

# Introduction

**I**NNOVATION. It's the lifeblood of our global economy and a strategic priority for virtually every CEO around the world. In fact, a recent IBM poll of fifteen hundred CEOs identified creativity as the number-one “leadership competency” of the future.<sup>1</sup> The power of innovative ideas to revolutionize industries and generate wealth is evident from history: Apple iPod outplays Sony Walkman, Starbucks's beans and atmosphere drown traditional coffee shops, Skype uses a strategy of “free” to beat AT&T and British Telecom, eBay crushes classified ads, and Southwest Airlines flies under the radar of American and Delta. In every case, the creative ideas of innovative entrepreneurs produced powerful competitive advantages and tremendous wealth for the pioneering company. Of course, the retrospective \$1 million question is, how did they do it? And perhaps the prospective \$10 million question is, how could I do it?

*The Innovator's DNA* tackles these fundamental questions—and more. The genesis of this book centered on the question that we posed years ago to “disruptive technologies” guru and coauthor Clayton Christensen: where do disruptive business models come from? Christensen's best-selling books, *The Innovator's*

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*Dilemma* and *The Innovator's Solution*, conveyed important insight into the characteristics of disruptive technologies, business models, and companies. *The Innovator's DNA* emerged from an eight-year collaborative study in which we sought a richer understanding of disruptive innovators—who they are and the innovative companies they create. Our project's primary purpose was to uncover the origins of innovative—and often disruptive—business ideas. So we interviewed nearly a hundred inventors of revolutionary products and services, as well as founders and CEOs of game-changing companies built on innovative business ideas. These were people such as eBay's Pierre Omidyar, Amazon's Jeff Bezos, Research In Motion's Mike Lazaridis, and Salesforce.com's Marc Benioff. For a full list of innovators we interviewed whom we quote in this book, see appendix A; virtually all of the innovators we quote, with the exception of Steve Jobs (Apple), Richard Branson (Virgin), and Howard Schultz (Starbucks)—who have written autobiographies or have given numerous interviews about innovation—are from our interviews.

We also studied CEOs who ignited innovation in existing companies, such as Procter & Gamble's A. G. Lafley, eBay's Meg Whitman, and Bain & Company's Orit Gadiesh. Some entrepreneurs' companies that we studied were successful and well known; some were not (for example, Movie Mouth, Cow-Pie Clocks, Terra Nova BioSystems). But all offered a surprising and unique value proposition relative to incumbents. For example, each offered new or different features, pricing, convenience, or customizability compared to their competition. Our goal was less to investigate the companies' strategies than it was to dig into the thinking of the innovators themselves. We wanted to understand as much about these people as possible, including the moment (when and how) they came up with the creative ideas that launched new products or businesses. We asked them to tell us

about the most valuable and novel business idea that they had generated during their business careers, and to tell us where those ideas came from. Their stories were provocative and insightful, and surprisingly similar.

As we reflected on the interviews, consistent patterns of action emerged. Innovative entrepreneurs and executives behaved similarly when discovering breakthrough ideas. Five primary discovery skills—skills that compose what we call *the innovator's DNA*—surfaced from our conversations. We found that innovators “Think Different,” to use a well-known Apple slogan. Their minds excel at linking together ideas that aren’t obviously related to produce original ideas (we call this cognitive skill “associational thinking” or “associating”). But to think different, innovators had to “act different.” All were questioners, frequently asking questions that punctured the status quo. Some observed the world with intensity beyond the ordinary. Others networked with the most diverse people on the face of the earth. Still others placed experimentation at the center of their innovative activity. When engaged in consistently, these actions—questioning, observing, networking, and experimenting—triggered associational thinking to deliver new businesses, products, services, and/or processes. Most of us think creativity is an entirely cognitive skill; it all happens in the brain. A critical insight from our research is that *one's ability to generate innovative ideas is not merely a function of the mind, but also a function of behaviors*. This is good news for us all because it means that *if we change our behaviors, we can improve our creative impact*.

After surfacing these patterns of action for famous innovative entrepreneurs and executives, we turned our research lens to the less famous but equally capable innovators around the world. We built a survey based on our interviews that taps into the discovery skills of innovative leaders: associating, questioning, observing, networking, and experimenting. To date, we have

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collected self-reported and 360-degree data on these discovery skills from over five hundred innovators and over five thousand executives in more than seventy-five countries (for information about our assessments for individuals and companies, go to our Web site: <http://www.InnovatorsDNA.com>). We found the same pattern for famous as well as less famous leaders. Innovators were simply much more likely to question, observe, network, and experiment compared to typical executives. We published the results of our research in *Strategic Entrepreneurship Journal*, the top academic journal focused on entrepreneurs (details of our study are reported in appendix B).<sup>2</sup> We also published our findings in an article titled “The Innovator’s DNA,” which was the runner-up for the 2009 *Harvard Business Review* McKinsey Award.

We then turned to see what we could learn about the DNA of innovative organizations and teams. We started by looking at *BusinessWeek*’s annual ranking of innovative companies. This ranking, based on votes from executives, identified companies with a reputation for being innovative. A quick look at the *BusinessWeek* lists from 2005 to 2009 shows Apple as number one and Google, number two. OK, intuitively that sounds right. But we felt that the *BusinessWeek* methodology (executives voting on which companies are innovative) produces a list that is largely a popularity contest based on *past* performance. Indeed, do General Electric, Sony, Toyota, and BMW deserve to be on the list of most innovative companies today? Or are they simply there because they have been successful in the past?

To answer these questions, we developed our own list of innovative companies based on current innovation prowess (and expectations of future innovations). How did we do this? We thought the best way was to see whether investors—voting with their wallets—could give us insight into which companies they thought most likely to produce future innovations: new products, services, or markets. We teamed up with HOLT (a division of Credit Suisse Boston that had done a similar analysis for *The Innovator*’s

## Who Is Classified as an Innovator?

Perhaps one of the most surprising findings from the past thirty years of entrepreneurship research is that *entrepreneurs do not differ significantly (on personality traits or psychometric measures) from typical business executives.*<sup>a</sup> We usually meet this finding with skepticism, since most of us intuitively believe that entrepreneurs are somehow different from other executives. Note that our research focused on *innovators* and, in particular, *innovative* entrepreneurs rather than entrepreneurs. Here's why. Innovative entrepreneurs start companies that offer unique value to the market. When someone opens a dry cleaner or a mortgage business, or even a set of Volkswagen dealerships or McDonald's franchises, researchers put them all in the same category of entrepreneur as the founders of eBay (Pierre Omidyar) and Amazon (Jeff Bezos). This creates a categorization problem when trying to find out whether *innovative* entrepreneurs differ from typical executives. The fact is that most entrepreneurs launch ventures based on strategies that are not unique and certainly not disruptive. Among entrepreneurs as a whole, only 10 percent to 15 percent qualify as "innovative entrepreneurs" of the kind we're discussing.

Our study includes four types of innovators: (1) start-up entrepreneurs (as we described earlier), (2) corporate entrepreneurs (those who launch an innovative venture from within the corporation), (3) product innovators (those who invent a new product), and (4) process innovators (those who launch a breakthrough process). Our process inventor category includes folks like A. G. Lafley, who initiated a set of innovative processes at Procter & Gamble that sparked numerous new product innovations. In all cases, the original idea for the new

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business, product, or process must be the innovator's idea. While these different types of innovators have numerous similarities, they also have some differences, as we will show in the chapters that follow.

a. This is evident in the conclusions of numerous studies on entrepreneurs, including the following:

"After a great deal of research, it is now often concluded that most of the psychological differences between entrepreneurs and managers in large organizations are small or non-existent" (L. W. Busenitz and J. B. Barney, "Differences Between Entrepreneurs and Managers in Large Organizations," *Journal of Business Venturing* 12, 1997).

"There appears to be no discoverable pattern of personality characteristics that distinguish between successful entrepreneurs and non-entrepreneurs" (W. Guth, "Director's Corner: Research in Entrepreneurship," *The Entrepreneurship Forum*, winter 1991).

"Most of the attempts to distinguish between entrepreneurs and small business owners or managers have discovered no differentiating features" (R. H. Brockhaus and P. S. Horwitz, "The Psychology of the Entrepreneur" in *The Art and Science of Entrepreneurship*, 1986).

