the churning marketplace and failing social institutions of the early twenty-first century depends for the first time on a global cast of characters. Their knowledge of their colleagues around the world is incomplete, their ability to craft solutions together is untested, the stakes for all parties are extraordinarily high: the good or bad choices they make will lay the foundation for the next era. It is within this macro context that business leaders and organizations will also take their journey.

I am an optimist and I passionately believe that we can build a great future that includes all of us—but not without making radical changes in how we work and live, focusing consciously and continually on doing the right thing globally. We have the resources, both human and material, to do this, but no external force or agent guarantees we will succeed. Participation is not optional. The new environment with its continual supply of disruptions will force us to make new choices. To accomplish our mission of shaping the next era, as many of us as possible need to make a hero's journey in quest of a new way of life, embracing the uncertainties along the way. Throughout history the hero's journeys have always been painful; this one will be no different.

## **GUIDE TO NAVIGATING THE BADLANDS**

We have only just arrived in the entryway of the Badlands—the foot of the cliff at the left edge of the Badlands map—so we face at least a decade of continued volatility. I believe we are at the point of maximum turbulence in this cycle of disruptive innovation, where the churn between society, politics, and the economy causes sufficient stress and strain to finally break down the old systems. This will take time and managing it will be the defining process in this transition zone between eras that I call the Badlands. Transitions are always painful, and escape is only an illusion. To help you on your journey, I

have organized the book around four themes that are as interlinked as they are distinct:

- *Globalization*: Understanding the big picture is not optional.
- *New Leadership Crucible*: The Badlands demands a hero's journey.
- *Organizational Metamorphosis*: Partial responses are fatal.
- *Social Choices*: Stepping up to the planetary plate and making the right social choices to create a global commons is essential.

I will cover all four of these themes, but my primary focus will settle on the middle two, our journey as leaders of organizations and the transformation organizations must achieve. The world needs great leaders and organizations to have a robust society and economy. Today I see a severe mismatch between what we have and what we need. It is my hope that this book can help bridge that gap. Crossing into the Badlands presents one of the most dangerous and disorienting phases of the journey through it. The Badlands arouses extreme emotions caused by individual and organizational pains that surface and resurface as we scan, scout, and steer our way around obstacles.

A Badlands pain arises when the shifting environment forces organizations and individuals to make strategic choices and changes in direction, structure, or relationships in order to progress. Pains are not death knells, but should be perceived as signs of what needs to change and change fast. Like the severe warning signs of serious illness, they require a speedy and aggressive response.

Pains in the Badlands are difficult to resolve. Often the viability of a solution won't be revealed until a choice has been made, acted upon, and the results have made themselves known. This experience is less like short-lived pain and more like severe chronic pain, in that it can, and likely will, recur throughout the journey. Organizations and leaders will need to engage in a constant dance of moving forward and backtracking, recalibrating and moving on. Ultimately the pain will fade away as new capabilities replace old competencies. These new capabilities are aimed at supporting the organizational metamorphosis that is most likely to result in an exemplary, profitable organization that will fit with the new context of the future that lies beyond the Badlands. Much of this book discusses a set of pains and new capabilities you will encounter on your journey:

<i>Pain</i>	<i>New Required Capability</i>	<i>Discussed in . . .</i>
Leadership Insecurity	Leadership Readiness	Chapter Three
Competency Addiction	Systemic Innovation	Chapter Four
Network Angst	Support for Social Networks	Chapter Five
Strategy Tragedy	Growth Through Disruptive Innovation	Chapter Six
Talent Tantrum	Deep Engagement with People	Chapter Seven
Consumer Conundrum	Customizing Personalized Relationships	Chapter Eight
Value Vexation	Sustainable Globalization	Chapter Ten

As we confront the unavoidable need for individual and organizational metamorphosis, we must release patterns, mind-sets, and behaviors that have no place in the Badlands and beyond. Putting an end to what no longer works is the first phase of any transition, and it is sure to be painful. But with each release we take a step forward, preparing ourselves for the confusing middle phase of this transition where, perhaps for years, nothing will feel solid or provide much continuity. This is the second phase of all major transitions, in which we thrash about until we learn enough to begin anew. In this middle phase we must make huge social choices and experience their results, learning from our successes and failures. Then we must push on and make more choices. It is through making trade-offs in this environment of prolonged uncertainty and ambiguity that we will construct the new beginnings, the third phase of the transition and the foundation of the next era. This will be an ongoing process of successive approximation. It will take time and it will take guts.

### **Globalization: Understanding the Big Picture Is Not Optional**

Understanding and keeping the big picture in mind is not optional in the Badlands. You have now entered a perilous phase of globalization where you can easily lose your way in a constantly morphing landscape. Think of the driving forces described in this book as the diverse weather systems of globalization that can suddenly appear, changing

the landscape so much that you have to reorganize your expedition and reset your compass. Globalization is an emergent phenomenon; we will spend the next fifty years figuring out just what it is.