*Solution*) to develop a methodology for determining what percentage of a firm's market value could be attributed to its existing businesses (products, services, markets). If the firm's market value was higher than the cash flows that could be attributed to its existing businesses, then the company would have a *growth and innovation premium* (for our purposes, we'll just call it an *innovation premium*). An innovation premium is the proportion of a company's market value that cannot be accounted for from cash flows of its current products or businesses in its current markets. It is the premium the market gives these companies because investors expect them to come up with new products or markets—and they expect the companies to be able to generate high profits from them (see chapter 7 for details on how the premium is calculated).

It is a premium that every executive, and every company, would like to have.

We unveil our list of the most innovative companies—ranked by innovation premium—in chapter 7. Not surprisingly, we found that our top twenty-five companies include some on the *BusinessWeek* list—such as Apple, Google, Amazon, and Procter & Gamble. These companies averaged at least a 35 percent innovation premium over the past five years. But we also learned that companies such as Salesforce.com (software), Intuitive Surgical (health care equipment), Hindustan Lever (household products), Alstom (electrical equipment), and Monsanto (chemicals) have similar premiums. And as we studied these firms in greater detail, we learned that they are also very innovative. As we examined both our list and the *BusinessWeek* list of innovative companies, we saw several patterns.

First, we noticed that compared to typical companies they were far more likely to be led by an innovative founder or a leader who scored extremely high on the five discovery skills that compose the innovator's DNA (their average discovery quotient was in the eighty-eighth percentile, which meant they scored higher than 88 percent of people taking our discovery skills assessment). Innovative companies are almost always led by innovative leaders. Let us say this again: *Innovative companies are almost always led by innovative leaders.* The bottom line: if you want innovation, you need creativity skills within the top management team of your company. We saw how innovative founders often imprinted their organizations with their behaviors. For example, Jeff Bezos personally excels at experimenting, so he helped create institutionalized processes within Amazon to push others to experiment. Similarly, Intuit's Scott Cook shines at observing, so he pushes observation at Intuit. Perhaps not surprisingly, we discovered that the DNA of innovative organizations mirrored the DNA of innovative individuals. In other words, innovative *people*

systematically engage in questioning, observing, networking, and experimenting behaviors to spark new ideas. Similarly, innovative *organizations* systematically develop *processes* that encourage questioning, observing, networking, and experimenting by employees. Our chapters on building the innovator's DNA in your organization and team describe how you too can actively encourage and support others' innovation efforts.

### **Why the Ideas in This Book Should Matter to You**

Over the last decade, many books on the topic of innovation and creativity have been written. Some books focus on disruptive innovation, such as Clayton Christensen's *The Innovator's Dilemma* and *The Innovator's Solution*. Others, such as *Ten Rules for Strategic Innovators* (Govindarajan and Trimble), *Game Changer* (A. G. Lafley and Ram Charan), and *The Entrepreneurial Mindset* (Rita McGrath and Ian MacMillan), examine how organizations, and organizational leaders, encourage and support innovation. Others look more specifically at product development and innovation processes within and across firms, such as *How Breakthroughs Happen* (Andrew Hargadon) and *The Sources of Innovation* (Eric von Hippel). Other books on innovation look at the roles individuals play in the innovation process within companies, such as *The Ten Faces of Innovation* and *The Art of Innovation* (both by Tom Kelley of IDEO), or *A Whole New Mind* (Daniel Pink). Finally, other books like *Creativity in Context* (Teresa Amabile) and *Creativity* (Mihaly Csikszentmihalyi) examine individual creativity and, more specifically, theories and research about creativity. Our book differs from the others in that it is focused squarely on individual creativity in the business context and is based on our study of a large sample of business innovators, including some big-name innovators such as Jeff Bezos (Amazon.com), Pierre Omidyar (eBay), Michael Lazaridis

## A Disclaimer . . . Sort of

We think it is important to remember three significant points as you read *The Innovator's DNA*. First, engaging in the discovery skills doesn't ensure financial success. Throughout the book, we tell stories of people who were manifestly successful at innovating. We focus on the success stories because we are all more naturally drawn to success than failure. However, in our sample of five hundred innovators, only two-thirds launched ventures or products that met our criteria of success. Many were not successful. The innovators developed the right skills—questioning, observing, networking, and experimenting—that produced an innovative venture or product, but the result was not always a financial success. The point is that the discovery skills we describe are necessary, indeed critical, for generating innovative business ideas, but they don't guarantee success.

Second, failure (in a financial sense) often results from not being vigilant in engaging all discovery skills. The more financially successful innovators in our sample demonstrated a higher discovery quotient (scored higher on the discovery skills) than less successful ones. If you fail with an innovation, it may be that you didn't ask all the right questions, make all of the necessary observations, talk to a large enough group of diverse people, or run the right experiments. Of course, it is also possible that you did all these things but an even newer technology emerged or some other bright innovator came up with an even better idea. Or maybe you just didn't excel at executing on the idea or have the resources to compete with an established firm that imitated your invention. Many factors can prevent a new product or business idea from gaining traction in the market. But the better you are at asking the

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right questions, engaging in the right observations, eliciting ideas and feedback through networking with the right people, and running experiments, the less likely you are to fail.

Third, we spotlight different innovators and innovative companies to illustrate key ideas or principles, but not to set them up as perfect examples of how to be innovative. Some innovators we studied were “serial innovators,” as they had developed quite a number of innovations over time and appeared motivated to continue doing so. Others benefitted by being in the right place at the right time to make a critical observation, talk to a key person with particularly useful knowledge, or serendipitously learn from an experiment. They made an important discovery once, but they might not necessarily be capable or motivated (perhaps due to financial success) to continue generating innovative ideas. In similar fashion, we have found that innovative companies can quickly lose their innovative prowess, while others can quickly improve it. In chapter 8, we show that Apple’s innovation prowess (as measured by its innovation premium) dropped dramatically after Jobs left in 1984, but then jumped up dramatically a few years after he returned to lead the company. Procter & Gamble was a solid innovation performer before Lafley took the helm, but increased its innovation premium by 30 percent under his leadership. The point is that people and companies can change and may not always live up to our lofty expectations.

(Research In Motion/BlackBerry), Michael Dell (Dell), Marc Benioff (Salesforce.com), Niklas Zennström (Skype), Scott Cook (Intuit), Peter Thiel (PayPal), David Neeleman (JetBlue and Azul airlines), and so on. The premise of our book is that we explain how these big names got their “big ideas” and describe a process

that readers can emulate. We describe in detail five skills that anyone can master to improve his or her own ability to be an innovative thinker.

Ask yourself: Am I good at generating innovative business ideas? Do I know how to find innovative people for my organization? Do I know how to train people to be more creative and innovative? Some executives respond to the last question by encouraging employees to think outside the box. But thinking outside the box is precisely what employees (and executives) are trying to figure out. We've even watched some executives answer the "How do I think outside the box?" question with another equally generic (and unhelpful) answer, "Be creative."

If you find yourself struggling with actionable answers to these questions, read on to gain a solid grasp of five skills that can make all the difference when facing your next innovation challenge. All leaders have problems and opportunities sitting in front of them for which they have no solution. It might be a new process. It might be a new product or service. It might be a new business model for an old business. In every case, the skills you build by putting into practice the innovator's DNA may literally save your job, your organization, and perhaps your community. Indeed, we've found that if you want to rise to the highest levels of your organization—to a business unit manager, president, or CEO position—you need strong discovery skills. And if you want to lead a truly innovative organization, you likely will need to excel at those skills.

We hope that *The Innovator's DNA* will encourage you to reclaim some of your youthful curiosity. Staying curious keeps us engaged and our organizations alive.<sup>3</sup> Imagine how competitive your company will be ten years from now without innovators if its people didn't find any new ways to improve its processes, products, or services. Clearly, your company would not survive. Innovators constitute the core of any company's, or even country's, ability to compete.

## How *The Innovator's DNA* Unfolds

Like a pocket-sized map in a foreign place, our book serves as a guide to your innovation journey. The first part (chapters 1 through 6) explains why the innovator's DNA matters and how the pieces can combine into a personalized approach to innovation. We put flesh onto the “think different” slogan by explaining in detail the habits and techniques that allow innovators to think differently. The chapters in part one give rich detail about how to master the specific skills that are key to generating novel ideas—associating, questioning, observing, networking, and experimenting.

The second part (chapters 7 through 10) amplifies the building blocks of innovation by showing how the discovery skills of innovators described in part one operate in organizations and teams. Chapter 7 introduces our ranking of the world's most innovative companies based on each company's innovation premium, a market value premium based on investors' expectations of future innovations. We also provide a framework for seeing how the innovator's DNA works in the world's most innovative teams and organizations. We call this the “3P” framework because it contains the discovery-driven building blocks of highly innovative organizations or teams—*people*, *processes*, and *philosophies*. Chapter 8 focuses on building-block number one, *people*, and describes how innovative organizations achieve maximum impact by actively recruiting, encouraging, and rewarding people who display strong discovery skills—and blending innovators effectively with folks who have strong execution skills. Chapter 9 shows innovative team and company *processes* that mirror the five discovery skills of disruptive innovators. In other words, innovative companies rely on processes to encourage—even require—their people to engage in questioning, observing, networking, experimenting, and associating. Chapter 10 focuses on the funda-

mental *philosophies* that guide behavior within innovative teams and organizations. These philosophies not only guide disruptive innovators but also get imprinted in the organization, giving people the courage to innovate. Finally, for those interested in building discovery skills in yourself, your team, and even the next generation (young people you know), in appendix C we guide you through a process of taking your innovator's DNA to the next level.

We're delighted that you're starting or continuing your own innovation journey. We have watched scores of individuals take the ideas in this book to heart and who describe how they have dramatically improved their innovation skills as a result. They continually confirm that the journey is worth taking. We think you'll feel the same way once you've finished reading about and mastering the skills of a disruptive innovator.



PART ONE

**Disruptive  
Innovation  
Starts with  
You**



# 1

## The DNA of Disruptive Innovators

*“I want to put a ding in the universe.”*

—Steve Jobs, founder and CEO,  
Apple Inc.

**D**O I KNOW HOW to generate innovative, even disruptive, business ideas? Do I know how to find creative people or how to train people to think outside the box? These questions stump most senior executives, who know that the ability to innovate is the “secret sauce” of business success. Unfortunately, most of us know very little about what makes one person more creative than another. Perhaps for this reason, we stand in awe of visionary entrepreneurs such as Apple’s Steve Jobs, Amazon’s Jeff Bezos, and eBay’s Pierre Omidyar, and innovative executives like P&G’s A. G. Lafley, Bain & Company’s Orit Gadiesh, and eBay’s Meg Whitman. How do these people come up with groundbreaking new ideas? If it were possible to discover the inner

workings of the masters' minds, what could the rest of us learn about how innovation really happens?

## Ideas for Innovation

Consider the case of Jobs, who was recently ranked the world's number-one best-performing CEO in a study published by *Harvard Business Review*.<sup>1</sup> You may recall Apple's famous "Think Different" ad campaign, whose slogan says it all. The campaign featured innovators from different fields, including Albert Einstein, Picasso, Richard Branson, and John Lennon, but Jobs's face might easily have been featured among the others. After all, everyone knows that Jobs is an innovative guy, that he knows how to think different. But the question is, just how does he do it? Indeed, how does any innovator think different?

The common answer is that the ability to think creatively is genetic. Most of us believe that some people, like Jobs, are simply born with creative genes, while others are not. Innovators are supposedly right brained, meaning that they are genetically endowed with creative abilities. The rest of us are left brained—logical, linear thinkers, with little or no ability to think creatively.

If you believe this, we're going to tell you that you are largely wrong. At least within the realm of business innovation, virtually everyone has some capacity for creativity and innovative thinking. Even you. So using the example of Jobs, let's explore this ability to think different. How did Jobs come up with some of his innovative ideas in the past? And what does his journey tell us?

### **Innovative Idea #1: Personal Computers Should Be Quiet and Small**

One of the key innovations in the Apple II, the computer that launched Apple, came from Jobs's decision that it should be quiet. His conviction resulted, in part, from all the time he'd spent

studying Zen and meditating.<sup>2</sup> He found the noise of a computer fan distracting. So Jobs was determined that the Apple II would have no fan, which was a fairly radical notion at the time. Nobody else had questioned the need for a fan because *all* computers required a fan to prevent overheating. Getting rid of the fan wouldn't be possible without a different type of power supply that generated less heat.

So Jobs went on the hunt for someone who could design a new power supply. Through his network of contacts, he found Rod Holt, a forty-something, chain-smoking socialist from the Atari crowd.<sup>3</sup> Pushed by Jobs, Holt abandoned the fifty-year-old conventional linear unit technology and created a switching power supply that revolutionized the way power was delivered to electronics products. Jobs's pursuit of quiet and Holt's ability to deliver an innovative power supply that didn't need a fan made the Apple II the quietest and smallest personal computer ever made (a smaller computer was possible because it didn't need extra space for the fan).

Had Jobs never asked, "Why does a computer need a fan?" and "How do we keep a computer cool without a fan?" the Apple computer as we know it would not exist.

### **Innovative Idea #2: The Macintosh User Interface, Operating System, and Mouse**

The seed for the Macintosh, with its revolutionary operating system, was planted when Jobs visited Xerox PARC in 1979. Xerox, the copier company, created the Palo Alto Research Center (PARC), a research lab charged with designing the office of the future. Jobs wrangled a visit to PARC in exchange for offering Xerox an opportunity to invest in Apple. Xerox didn't know how to capitalize on the exciting things going on at PARC, but Jobs did.

Jobs carefully observed the PARC computer screen filled with icons, pull-down menus, and overlapping windows—all controlled

by the click of a mouse. “What we saw was incomplete and flawed,” Jobs said, “but the germ of the idea was there . . . within ten minutes it was obvious to me that all computers would work like this.”<sup>4</sup> He spent the next five years at Apple leading the design team that would produce the Macintosh computer, the first personal computer with a graphical user interface (GUI) and mouse. Oh, and he saw something else during the PARC visit. He got his first taste of object-oriented programming, which became the key to the OSX operating system that Apple acquired from Jobs’s other start-up, NeXT Computers. What if Jobs had never visited Xerox PARC to observe what was going on there?

### **Innovative Idea #3: Desktop Publishing on the Mac**

The Macintosh, with its LaserWriter printer, was the first computer to bring desktop publishing to the masses. Jobs claims that the “beautiful typography” available on the Macintosh would never have been introduced if he hadn’t dropped in on a calligraphy class at Reed College in Oregon. Says Jobs:

Reed College offered perhaps the best calligraphy instruction in the country. Throughout the campus every poster, every label on every drawer, was beautifully hand-calligraphed. Because I had dropped out and didn’t have to take the normal classes, I decided to take a calligraphy class to learn how to do this. I learned about serif and san serif typefaces, about varying the amount of space between different letter combinations, about what makes great typography great. It was beautiful, historical, artistically subtle in a way that science can’t capture, and I found it fascinating. None of this had even a hope of any practical application in my life. But ten years later, when we were designing the first Macintosh computer, it all came back to me. And we designed it all into the Mac. It

was the first computer with beautiful typography. If I had never dropped in on that single course in college, the Mac would have never had multiple typefaces or proportionally spaced fonts. And since Windows just copied the Mac, it's likely that no personal computer would have them.<sup>5</sup>

What if Jobs hadn't decided to drop in on the calligraphy classes when he had dropped out of college?

So what do we learn from Jobs's ability to think different? Well, first we see that his innovative ideas didn't spring fully formed from his head, as if they were a gift from the Idea Fairy. When we examine the origins of these ideas, we typically find that the catalyst was: (1) a question that challenged the status quo, (2) an observation of a technology, company, or customer, (3) an experience or experiment where he was trying out something new, or (4) a conversation with someone who alerted him to an important piece of knowledge or opportunity. In fact, by carefully examining Jobs's *behaviors* and, specifically, how those behaviors brought in new diverse knowledge that triggered an innovative idea, we can trace his innovative ideas to their source.