People tend to overestimate driving forces in the short run and underestimate their long-term impacts. These driving forces are shaping and reshaping not just the business environment but the entire global context in which we live and work. No one can accurately predict the future, even under stable conditions, but you *can* think about it systematically and make choices that help you steer toward opportunities and avoid threats. Those who don't are sure to face ugly surprises.

Globalization is not intrinsically good or bad; how it evolves depends on the choices we make. As an emergent phenomenon it is immature and highly uncertain. However, its driving forces are known, so you can anticipate their impacts and adapt early. It is particularly important to begin to see the new patterns these forces will weave by their interaction with each other. Business will feel the impact of all the driving forces, with each company and industry needing to map their specific impact and likely timing. Of utmost importance is the rapid aging of populations not just in the advanced economies but in the developing economies as well. Thanks to medical breakthroughs, many of us who are middle-aged today will live to be a hundred, extending middle age until eighty. This will have myriad impacts on the workplace, from increasing cross-generational workforces to defining new work arrangements. At the same time, the rapidly growing number of educated and sophisticated young people around the world, particularly in Asia, will facilitate the expansion of knowledge work, resulting in a redistribution of high-value jobs to emerging economies. Global transnational corporations will extend their geographic reach and will continuously adapt their structures and work arrangements to take advantage of resources in many places. Advanced economies like that of the United States will come under increasing pressure to reinvent themselves through widespread innovation, as much of the old economy moves offshore. There will be increased social shifts and challenging domestic politics as workers come to grips with having to reinvent themselves under pressure from massive job shifts, some of which will be caused by the relentless introduction of new technologies, rendering products and at times whole industries obsolete. Companies and workers alike will have much to contend with.

Individuals and organizations will have an increasingly tense relationship as the old social bargain between them completely dies out.



Work life for both will be stressful in the coming decade. Global competition will increase among a growing number of small and large players enabled by a networked economy that levels the playing field between advanced and emerging economies and makes it easier for both individuals and firms to engage in creating new wealth. The wealth gap between and within countries will increase in the absence of a new social agenda. The Information Age polarizes global populations; you need the right skills to play, and relatively few have them.

As women go to work around the world the traditional notion of a household breaks down. No social trend has as much impact as the change in women's roles. It changes the meaning of marriage, motherhood, and consumption, to name just a few effects. Business will want to take advantage of these highly skilled workers but will need new ways to attract and retain them. Increasingly, women will make more choices as consumers, pushing marketing and sales processes to match their values. Women will be most concerned about the failing social institutions and will play increasingly important roles politically to share the challenge of their reinvention. As the major family caretakers they will experience the human needs along the life cycle and the impact of our institutional mismatch with social needs.

Globalization means a new geopolitical context. Our governmental mind-sets, rules of engagement, and institutions are both too big and too small for the global problems wrought by a fast-moving global economy. How is a global epidemic managed and contained? Who has the right to wage war and in what fashion? How do we agree about protecting the environment? And to further complicate matters, power is being redistributed as countries like China and India surge forward economically. Of particular importance is China, which will grow to be such a major global power in all dimensions by the end of the Badlands that I've devoted a whole chapter to its culture and prospects. All these changes increase uncertainty and risk for business. Each of these drivers alone and in combination needs to be continuously monitored and factored into business decisions.

### **Leadership Crucible: Taking a Hero's Journey**

Needless to say, this kind of environment will require leadership from as many people as possible. The second theme I weave through the book is *the importance of using the Badlands as a leadership crucible*. The Badlands provides leaders with an innovation imperative. Many

observers of leadership posit that we are seriously deficient in the kinds of leaders we need, and I agree with them.

This global Badlands environment has the capacity for helping potential leaders around the world take advantage of these times and make a hero's journey, leaving behind old ways and learning through action what works not just for them but for everyone. As you take a hero's journey, new capabilities and leadership readiness will emerge from the trek itself, as you interact with the environment and other travelers. This leadership crucible forces us to face who we are, providing each of us with multiple defining moments. It provides unimagined opportunities together with harsh ordeals. As a hero you have to live your own life, not an imitation of another's life. The journey will evoke your character and test it; as you journey deeper into the Badlands you too will be reformed by its rigorous demands.

Heroes set off on a series of adventures beyond the ordinary in quest of something lost, or glory, or redemption. Your own hero's journey is the search for a new global identity for both yourself and your organization. The Information Revolution is already transforming both the economy and society, creating a future that will be very different from the past. Heroes must be extraordinarily courageous to leave the familiar world of the old era shaped by industrialization, over which they have some control, and venture out into a landscape full of new features, constantly evolving through the erosion of the old. Heroes must believe in themselves, trust in their web of relationships with others, and learn ultimately to engage only with organizations and individuals with whom they have shared purpose and values.