What is the moral of this story? We want to convince you that creativity is not just a genetic endowment and not just a cognitive skill. Rather, we've learned that creative ideas spring from behavioral skills that you, too, can acquire to catalyze innovative ideas in yourself and in others.

## **What Makes Innovators Different?**

So what makes innovators different from the rest of us? Most of us believe this question has been answered. It's a genetic endowment. Some people are right brained, which allows them to be more intuitive and divergent thinkers. Either you have it or you don't. But does research really support this idea? Our research confirms

others' work that creativity skills are not simply genetic traits endowed at birth, but that they can be developed. In fact, the most comprehensive study confirming this was done by a group of researchers, Merton Reznikoff, George Domino, Carolyn Bridges, and Merton Honeyman, who studied creative abilities in 117 pairs of identical and fraternal twins. Testing twins aged fifteen to twenty-two, they found that only about 30 percent of the performance of identical twins on a battery of ten creativity tests could be attributed to genetics.<sup>6</sup> In contrast, roughly 80 percent to 85 percent of the twins' performance on general intelligence (IQ) tests could be attributed to genetics.<sup>7</sup> So general intelligence (at least the way scientists measure it) is basically a genetic endowment, but creativity is not. *Nurture trumps nature as far as creativity goes.* Six other creativity studies of identical twins confirm the Reznikoff et al. result: roughly 25 percent to 40 percent of what we do innovatively stems from genetics.<sup>8</sup> That means that roughly two-thirds of our innovation skills *still* come through learning—from first understanding the skill, then practicing it, and ultimately gaining confidence in our capacity to create.

This is one reason that individuals who grow up in societies that promote community versus individualism and hierarchy over merit—such as Japan, China, Korea, and many Arab nations—are less likely to creatively challenge the status quo and turn out innovations (or win Nobel prizes). To be sure, many innovators in our study seemed genetically gifted. But more importantly, they often described how they acquired innovation skills from role models who made it “safe” as well as exciting to discover new ways of doing things.

If innovators can be made and not just born, how then do they come up with great new ideas? Our research on roughly five hundred innovators compared to roughly five thousand executives led us to identify five discovery skills that distinguish innovators from typical executives (for detail on the research

methods, see appendix B). First and foremost, innovators count on a cognitive skill that we call “associational thinking” or simply “associating.” Associating happens as the brain tries to synthesize and make sense of novel inputs. It helps innovators discover new directions by making connections across seemingly unrelated questions, problems, or ideas. Innovative breakthroughs often happen at the intersection of diverse disciplines and fields. Author Frans Johanssen described this phenomenon as “the Medici effect,” referring to the creative explosion in Florence when the Medici family brought together creators from a wide range of disciplines—sculptors, scientist, poets, philosophers, painters, and architects. As these individuals connected, they created new ideas at the intersection of their respective fields, thereby spawning the Renaissance, one of the most innovative eras in history. Put simply, innovative thinkers connect fields, problems, or ideas that others find unrelated.

The other four discovery skills trigger associational thinking by helping innovators increase their stock of building-block ideas from which innovative ideas spring. Specifically, innovators engage the following behavioral skills more frequently:

**Questioning.** Innovators are consummate questioners who show a passion for inquiry. Their queries frequently challenge the status quo, just as Jobs did when he asked, “Why does a computer need a fan?” They love to ask, “If we tried this, what would happen?” Innovators, like Jobs, ask questions to understand how things really are today, why they are that way, and how they might be changed or disrupted. Collectively, their questions provoke new insights, connections, possibilities, and directions. We found that innovators consistently demonstrate a high Q/A ratio, where questions (Q) not only outnumber answers (A) in a typical conversation, but are valued at least as highly as good answers.

**Observing.** Innovators are also intense observers. They carefully watch the world around them—including customers, products, services, technologies, and companies—and the observations help them gain insights into and ideas for new ways of doing things. Jobs’s observation trip to Xerox PARC provided the germ of insight that was the catalyst for both the Macintosh’s innovative operating system and mouse, and Apple’s current OSX operating system.

**Networking.** Innovators spend a lot of time and energy finding and testing ideas through a diverse network of individuals who vary wildly in their backgrounds and perspectives. Rather than simply doing social networking or networking for resources, they actively search for new ideas by talking to people who may offer a radically different view of things. For example, Jobs talked with an Apple Fellow named Alan Kay, who told him to “go visit these crazy guys up in San Rafael, California.” The crazy guys were Ed Catmull and Alvy Ray, who headed up a small computer graphics operation called Industrial Light & Magic (the group created special effects for George Lucas’s movies). Fascinated by their operation, Jobs bought Industrial Light & Magic for \$10 million, renamed it Pixar, and eventually took it public for \$1 billion. Had he never chatted with Kay, he would never have wound up purchasing Pixar, and the world might never have thrilled to wonderful animated films like *Toy Story*, *WALL-E*, and *Up*.

**Experimenting.** Finally, innovators are constantly trying out new experiences and piloting new ideas. Experimenters unceasingly explore the world intellectually and experientially, holding convictions at bay and testing hypotheses along the way. They visit new places, try new things, seek new information, and experiment to learn new things. Jobs, for example, has tried new experiences all his life—from meditation and

living in an ashram in India to dropping in on a calligraphy class at Reed College. All these varied experiences would later trigger ideas for innovations at Apple Computer.

Collectively, these discovery skills—the cognitive skill of associating and the behavioral skills of questioning, observing, networking, and experimenting—constitute what we call the innovator’s DNA, or the code for generating innovative business ideas.

## The Courage to Innovate

Why do innovators question, observe, network, and experiment more than typical executives? As we examined what motivates them, we discovered two common themes. First, they actively desire to change the status quo. Second, they regularly take smart risks to make that change happen. Consider the consistency of language that innovators use to describe their motives. Jobs wants to “put a ding in the universe.” Google cofounder Larry Page has said he’s out to “change the world.” These innovators steer entirely clear of a common cognitive trap called *the status quo bias*—the tendency to prefer an existing state of affairs to alternative ones. Most of us simply accept the status quo. We may even like routine and prefer not to rock the boat. We adhere to the saying, “if it ain’t broke, don’t fix it,” while not really questioning whether “it” is “broke.” In contrast, innovators see many things as “broke.” And they want to fix them.

How do innovators break the status quo? One way is to refuse to be dictated by other people’s schedules. Just glance at an innovative executive’s typical calendar and you will find a radically different schedule compared to less inventive executives. *We found that innovative entrepreneurs (who are also CEOs) spend 50 percent more time on discovery activities (questioning, observing, experimenting, and networking) than CEOs with no innovation track*

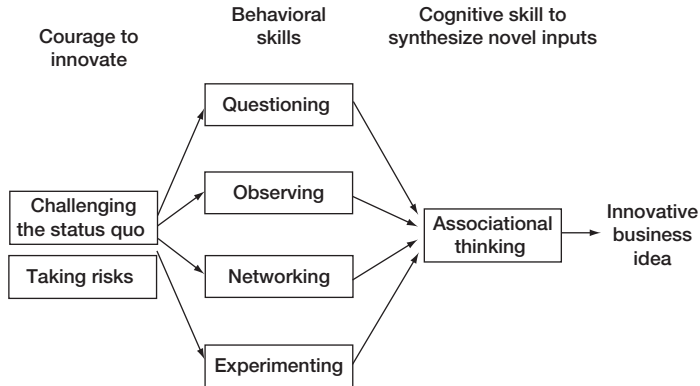
*record*. That translated into spending almost one more day each week on discovery activities. They understand that fulfilling their dreams to change the world means they've got to spend a significant amount of time trying to discover *how* to change the world. And having the courage to innovate means that they are actively looking for opportunities to change the world.

Embracing a mission for change makes it much easier to take smart risks, make mistakes, and most of all, learn quickly from them. Most innovative entrepreneurs we studied felt that mistakes are nothing to be ashamed of. In fact, they are an expected cost of doing business. "If the people running Amazon.com don't make some significant mistakes," Jeff Bezos told us, "then we won't be doing a good job for our shareholders because we won't be swinging for the fences." In short, innovators rely on their "courage to innovate"—an active bias against the status quo and an unflinching willingness to take smart risks—to transform ideas into powerful impact.

In summary, the DNA of innovators—or the code for generating innovative ideas—is expressed in the model shown in figure 1-1. The key skill for generating innovative ideas is the cognitive skill of associational thinking. The reason that some people generate more associations than others is partly because their brains are just wired that way. But a more critical reason is that they more frequently engage in the behavioral skills of questioning, observing, networking, and experimenting. These are the catalysts for associational thinking. Of course, the next question is, why do some people engage these four skills more than others? The answer is that they have the courage to innovate. They are willing to embrace a mission for change and take risks to make change happen. The bottom line is that to improve your ability to generate innovative ideas, you need to practice associational thinking and more frequently engage in questioning, observing,

FIGURE 1-1

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**The innovator's DNA model for generating innovative ideas**


networking, and experimenting. That will likely only happen if you can somehow cultivate the courage to innovate.

As innovators actively engage in their discovery skills over a lifetime, they build discovery habits, and they become defined by them. They grow increasingly confident in their ability to discover what's next, and they believe deeply that generating creative insights is *their* job. It is not something to delegate to someone else. As A. G. Lafley declared, "innovation is the central job of every leader—business unit managers, functional leaders, and the CEO."<sup>9</sup>

## The Innovator's DNA

We've just told you that the ability to be innovative is *not* based primarily on genetics. At the same time, we're using the DNA metaphor to describe the inner workings of innovators, which suggests that it is. Bear with us for a moment. (And welcome to the world of innovation, where the ability to synthesize two seemingly opposing ideas is the type of associating that produces novel

insights.) Recent developments in the field of gene therapy show that it is possible to modify and strengthen your physical DNA, for example, to help ward off diseases.<sup>10</sup> Likewise, it is metaphorically possible to strengthen your personal innovator's DNA. Let us provide an illustration.

Imagine that you have an identical twin, endowed with the same brains and natural talents that you have. You're both given one week to come up with a creative new business idea. During that week, you come up with ideas alone, just thinking in your room. By contrast, your twin (1) talks with ten people—including an engineer, a musician, a stay-at-home dad, and a designer—about the venture; (2) visits three innovative start-ups to observe what they do; (3) samples five “new to the market” products and takes them apart; (4) shows a prototype he's built to five people, and (5) asks “What if I tried this?” and “What would make this not work?” at least ten times each day during these networking, observing, and experimenting activities. Who do you bet will come up with the more innovative (and usable) idea? My guess is that you'd bet on your twin, and not because he has better natural (genetic) creative abilities. Of course, the anchor weight of genetics is still there, but it is not the dominant predictor. People can learn to more capably come up with innovative solutions to problems by acting in the way that your twin did.

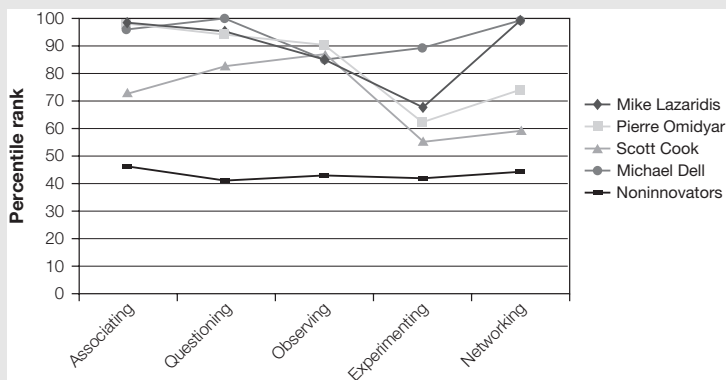
As figure 1-2 shows, innovative entrepreneurs rarely display across-the-board strength in observing, experimenting, and networking, and actually don't need to. All of the high-profile innovative entrepreneurs in our study scored above the seventieth percentile in associating and questioning. The innovators seemed to hold these two discovery skills more universally. But the innovators we studied didn't need world-class strength in the other behaviors. It certainly helped if they excelled at one of the four skills and were strong in at least two. If you hope to be a better

## Discovery Skill Strengths Differ for Disruptive Innovators

To understand that innovative entrepreneurs develop and use different skills, look at figure 1-2. It shows the percentile rank scores on each of the five discovery skills for four well-known founders and innovators: Pierre Omidyar (eBay), Michael Dell (Dell), Michael Lazaridis (Research In Motion), and Scott Cook (Intuit). The percentile rank indicates the percentage of over five thousand executives and innovators in our database who scored lower on that particular skill. A particular skill is measured by the frequency and intensity with which these individuals engage in activities that compose the skill.

FIGURE 1-2

### High-profile innovators' discovery skills profile



As you can see, the pattern for each innovative entrepreneur is different. For example, Omidyar is much more likely to acquire his ideas through questioning (ninety-fifty percentile) and

(continued)

observing (eighty-seventh percentile), Dell through experimenting (ninetieth percentile) and networking (ninety-eighth percentile), Cook through observing (eighty-eighth percentile) and questioning (eighty-third percentile), and Lazaridis through questioning (ninety-sixth percentile) and networking (ninety-eighth percentile). The point is that each of these innovative entrepreneurs did not score high on *all* five of the discovery skills. They each combined the discovery skills *uniquely* to forge new insights. Just as each person's physical DNA is unique, an innovator's DNA comprises a unique combination of skills and behaviors.

innovator, you will need to figure out which of these skills you can improve and which can be distinguishing skills to help you generate innovative ideas.

### **Delivery Skills: Why Most Senior Executives Don't Think Different**

We've spent the past eight years interviewing scores of senior executives—mostly at large companies—asking them to describe the most novel and valuable strategic insights that they had generated during their careers. Somewhat surprisingly, we found that top executives rarely mentioned an innovative business idea that they had personally generated. They were extremely intelligent and talented individuals who were accomplished at delivering results, but they didn't have much direct, personal experience with generating innovative business ideas.

In contrast to innovators who seek to fundamentally change existing business models, products, or processes, most senior executives work hard to efficiently deliver the next thing that should be done *given* the existing business model. That is, they

## I'm Not Steve Jobs . . . Is This Relevant?

OK, so you're not Steve Jobs. Or Jeff Bezos. Or any other famous business innovator. But that doesn't mean you can't learn from these innovators. You *can* get better at innovating, even if most of your innovations are somewhat incremental in nature. We've seen it happen, and we've seen that it can make a difference. We've seen a pharmaceutical executive practice a questioning technique (see chapter 3) each day to identify key strategic issues facing his division. After three months, his boss told him that he'd become the most effective strategic thinker on his team. Within six months, he was promoted to a corporate strategic planning job. "I just improved my ability to ask questions," he told us. We've seen MBA students in our classes use the observing, networking, and experimenting techniques to generate entrepreneurial business ideas. One got the idea for launching a company that uses bacteria to eat pollution from networking with someone he met at a neighborhood barbeque. Another observed that the best English speakers in Brazil were people who watched American movies and television. So he launched a company that sells software that helps people learn English by watching movies. Many innovative ideas may seem small, such as a new process for effectively screening job recruits or a better way to build customer loyalty, but they are valuable new ideas nonetheless. And if you come up with enough of them, they will definitely help you advance in your career. The point is this: you don't have to be Steve Jobs to generate innovative ideas for your business.

work inside the box. They shine at converting a vision or goal into the specific tasks to achieve the defined goal. They organize work and conscientiously execute logical, detailed, data-driven plans of action. In short, most executives excel at execution, including the

following four delivery skills: *analyzing*, *planning*, *detail-oriented implementing*, and *disciplined executing*. (We'll say more about these skills later in the chapter and in chapter 8, but for now we need only note that they are critical for delivering results and translating an innovative idea into reality.)

Many innovators realize that they are deficient in these critical skills and, consequently, try to team up with others who possess them. For example, eBay founder Omidyar quickly recognized the need for execution skills, so he invited Jeff Skoll, a Stanford MBA, and Meg Whitman, a Harvard MBA, to join him. "Jeff Skoll and I had very complementary skills," Omidyar told us. "I'd say I did more of the creative work developing the product and solving problems around the product, while Jeff was involved in the more analytical and practical side of things. He was the one who would listen to an idea of mine and then say, 'Ok, let's figure out how to get this done.'" Skoll and Whitman professionalized the eBay Web site, added fixed-price auctions, drove international expansion, developed new categories such as autos, and integrated important capabilities such as PayPal.