Only you can choose to proactively use this crucible to become the best leader possible. Leaders grow by jumping into the refining fire of a crucible and coming out changed, not by reading books, attending executive development courses, or getting an MBA degree. While those may be useful tools, leadership is a performing art that can only be learned through action. The Badlands crucible is different from the past in which many leaders honed their skills. It is a new place where we can unleash our dormant abilities, define and refine our character, and extract the wisdom of the future in pursuit of our goals. To date we know little about how leadership crucibles work for women, for young people, and for the diverse cultures that populate this planet. Yet these are the groups where most of tomorrow's leaders must come from. It is imperative that we create more opportunities in this environment for more leaders to emerge.

Vital to a successful journey is coming to grips with the fact that the Badlands possesses the power to transform you—or leave you behind if you don’t adapt and can’t get connected. It has the power to destroy people and businesses, making it seem a dangerous place, particularly as we see the tombstones of those who came before us and perished—the New Economy Suckers—who succumbed to the irrational exuberance and greed of the late 1990s. This brings us to our first predictable Badlands pain: *Leadership Insecurity*, with its deep feelings of fear and inadequacy. Not only will the new leaders who emerge in the Badlands not fall prey to these feelings, they will be capable of enormous adaptability and unbridled curiosity—critical characteristics to creating the new capability of *Leadership Readiness*. Those who embrace the new context and adapt by developing new competencies to match the shift in environment can thrive in the Badlands, not merely survive. But even then, many gifted leaders will fail, given the environment’s demanding and relentless nature.

A successful journey requires principles of transformation to guide your way, as well as a new leadership paradigm to anchor them. At its heart is the importance of being a leader in multiple ways and accepting that leadership is neither a solo act nor a celebrity role. First and foremost you need to be able to lead yourself on the hero’s journey and share leadership with others across generations and cultures, times and places.

I have distilled the following set of principles from my research with pioneers in the Badlands:

### *Principles of Transformation*

- Scan, Scout, Steer
- Act with Integrity
- Seek Collisions
- Learn Rapidly
- Engage Cultures
- Innovate Radically
- Make Decisions Fast
- Execute with Discipline

These principles are all presented in more detail in Chapter Three, along with some of the stories of those pioneers. I also refer to them

throughout the book as strategies to help resolve pains and create new capabilities. They support organizations and leaders in making a total metamorphosis during their trek. Because they aren't oversimplified, or in any way locked to a single corresponding pain, they apply widely and in overlay, making a rich and complex tapestry of solutions that is both critical to success and strategically applicable to every phase of the journey.

### **Organizational Metamorphosis: Partial Responses Are Fatal**

The book's third major theme is *the inescapable demand that organizations not merely change but undergo a metamorphosis*. The results from my research indicate that organizations put off change until it is too painful not to move. This is why so many business organizations made only partial responses to the environment changes of the late 1990s. Fortunately, they were able to create wealth even with mediocre performance. They got caught up in management fads and half-heartedly participated in so-called change management programs that often only exacerbated their long-term problems and increased the tensions between firms and individuals.

Now the churn in the economy and in society is reaching its peak, and the rest of the structural shifts will swiftly take place, leaving only a tombstone to mark the resting place of those with partial responses. At the end of these massive structural shifts the mismatch between organizations and the needs of both the economy and society will become obvious. The innovation imperative of this turbulent transition can no longer be ignored or treated half-heartedly. My research shows that organizations and leaders demonstrate a dangerous reluctance to face a host of truths. Many have not faced up to the inevitable fact that they cannot rely on outmoded behaviors in a context that is utterly changed. They cannot continue to do business as usual if they truly want to survive and thrive. Pain is not only a barometer of truth but also a formidable gateway to growth, new understanding, and powerful, positive evolutionary change.

Being successful in the Badlands demands skills and mind-sets different from those that brought business success in the late Industrial Plains. It is harder to create and sustain profit in the Badlands, because performance peaks are harder to climb and easier to fall off given the pace of technological innovations that quickly render products and

processes obsolete, and the global nature of competition. The Badlands is a laboratory for truly radical innovation, not just in technology but in business models that invent new industries and recombine existing ones.

Most of us are getting oriented to the features of this new landscape and assessing our readiness to go on. In our perennial quest for security, we humans tend toward repetition. While humans are blessed with the ability to make behaviors automatic, the dark side of this capacity is that mindless behaviors become difficult to extinguish. In this way, behaviors that were once successful (within the context of the Industrial Plains) may become dangerous traps and formidable barriers to success in the Badlands. Most of us will therefore begin our journey by defaulting to old behaviors and mind-sets that only delay moving on. We call this *Competency Addiction*, the second of eight predictable pains, one accompanied by feelings of *Smugness and Arrogance*—a deeply defensive response as leaders of old business competencies and products try to convince themselves and others that the old way is still the best way forward. Resolving this pain includes reconstructing who we are, and in the process, dissolving an identity embedded in the old ways of working and living.

*Leadership Insecurity* and *Competency Addiction* are almost always first encountered by organizations at the entry to the Badlands. The other pains hover over the landscape toward the center of the map like a black tornado ready to touch down and demand a response when the conditions are right. This is a nonlinear journey in a nonlinear environment, and it includes some issues beyond the scope of this book, such as the developing technology infrastructure and regulatory environment.

As noted earlier, every organization will encounter strategic junctions at various points along the journey that will cause it pain. These junctions are places where changes in the environment create issues that intersect with the organization causing its leaders to make strategic choices—changes in directions, structure, or relationships—to continue executing its mission. These changes can come in the form of new global competitors, disruptive innovations in the industry, obsolescence of a key technology central to a core business model, dramatic shifts in customer desires and purchasing habits, or loss of key talent, to name but a few. Although smart organizations that keep their eye on the big picture can anticipate these junctions, the fact that they

exist and have to be responded to, early or late, preemptively or retroactively, will cause pain.

Resolving the pains is distinct from creating the new capabilities that correspond to each one. Both processes must proceed simultaneously. Ultimately they serve as a powerful antidote to the reemergence of these old pains. Similar to the pains, the new capabilities are holographic; working to develop one affects the development of the others.

Each capability enables the organization to innovate, engage, and integrate a web of relationships needed for long-term success. For no organization can thrive without a robust culture of systemic innovation, an engine of growth for disruptive innovation, and the capability to engage diverse people deeply anywhere and everywhere around the globe. Those who cannot design resilient networks, customize customer relationships, and renew purpose and create knowledge won't survive. It is through building these capabilities that the organization undergoes the metamorphosis needed for a viable future.

Armed with the truth about the journey—both its challenges and its gifts—individuals and organizations will pass through a number of maturing forms and stages, as the experience of the Badlands resembles nothing so much as a biological metamorphosis. Like all evolving organisms, these will be fragile and vulnerable at certain key stages of their maturation. Armed with the principles of transformation and increasing resiliency, we are most likely to survive and succeed.

### **Choosing Our Destiny: Making the Right Choices for the Global Commons**

The fourth theme in the book is *the need to step up to the global plate and make the right social choices to create a global commons*. The commons are the shared agreements and institutions we craft for the well-being of all of us on the planet. If we fail to make globalization sustainable, the world will simply roll on, becoming more dangerous day by day. We must act with integrity on a global scale and make the right moral choices about economic and social development. We have the human and material resources to do so, but too few people understand globalization and how they fit into it, or could do so. The unavoidable truth is that the Information Revolution tends to polarize us as humans, to grow the gap between the haves and the have-nots. Without people consciously striving to reverse it, the wealth gap will continue to grow.

Seduced as we were by the frenzy of wealth creation over the last ten years, we missed the full truth of the early stages of this present shift from one era to the next. This myopic economic view, common at this stage in the cycle, obscures growing social issues. As the whirlwind of globalization swirled about the planet, it has been both inclusive and exclusive. Localities and people who have the education and capacity to use information are valued and included. But many who do not possess the right skills have been excluded and marginalized as economically irrelevant. The business architects of the global economy are nothing if not pragmatic: they do whatever works, wherever it is most cost-effective, whenever it is most likely to create profits. The information economy is inherently predisposed toward polarization, creating growth in the numbers of people both at the top and at the bottom of society, causing social disparity. Those at the top are able to learn quickly and adapt to the changing global opportunities because of their advanced education. They can make great gains and continue to build on them, amassing more wealth. Those at the bottom are forgotten, mere bumps in the road.

In the long run globalization has the potential to lift everyone up, but in the short run it is highly dislocating. We need leaders who can help integrate currently marginalized economies and people into the prospering global economy. We need leaders who understand the importance of providing everyone a safety net, along with realistic long-term strategies to firmly connect them to a successful life in the future. This is a challenge given the great ambivalence around the world about safety nets. However, it is totally unrealistic to expect people who are marginalized by lack of education and access to the tools of economic growth to be able to lift themselves up on their own. We need innovations in our strategies to help them in the long term, but we also need safety nets.