Why do most senior executives excel in the delivery skills, but are only above average in discovery skills? It is vital to understand that the skills critical to an organization's success vary systematically throughout the business life cycle. (See figure 1-4). For example, in the start-up phase of an innovative venture, the founders are obviously more discovery-driven and entrepreneurial. Discovery skills are crucial early in the business life cycle because the company's key task is to generate new business ideas worth pursuing. Thus, discovery (exploration) skills are highly valued at this stage and delivery (execution) skills are secondary. However, once innovative entrepreneurs come up with a promising new business idea and then shape that idea into a bona fide business opportunity, the company begins to grow and then must pay attention to building the processes necessary to scale the idea.

## The Discovery and Delivery Skills Matrix: How Innovators Stack Up

To test the assertion that innovative executives have a different set of skills than typical executives, we used our innovator's DNA assessment to measure the percentile rank of a sample of high-profile innovative entrepreneurs (founder CEOs of companies on *BusinessWeek's* list of the top one hundred most innovative companies) on both the five discovery skills (associating, questioning, observing, networking, experimenting) and the four delivery or execution skills: analyzing, planning, detail-oriented implementing, and self-disciplined executing. We averaged their percentile rank scores across the five discovery skills to get an overall percentile rank, and then did the same thing across the four delivery skills to get an overall percentile rank. We refer to the overall percentile rank across the five discovery skills as the "discovery quotient" or DQ. While intellectual quotient (or IQ) tests are designed to measure general intelligence and emotional quotient (or EQ) assessments measure emotional intelligence (ability to identify, assess, and control the emotions of ourselves and others), discovery quotient (DQ) is designed to measure our ability to discover ideas for new ventures, products, and processes.

Figure 1-3 shows that the high-profile innovative entrepreneurs scored in the eighty-eighth percentile on discovery skills, but only scored in the fifty-sixth percentile on delivery skills. In short, they were just average at execution. We then conducted the same analysis for a sample of nonfounder CEOs (executives who had never started a new business). We found that most senior executives in large organizations were the mirror image of innovative entrepreneurs: they scored around the eightieth percentile on delivery skills, while scoring only above average on

(continued)

FIGURE 1-3

## Discovery-delivery skills matrix

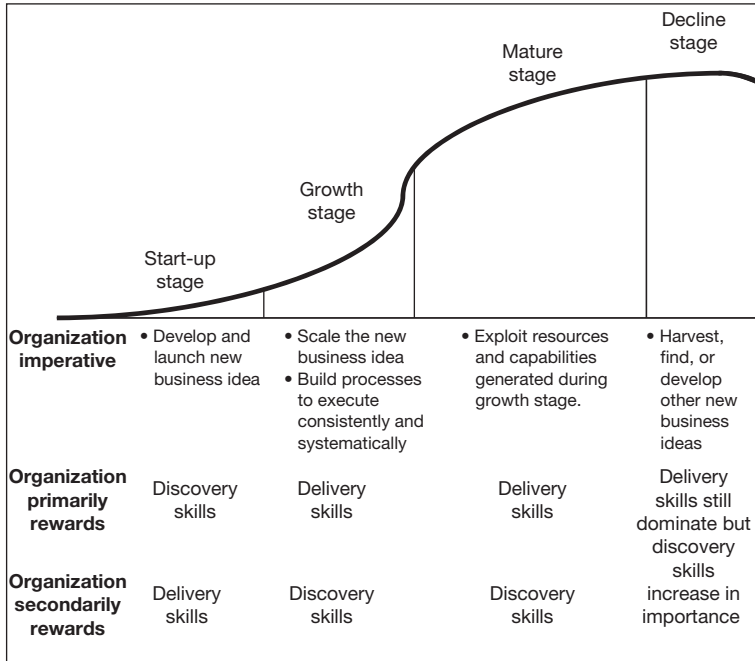


discovery skills (sixty-second percentile). In short, they are selected primarily for their execution skills. This focus on execution is even more pronounced in business unit managers and functional managers, who are worse at discovery than typical CEOs. This data shows that innovative organizations are led by individuals with a very high DQ. It also shows that even within an average organization, discovery skills tend to distinguish those who make it to the highest levels of the organization. So if you want to move up, you'd better learn how to innovate.

During the growth stage, the innovative entrepreneur may well leave the company, either because she has no interest in scaling the idea (which involves boring and routine work, at least to her) or because she does not have the skills to manage effectively in a large organization. Innovative entrepreneurs are often

FIGURE 1-4

## The business and executive skill life cycles



described as poor managers because they lack the ability to follow through on their new business ideas and are often irrationally overconfident in them. Moreover, they are more likely to make decisions based on hunches and personal biases rather than data-driven analysis.<sup>11</sup> Not surprisingly, the conventional prescription for these problems is to replace the entrepreneurs with professional managers—individuals with proven skills at delivering results. At this point in the business life cycle, professional managers who are better equipped to scale the business often replace the entrepreneur founders. When such replacement occurs, however, *key discovery skills walk away from the top management team.*

With the founder entrepreneur out of the picture, the ensuing growth and maturation stage of the business life cycle begins. In these stages, managers generally make it to the top of the management pyramid through great execution. This may involve generating incremental (sustaining) innovations for existing customers, but the focus is on execution, not building new businesses. Surprisingly few companies in this stage pay systematic attention to the selection or promotion of people with strong discovery skills. As this happens, the lack of discovery skills at the top becomes even more glaring, but it is still not necessarily obvious. (Contrast these common practices with those of Amazon founder Bezos, who systematically asks any new hire, including senior executives, to “tell me about something that you have invented.” Bezos wants to hire people with an inventive attitude—in other words, people like himself.)

Eventually, for most organizations, the initial innovations that created the business in the first place complete their life cycle. Growth stalls as the business hits the downward inflection point in the well-known S curve. These mature and declining organizations are typically dominated by executives with excellent delivery skills. Meanwhile, investors demand new growth businesses, but senior executive teams can’t seem to find them because the management ranks are dominated by folks with strong delivery skills. With discovery skills largely absent from the top management team, it becomes increasingly difficult to find new business opportunities to fuel new company growth. The company once again starts to see the imperative for discovery skills.

In sharp contrast, when entrepreneur founders stay through the growth stage, the company significantly outperforms its peers in growth and profitability.<sup>12</sup> An entrepreneurial founder is far more likely to surround herself with executives who are good at discovery, or who at least understand discovery. Could Apple have built new businesses in music (iTunes and iPod) and phones

(iPhone) on top of an older computer business without the return of Jobs? We doubt it.

The key point here is that large companies typically fail at disruptive innovation because the top management team is dominated by individuals who have been selected for delivery skills, not discovery skills. As a result, most executives at large organizations don't know how to think different. It isn't something that they learn within their company, and it certainly isn't something they are taught in business school. Business schools teach people how to be deliverers, not discoverers.

For a moment, consider your company's track record of rewarding and promoting discovery skills. Does your company actively screen for people who have strong discovery skills? Does your company regularly reward discovery skills through annual performance assessments? If the answers are no, then it is likely that a severe discovery skill deficit exists at the top ranks of management in your company.

## You Can Learn to Think Different

In this chapter, we've tried to convince you that creativity is not a just a genetic predisposition; it is an active endeavor. Apple's slogan "Think Different" is inspiring but incomplete. Innovators must consistently act different to think different. We acknowledge that genetics are at work within innovators, and that some have superior natural ability at associational thinking. However, *even if two individuals have the same genetic creative ability, one will be more successful at creative problem solving if he or she more frequently engages in the discovery skills we have identified.* By understanding—and engaging in—the five discovery skills, we believe that you can find ways to more successfully develop the creative spark within yourself and others. Read on as we describe how to master the five discovery skills in order to become a more innovative thinker.

## Discovery and Delivery Skills Quiz: What's Your Profile?

To get a quick snapshot of your discovery-delivery skills profile, take the following self-assessment survey (1 = strongly disagree; 2 = somewhat disagree; 3 = neither agree nor disagree; 4 = somewhat agree; 5 = strongly agree). Remember to answer based on your actual behaviors, not what you would like to do.