Plug-and-play capability for the global knowledge economy is not readily available across vast swaths of the planet. One of the greatest challenges in the Badlands is to resolve these marginalized localities that occur everywhere, in every country and region, from the United States to Brazil, from Europe to the Middle East and to the rising Asia Pacific region. Despite the rise in income of some groups in the transition economies, the gap is increasing and for most the means to catch up is elusive. Not only is it the right thing to do to find those radical innovations that include more people, it is essential for sustainable growth and the continued wealth of the early winners. Grow-

ing and intense tangible expressions of social resistance can be heard, as those left out form defensive communities built around primary identities of religion, locality, ethnicity, or family. Examples of these are Al Qaeda, the religious right, urban youth gangs, drug networks, and militias, to name a few. Throughout human history defensive communities have been formed, for good or for ill, in response to great social and economic shifts, although never before have they been so visible nor globally interconnected around their point of view and so well organized to resist. Never before have so many people been involved at both ends of the economic spectrum. Numerous signs of friction can be felt as the gap grows between those who are included and those who are not, between those who have and those who have not. Should this continue much longer, there will be less appetite for global closeness on all sides.

As things stand now we have created an unstable and interdependent global economic system built on a foundation of a multiculturalism consisting of extreme differences. This is not necessarily a fatal trajectory; it could just as readily be a platform for future evolution. Harmony between economic and social systems must be created; otherwise, globalization will fail, denying billions of poor people an opportunity for much-needed development. Those who say that the failure of globalization would be a good thing do not present a compelling scenario of a better world.

Thus as we get a glimpse of the far foothills of the future beyond the Badlands we see that it is not predestined. Instead, it consists of two radically different scenarios: one is fragmented and dangerous, as the haves hope to escape the wrath of the have-nots; the other is an integrated global society where inclusiveness is on the march. The choice is ours, for the most part, but even with good decisions we should expect wild cards, those highly improbable events that could have a big impact. We need to learn from everywhere we can—and that includes a few lessons from history.

## **LESSONS FROM THE HISTORY OF DISRUPTIVE INNOVATIONS**

I close this chapter by presenting some insights and lessons from historical cycles of innovation. These can serve as beacons in this murky landscape that we face. During our research, my colleagues and I probed deeply into several historical periods marked by disruptive



innovations. We described the climate that contributed to making these possible, examined the new disruptive technologies and the clusters of technologies around them, and analyzed the churn between the economy and society and the social innovations that emerged. At the end of our research we synthesized a list of key lessons from this history and examined some of their implications for business during our own turbulent time.

**TIMES AND CYCLES OF DISRUPTIVE INNOVATIONS:  
SELECTED TECHNOLOGIES**

Bronze Age—(circa 3500 B.C.E.): writing, pottery  
 700 B.C.E.: Greek innovations: phonetic alphabet  
 100–999 A.D.: Period of Chinese innovations—classics on stone, elementary zoetrope, books printed  
 1400–1499: Renaissance—printing technologies  
 1650–1690: Penny press  
 1760–1830: First Industrial Revolution  
 1860: Vaccines  
 1870–1914: Second Industrial Revolution  
 1920–1945: Nuclear bomb  
 1950–2000: Information and communications  
 2000–2025: Biotechnology and other likely technology combinations across disciplines  
*Source:* Global Foresight, 2004.

The following discussion is not meant to be exhaustive but rather to serve as food for thought, a means to extract lessons likely to be useful in the decade ahead. We can also derive some comfort from seeing that the human race has been in the Badlands before and thrived, although each cycle presents its own unique challenges. I encourage those of you with an inclination to delve deeper into this history to take advantage of the resources of the Internet or any good library.

“We are today on the rising slope of a third technological revolution. It is a rising slope, for we have passed from the plus-minus stage of invention and innovation into the crucial period of diffusion. The rates of diffusion will vary, depending upon the economic conditions and political stabilities of societies. Yet the phenomenon cannot be reversed, and its consequences may be even greater than the previous two technological revolutions that reshaped the West and now, with the spread of industrialization, other parts of the world as well” (Bell, 1989, p. 164).

### ***Historical Lessons***

- Change comes from the fringe as stasis grows at the center.
- Dynamic trading and human migration stimulates innovation.
- Social ferment feeds commercial innovation.
- Innovation requires optimal diversity.
- Interchangeable parts and standardization provide infrastructure for the next cycle.
- Mismatch of scale produces instability and breeds innovation or dysfunction.
- New self-concepts: “identity” derives from innovation.

## **Lesson One: Change Comes from the Fringe as Stasis and Corruption Grow at the Center**

Innovation usually springs up at the edges of established centers of power and wealth, and is often created by people who seem less than central to the day. Often they are people from newly emerging economic classes and occupations, dissatisfied with current conditions and imagining ways to change them. By definition the centers of power tend not to be responsive to outsiders. Having created large, complex systems to sustain its power, the center responds to dissatisfaction and innovation from the fringe by ignoring or contesting them; tensions rise as new ideas take hold. Corruption of the powerful increases as they feel increasingly threatened.