1. Frequently, my ideas or perspectives diverge radically from others' perspectives.
2. I am very careful to avoid making any mistakes in my work.
3. I regularly ask questions that challenge the status quo.
4. I am extremely well organized at work.
5. New ideas often come to me when I am directly observing how people interact with products and services.
6. I must have everything finished "just right" when completing a work assignment.
7. I often find solutions to problems by drawing on solutions or ideas developed in other industries, fields, or disciplines.
8. I never jump into new projects and ventures and act quickly without carefully thinking through all of the issues.
9. I frequently experiment to create new ways of doing things.
10. I always follow through to complete a task, no matter what the obstacles.
11. I regularly talk with a diverse set of people (e.g., from different business functions, organizations, industries, geographies, etc.) to find and refine new ideas.

12. I excel at breaking down a goal or plan into the micro tasks required to achieve it.
13. I attend conferences (on my areas of expertise as well as unrelated areas) to meet new people and understand what issues are facing them.
14. I pay careful attention to details at work to ensure that nothing is overlooked.
15. I actively seek to identify emerging trends by reading books, articles, magazines, blogs, and so on.
16. I hold myself and others strictly accountable for getting results.
17. I frequently ask “what if” questions that provoke exploration of new possibilities and frontiers.
18. I consistently follow through on all commitments and finish what I’ve started.
19. I regularly observe the activities of customers, suppliers, or other organizations to get new ideas.
20. I consistently create detailed plans to get work done.

To score your survey:

Add your score on the odd-numbered items. You score very high on discovery skills if your total score is 45 or above, high on discovery if your score is 40–45, moderate to high on discovery if your score is between 35 and 40, moderate to low if you score 29–34; you score low on discovery if your score is 28 or less.

Add your score on the even-numbered items. You score very high on delivery skills if your total score is 45 or above, high on delivery if your score is 40–45, moderate to high on delivery if your score is between 35 and 40, moderate to low

(continued)

if you score 29–34; you score low on delivery if your score is 28 or less.

We have drawn this short survey from a more systematic seventy-item assessment (either a self-assessment or a 360-degree assessment) that we have developed to assess an individual's discovery skills and delivery skills. You can do this assessment through our Web site at <http://www.InnovatorsDNA.com>. Should you decide to complete an assessment, you will receive a *development guide* to walk you through your results and help you design a skill development plan. Your assessment will provide you with your DQ and percentile data for each discovery and delivery skill to compare your scores with the over five thousand executives and innovators in our dataset.

PART TWO

**The DNA of  
Disruptive  
Organizations  
and Teams**



# 7

## The DNA of the World's Most Innovative Companies

*“Fast-growth companies must keep innovating. Companies are like sharks. If they stop moving, they die.”*

—Marc Benioff, founder and CEO,  
Salesforce.com

**I**N THIS BOOK'S first six chapters, we described how innovative *people* think differently and act differently to generate creative ideas for new products, services, processes, and businesses. Now we shift our attention to answering the question: how do *companies* comprising many people build the code for innovation? Without a doubt, executives worldwide face this critical question as they try to build innovation capabilities within their companies to generate growth opportunities. Before addressing this question, though, let's look at two other equally important ones. First, which companies are truly the most

TABLE 7-1

***BusinessWeek* list of most innovative companies (2005–2009)**

<b><i>Business Week</i> rank*</b>	<b>Company name</b>	<b>Innovation premium rank</b>	<b>Company name</b>	<b>5-year innovation premium</b>
1	Apple	1	Amazon	57%
2	Google	2	Apple	52%
3	Microsoft	3	Google	49%
4	Toyota	4	Procter & Gamble	35%
5	General Electric	5	Starbucks	35%
6	Procter & Gamble	6	Microsoft	29%
7	IBM	7	Nintendo	26%
8	Nokia	8	Research In Motion	20%
9	Sony	9	Cisco Systems	19%
10	3M	10	Hewlett-Packard	19%
11	Amazon	11	3M	18%
12	Samsung	12	General Electric	10%
13	BMW	13	IBM	8%
14	Honda	14	Southwest	7%
15	Research In Motion	15	eBay	7%
16	Hewlett-Packard	16	Target	7%
17	Nintendo	17	Walmart	5%

## The DNA of the World's Most Innovative Companies

<i>Business Week</i> rank*	Company name	Innovation premium rank	Company name	5-year innovation premium
18	Starbucks	18	Intel	4%
19	Target	19	Dell	4%
20	Intel	20	Nokia	-16%
21	Dell	21	BMW	-26%
22	Cisco	22	Toyota	-26%
23	eBay	23	Honda	-27%
24	Walmart	24	Sony	-28%
25	Southwest	25	Samsung	-29%

\*5-year average rank; excludes private companies: Virgin at 16 and Tata at 25.

innovative and should serve as models of innovation? Second, does having an innovation capability (and a reputation for innovation) turbocharge a company's market value?

In 2005, *BusinessWeek* began creating a list of the world's one hundred most innovative companies. It based this list on a Boston Consulting Group survey of executives who voted on the companies. (See table 7-1 for the *BusinessWeek* top twenty-five innovative companies from 2005 through 2009.) A quick look at the list shows Apple at number one and Google at number two. OK, intuitively that sounds right. But based on the methodology, the list is largely a popularity contest based on *past* performance. Do General Electric, Sony, BMW, and Toyota really deserve to be on the list of most innovative companies today?

To answer these questions, we decided to develop our own list of innovative companies based on expectations of *future* innovations. We thought the best way to do this would be to see whether

investors—voting with their wallets and purses—could give us insight into which companies they believe are most likely to produce new products, services, or markets.

We teamed up with HOLT (a division of Credit Suisse that had done a similar analysis for *The Innovator's Solution*) to develop a methodology for determining what percentage of a firm's market value could be attributed to its existing products, services, and markets. If the firm's market value was higher than the cash flows attributed to its existing businesses, then the company shows an *innovation premium*. This is the proportion of a company's market value that cannot be accounted for from cash flows of its current products and businesses in its current markets. Investors give this premium because they expect companies to come up with profitable new products or markets (for details on how to calculate the premium, see the endnote).<sup>1</sup> It is a premium that every executive and every company would like to have.

So how does the *BusinessWeek* top twenty-five stack up using our methodology? Our analysis reveals a different ranking order. (See our ranking in table 7-1 based on the average innovation premium over five years.)<sup>2</sup> Our research puts Amazon at number one (with a premium of 57 percent), Apple at number two (a premium of 52 percent), and Google at number three (a premium of 49 percent)—results that are reasonably similar to the *BusinessWeek* list. But take a look at the bottom five. Samsung (−29 percent), Sony (−28 percent), Honda (−27 percent), Toyota (−26 percent), and BMW (−26 percent) generate cash flows from existing businesses that are actually higher than their current market value. In other words, investors are not anticipating growth from new innovative products or services and, worse, they're expecting that these firms' existing businesses will likely shrink or have profit levels drop.

As we analyzed these results in greater detail, we realized that investors not only cared about whether companies could produce innovations, but also cared about whether they could generate

profits from new products and services. For example, Sony (number nine on the *BusinessWeek* list) and Samsung (number twelve on the list) have historically produced innovations in the consumer electronics industry, but recently investors haven't seen large profits from them and don't expect to in the future. However, competitor Nintendo (number seventeen on the *BusinessWeek* list) has an innovation premium of 26 percent, which means Nintendo not only has done a better job of generating profits from past innovations (such as the Wii), but is expected to do so in the future, giving it a much higher ranking on our list. Automakers BMW, Toyota, and Honda rank low on our list not because they won't innovate going forward, but because they will face severe challenges generating any profits from their innovations. Not only will these companies continue to fight emerging existing competitors (such as Korea's Hyundai and China's Chery), but a slew of brand-new competitors coming into the market, including battery-powered car-makers Tesla and Coda.