There is no better historical example of this lesson than from the late Middle Ages and the Renaissance, when the Catholic Church was

a monolithic force in control of knowledge and therefore of people's lives. Merchants and traders on the fringe of society absorbed new ideas on their travels and invented places people could gather to discuss ideas outside of churches. Soon there was a growing desire for knowledge among ordinary people. The Catholic Church tried to squelch both the ideas and innovators, calling them heretics and damning them as opposing God and Church beliefs. As the Church's power became increasingly undermined by trade and literacy, it became more corrupt in its quest to cling to power, a grip that was ultimately broken by the invention of printing technologies, making possible a surge of innovations from creating maps to books to the reorganization of knowledge into new fields such as architecture and engineering. What followed eventually developed into the Age of Enlightenment, in the century that saw the formation of the United States of America.

Today we can see all about us examples of tensions between innovators on the fringe and those at the center who hold fast to the status quo. Consider Linux developers and their open-source software, with its implicit threat to New Economy juggernauts like Microsoft, who try to monopolize markets by excluding others. Think about Move On, a sociopolitical movement organized on the World Wide Web and focused on transforming the American political process, and how it creates tension with the existing political process. Consider micro-enterprises in towns and villages all around the world funded by small loans to women (initially provided by the Grameen Bank), which are growing in importance to economic development and being called into question by such large institutions as the World Bank. Think about the tension between apartheid in South Africa and the popular power of Nelson Mandela. Look at the festering corruption at the center of powerful corporations such as Enron, Tyco, Arthur Andersen, Global Crossing, and WorldCom, who tried to quell the voices of heretics opposed to their corporate ways. Think about the Bank of China scandals in Beijing as the government pushes for major reform.

## **Lesson Two: Dynamic Trading Stimulates Innovation**

As traders travel to sell their wares they collide with new ideas and people different from themselves and learn to adapt their products to fit their alternative ways of living. They also bring news of these dis-

similarities back home, which stimulates more people to travel to expand their ways of living.

In the Bronze Age, from 3500 to 3100 B.C.E., hunting societies transformed into farming societies and trade began. This was the earliest time period we studied, a time when writing was invented, allowing people to transmit and store information beyond the reach of human memory for the first time. The first cities sprung up in today's Iraq, and an urban economy rooted in trade began. It began with innovations in crafts, including specialization and early forms of mass production. Sumerians invented the potter's wheel to manufacture vessels that were then traded over vast distances. This in turn demanded innovations in recording systems for tallying inventories, shipments of goods, and payments. Merchants needed to preserve records of their transactions to resolve disputes. Building on the innovation of writing, they created clay envelopes that could carry and store tokens of commerce and make for ready filing in libraries.

Today dynamic global trading is also stimulating a multitude of innovations through the distribution of high-tech industry, what I call the Global Silicon Network (GSN). Talented engineers migrate from India, China, Israel, and France, to name just a few countries, to California's Silicon Valley, where they learn technical and organizational innovations and return home to start similar science and business endeavors, creating whole new industries in their countries. In this way social innovation spreads as well. Through business travel, many educated women meet similar women in other countries, giving rise to global organizations such as the International Women's Forum that allow women to support each other globally to achieve common social goals and to advance the role of women in society.

### **Lesson Three: Social Ferment Feeds Commercial Innovation**

The context in which innovation takes place is absolutely crucial. Both disease and war give rise to innovation whereby additional clusters of innovations build one upon another. Louis Pasteur, a "fringe scientist," demonstrated the power of laboratory medicine by helping to end the threat of anthrax to cattle in the 1880s. He took his laboratory to the field and cultivated the anthrax microbe, then created the first vaccine. This was a small-scale experiment with a big ripple effect, creating a new theory of vaccines, launching the beginnings of the modern public

health movement, and extending the practice of medicine to the farm and other commercial areas. Through this successful, and certainly disruptive, innovation, the scientific method became accepted and led to the use of statistics to chart the rise and fall of disease—one of the biggest stepping stones in the development of epidemiology since the invention of the microscope. This surge of innovations launched a new relationship between science and society that is pervasive in our lives today.

Social ferment has been a hallmark of our current cycle of innovation, beginning with the protest movement in the 1960s in the United States. The segregation of blacks and whites created intense social ferment that led to all sorts of social innovations from new social organizing principles and practices, from the Civil Rights Act of 1964 to voter registration drives. Activists used this new knowledge about organizing against corporations. One such effort was led by a fringe leader named Ralph Nader, who successfully sued General Motors for harassment in response to his negative book on the Corvair. This led to commercial innovations to create safer, higher-quality products. Saul Alinsky led a shareholder protest against Kodak. Recent similar movements like Move On's political efforts are examples of leveraging commercial innovation, in this case the Internet, to resolve social issues.

### **Lesson Four: Innovation Requires Optimal Diversity**

Disruptive innovations are not engineered; they arise spontaneously, fueled by dynamic interactions between diverse people. They occur when people are motivated to think and act in new ways, and when there is a rich variety of ideas and perspectives. Preceding examples alluded to the importance of the diversity that occurs in dynamic trading, during social ferment, and among the heretics and mavericks on the fringe. One impressive story of the role of diversity in innovation was the production of the nuclear bomb in the early 1940s, during the historical cycle of innovation that preceded the one we're living in today.

Even though H. G. Wells forecast the possibility of a nuclear bomb in 1914, and scientist Leo Szilard is the legally recognized inventor of the atom bomb through the patent he filed in Britain on July 4, 1934, the bomb as we know it was developed by the Manhattan Project in the United States under the scientific leadership of Robert Oppenheimer. The diverse gathering of scientists that contributed to the

Manhattan Project might not have been possible were it not for Hitler's persecution of the Jews, driving much of Germany's intellectual elite to flee to the United States. In his maniacal drive to persecute a minority, Hitler also succeeded in slowing the pace of war technology in Germany.

A further contribution came from Vannevar Bush, the head of the U.S. Office of Scientific Research and Development, who provided the radical idea of putting together scientists and engineers. From the very outset Oppenheimer demanded a new approach to the work on the bomb: "We need a central laboratory devoted wholly to this purpose, where people could talk freely with each other, where theoretical ideas and experimental findings could affect each other, where the waste, frustration, and error of compartmentalized experimental studies could be eliminated" (Weiner and Smith, 1980, p. 50). Oppenheimer was able to create much of this climate of innovation, despite the frustrations imposed by the need for secrecy.

Building the atom bomb created an unprecedented experience of community among scientists and engineers, as the exigencies of wartime dissolved the normal boundaries between disciplines and organizations. This restructured scientific research community became a nexus of institutions and people that created a new innovative culture of science. This was the platform for the disruptive innovations of the cycle we are in today.

### **Lesson Five: Interchangeable Parts and Standards Provide the Infrastructure for the Next Cycle of Innovation**

In the early phases of innovation different inventors often compete to get their standard adopted to gain bigger market share; social innovators compete for power. Once a given innovation has taken hold, the winning standards become the platform on which new innovations can emerge. Computer technologies that were created to track German aircraft and break Germany's secret codes became the standard for a series of simulation and gaming innovations that led to computer networks such as the ARPANET. These standards were widely adopted in turn, becoming the platform for this innovation cycle's communication and information technologies, which led to the Internet and the World Wide Web. There are many examples of this throughout history.

Eli Whitney's cotton gin in 1793 resulted in standardized forms and interchangeable parts for production of cotton, leading to increased production of a commodity that had been available only to the elite, bringing it within reach of ordinary people. The steam engine harnessed a vast new source of power, leading to new feedback mechanisms such as float valves, centrifugal governors, and pressure regulators that enhanced the ability of the steam engine to adapt to various needs and made the access to power available all the time. It became the platform for a number of innovations that characterized the First Industrial Revolution: new industries, urbanization, year-round production, and reliable transportation, to name just a few.

### **Lesson Six: Mismatch of Scale Between Organizations and Social Issues Produces Instability**

Institutional and organizational structures evolve to solve the problems and meet the demands of the times. They need to be the right size for the problems and issues at hand. As innovations build upon innovations the economy changes and social issues shift, rendering a mismatch in scale between existing problems and institutions. This creates instability until sufficient organizational innovation takes place to begin to change the organizations *enough* so that they can begin to solve the new problems.

Each historic cycle has experienced these mismatches. The guilds that formed around specialized crafts in medieval times began to decline in the sixteenth century. Their conservatism, monopolistic practices, and selective entrance policies developed in response to creating high standards for quality and a rigorous training program for new members wanting to learn the trade. But as time went on they became centers of power that dominated town and city governments and became hostile to technical innovations that threatened their economic interests. They set extremely high standards for apprentices and journeymen, slowing industrial growth. But as demand for products grew and capital became more available, merchants set up different kinds of companies to compete with guilds, exploiting new production technologies to produce more goods for the growing middle class. The guilds broke down under this pace of new technologies and trade, their restrictive cultures unable to respond fast enough once their control was broken.

Today most organizations and institutions developed to solve the problems created by innovations of the Industrial Era. In fact, the modern corporation developed to support mass production and manufacturing. Organizational innovations ranging from Frederick Taylor's scientific management (which viewed both people and organizations as machines) to Henry Ford's mass production assembly line fit the needs of the times. They enabled scalability, standardization, and mass merchandizing. As the Information Era (which arose in the 1950s) matures, it requires new forms of organization based on innovation and globalization and knowledge work. It should be no surprise to see Industrial Era structures breaking down around us.

### **Lesson Seven: New Identities Evolve from Innovation**

The human sense of self also evolves as history unfolds and the context of life changes. As clusters of innovations are adopted they reshape the economy, the society, and daily life. Identity is a set of reference points, markers that individuals use to distinguish themselves from others. They include everything from your name to your role at work to your group memberships to your national and global identity. Reference points change during cycles of innovation. The reference points we have today are more diverse and numerous than at any point in history, and dramatically different from previous cycles of innovation. Identity no longer answers the question, Where have I been placed in the world? It is no longer defined by bordered places.

The sense of identity has changed dramatically over the last five hundred years. It has gone from a God-centric sense universe to a materialistic idea of who we are. Ordinary people have become more important too—it is not just the wealthy who have power. As Chandra Mukerji described it in 2000, in a lecture at UC San Diego, “Prior to these developments, a high degree of localism and determinacy measured your life. If you lived in a rural town and lived more or less directly off the land, as did most people in the Middle Ages, you had no reason to imagine who you were as a person or what community you belonged to. It was obvious. You were what your community knew you to be, and your community was made up of the people in your town.” The rise of trade changed all this; the newly wealthy were merchants, not nobles. Due to their links with other parts of the world they could consider themselves in terms beyond their immediate



neighbors. As Mukerji says, “They could become cosmopolitan consumers and members of imagined communities.”

The Badlands of the Renaissance embodied the Reformation and Counter-Reformation and the reconfiguration of the religious and secular world. It was caught up in the chaos of painted images of God and Heaven being replaced by maps of trading routes, as the natural order was re-imagined not just as the domain of God but as a resource for business and commerce.

Today once again we are challenged to represent ourselves when so many of our local and global reference points are being dislocated by multiple short-term relationships in both a physical and an electronic landscape. What markers represent your truly authentic self? And in this increasingly complex world our sense of “we” becomes as critically important as our sense of “I.” Knowing who “we” are—and how that group identity fits with “I”—is especially important in an economy where the creation of knowledge is achieved through the collaborative sharing and sense-making of small groups of people. For this to occur there must be deep trust.

## IMPLICATIONS

If we can learn from the lessons of the past, they can help us stay oriented in a landscape with few clear paths through it. Here are a few implications these lessons provide for today’s journey through the Badlands:

- We are at the point today where the economy is churning faster than society can respond to it. We need to focus on the new problems and issues this creates and not get lost in old ideas and processes that could prevent us from surviving this journey. We need new and better leadership to design new kinds of organizations at all levels to match the needs of tomorrow.
- The dramatic changes we need to make can come from listening to new voices. The tension between the fringe and the center provides fertile ground for innovation; embrace it, don’t try to squelch it. Leaders in business, government, and nonprofits need to make contact with their fringe—the heretics and mavericks and young people who inhabit those marginalized places.

- Dynamic world trade that takes advantage of the technologies of connection provides an opportunity for the betterment of all people. It is our choice to seize it or not.
- Today's social ferment from the growing global networks is the breeding ground for radical innovations, for good and for ill. Social experimentation with new disruptive technologies will be a prominent feature of the next twenty years.
- Attempts to monopolize information and knowledge by powerful institutions will break down in today's societies, just as they did in the Renaissance.
- Innovation requires optimal diversity, which can come from many sources—geographic, cultural, interdisciplinary, and intergenerational, to name a few. Keep seeking collisions with the new and engage deeply in cultural learning to achieve the mix needed to create a vibrant global society and economy.
- We are in a cycle of disruptive innovation where new knowledge, not just technology, continues to explode across myriad disciplines, from physics to biology to energy, changing our fundamental knowledge base, which will result in a new identity.

## PARTING THOUGHTS

The world has changed in the last fifty years as much as at any time in human history, if not more so. It will change as much again in the next twenty-five, as we come to the last phase of this seventy-five-year historical cycle of disruptive innovation. We have passed the point of no return; taking the rest of the journey is not optional. At the end of it, the future that we weave together will not resemble the past. As in the Renaissance, much of the transformation will be caused by the continuous creation not merely of new technologies, but of new knowledge. This extraordinary period will be similar to the explosion of knowledge and social reorganization that occurred during the Renaissance, and before that with the invention of writing in the Bronze Age.

As the twentieth century ended, we slipped into the Badlands phase of this cycle. With the loss of the easy wealth creation in the late 1990s we find ourselves less resistant to change. Now the transformational effects of the Information Revolution are taking hold. They will change the very way we do business and organize our work at the center of our

lives. We truly have passed the point of no return. The phenomenon of the Information Revolution can't be reversed, and it will reshape not only the Western world but the entire world as well.

The fact that this journey is a global one adds to it both intensity and complexity, promising everyone an experience that will mark their lives like no other in history. How well today's society can manage the transition through market mechanisms and political forces will lay the scaffolding for the next era. The challenge is daunting, yet that is the task at hand. By the end of this long journey through the Badlands, your life will have changed in the most profound ways. Not only will your work and organizational life transform as you shift your commitment from local to national to planetary, your very identity will also change—your sense of who you are and what you mean on this earth. Welcome to the Badlands.