Given the differences described, we decided to generate our own list of most innovative companies based on their innovation premium. (See table 7-2.) We focused on large public companies (more than \$10 billion in market value), since the *BusinessWeek* list likewise focused on large companies. Our ranking revealed that, looking into the future, Salesforce.com is ranked number one (Benioff's disruptive cloud computing company, featured in chapter 2), followed by Intuitive Surgical (makers of the da Vinci system of surgical robots, which we will describe later). These companies are right up there with Amazon, Apple, and Google, which ranked three, five, and six, respectively. Do Salesforce.com and Intuitive Surgical deserve to be at the top of the list? Investors seem to think so. Salesforce.com not only has led the charge with cloud computing but has also introduced the AppExchange—which *Forbes* called the “iTunes of Business Software” and which won awards from the Software & Information

TABLE 7-2

**The world's most innovative companies (ranked by innovation premium)**

Innovation premium rank	Company name	Industry/key businesses	5-year innovation premium
1	Salesforce.com	Cloud computing software for businesses (e.g., CRM)	73%
2	Intuitive Surgical	Da Vinci system robots for robotic-assisted surgeries	64%
3	Amazon.com	Online discount retailer, Kindle, cloud computing	57%
4	Celgene Corp.	Pharmaceuticals	55%
5	Apple	Computers, software, music devices, phones, etc.	52%
6	Google	Software, primarily for information retrieval (e.g., search)	49%
7	Hindustan Lever/Unilever Heavy Electricals	Household products	47%
8	Reckitt Benckiser Group	Household products	44%
9	Monsanto Co.	Seeds, genetically modified seeds, crop protection	44%
10	Bharat Heavy Electricals	Electrical equipment	44%
11	Vestas Wind Systems	Electrical equipment	43%
12	Alstom SA	Electrical equipment	42%
13	CSL Limited	Biotechnology	40%
14	Beiersdorf AG	Personal products	38%

### The DNA of the World's Most Innovative Companies

Innovation premium rank	Company name	Industry/key businesses	5-year innovation premium
15	Synthes Incorporated	Health care equipment and supplies	38%
16	Activision Blizzard Inc.	Online and console game publisher	37%
17	Alcon Incorporated	Health care equipment and supplies	37%
18	Procter & Gamble	Consumer products (e.g., Downy, Gillette, Pringles, Dawn)	36%
19	NIDEC Corporation	Electronic equipment, instruments, and components	36%
20	Colgate-Palmolive	Consumer products (e.g., Colgate toothpaste, Palmolive soap)	35%
21	Starbucks	Restaurant and retail coffee-houses	35%
22	Ecolab Inc.	Hygiene chemicals, food safety, pest control	34%
23	Keyence Corporation	Electronic equipment, instruments, and components	34%
24	Essilor International Societe Anonyme	Health care equipment and supplies	34%
25	Hershey Co.	Chocolate, candy manufacturer	32%

Source: HOLT and The Innovator's DNA LLC.

Industry Association, *SD Times*, and others. The AppExchange offers more than a thousand applications for businesses in much the same way that the iPhone offers a multitude of applications for consumers. Moreover, Salesforce.com recently unveiled Chatter, a new social software application seen as “Facebook for businesses.”

Chatter takes the best of Facebook and Twitter and applies it to enterprise collaboration (as we describe in chapter 2).

Intuitive Surgical (number two) is an equally impressive innovator, having introduced robotic-assisted surgery to the world. For many surgeries—like prostate surgery—Intuitive’s da Vinci system has become the *modus operandi* in most operating rooms. But someday it could also play a major role in military surgical units. A surgeon in London could use it to operate on an injured soldier in any of the world’s military hot spots. The \$1.5 million da Vinci system allows surgeons to operate using three-dimensional visualization and four robotic arms that work with a precision that most surgeons cannot duplicate. This results in smaller incisions, fewer mistakes, shorter recoveries, and reduced hospitalization costs.

India’s Hindustan Lever (number seven) not only has been a consumer products innovator but, as described in chapter 3, has also used an innovative network-marketing approach to sell its products through thousands of underprivileged rural women throughout India. This has allowed Hindustan Lever to sell in over 135,000 villages and become the most trusted Indian brand—used by two out of three Indians. The U.K.’s Reckitt Benckiser Group (number eight) has been an innovation powerhouse with roughly 40 percent of revenue in recent years coming from innovations launched in the prior three years. Many ideas come through networking with outsiders via its IdeaLink Web site where it lists jobs that need to be done and requests solutions. The company is currently hunting for “methods for detection of parasites and other parasite eggs” among other things. Denmark’s Vestas Wind Systems (number eleven) recently won the “Innovation Cup” as the country’s most innovative company. It is the world’s leading supplier of wind power solutions and has spawned a number of innovations, including floating foundations for wind power stations at water depths of over thirty meters.

## The DNA of the World's Most Innovative Companies

We believe our list better identifies the *current and future* innovators and is consistent with A. G. Lafley and Ram Charan's argument that: "An innovation is the conversion of a new idea into revenues and profits . . . In fact, there is no correlation between the number of corporate patents earned and financial success. A gee-whiz product that does not deliver value to the customer and provide financial benefit to the company is not an innovation. Innovation is not complete until it shows up in the financial results."<sup>3</sup>

If you agree with this statement, you probably prefer our ranking to *BusinessWeek's*.

### **The DNA—People, Processes, and Philosophies—of Innovative Companies**

Drawing on a sample of companies that lead both lists, we dove deeply into the practices of some of the world's most innovative companies. We relied on both lists as models of innovation and emphasized those that appear in each (e.g., Amazon, Apple, Google, P&G) and those on the innovation premium list that may not be as well known globally for innovation (e.g., Salesforce.com; Intuitive Surgical; Hindustan Lever; Reckitt Benckiser).

We started by asking innovative founders at some of these firms, like Amazon's Bezos or Salesforce.com's Benioff: What makes your firm so innovative? What happens inside your firm that results in innovative new products, services, processes, or businesses? The first insight to emerge from these interviews is that founder innovators typically imprint their organizations with their own innovator's DNA. To illustrate, Bezos described how he surrounds himself with *people* at Amazon who are inventive. He asks all job candidates: "Tell me about something that you have invented." He adds, "Their invention could be on a small scale—say, a new product feature or a process that improves the customer

experience, or even a new way to load the dishwasher. But I want to know that they will try new things.” When the CEO asks all job candidates whether they’ve ever invented anything, it sends a powerful signal that invention is expected and valued. “I also look for people who believe they can change the world,” Bezos told us. “If you believe the world can change, then it’s not a stretch to believe you can be a part of it.”

He also talked about the importance of experimentation *processes* (as we described in chapter 6), stating that, “I encourage our employees to experiment. In fact, we have a group called Web Lab that is charged with constantly experimenting with the user interface on the Web site to figure out improvements for the customer experience.” Finally, he discussed the importance of culture, saying that most company’s big errors are “acts of omission” instead of acts of “commission.” “It’s the opposite of sticking to your knitting. It’s when you shouldn’t have stuck to your knitting and you did,” says Bezos. So he encourages people at Amazon to ask “why not?” when considering whether to launch something new. “It’s very fun to have a culture where people are willing to take these leaps. It’s the opposite of the ‘institutional no.’ It’s the institutional yes. People at Amazon say, ‘We’re going to figure out how to do this.’”

To sum up: Bezos looks for people with an inventive attitude like his. He personally experiments as a way to generate innovative ideas, so he’s created processes at Amazon that encourage and support experimenting by others. And he asks why not and is willing to take leaps (as he did leaving D.E. Shaw to start Amazon; he certainly did not “stick to his knitting” when he made that career decision). Not surprisingly, this philosophy has become part of the culture at Amazon in which others are also expected to ask why not and take leaps.

Our observations at Amazon and other highly innovative companies confirm insights about the genesis of organizational

culture made by MIT's Edgar Schein in his classic work *Organizational Culture and Leadership*. Schein argues that organizational culture arises during the early stages of an organization when it faces particular problems or must accomplish particular tasks. For example, the challenge might be: "How do we develop a new product?" or "How do we deal with this customer's complaint?" In each instance, organization members responsible for resolving the problem sit down and decide on a method for resolving it. If the method works successfully, the organization likely uses it again and again when faced with similar problems and it becomes part of the organization's culture (a taken-for-granted way for how the organization addresses certain problems). If it does not work well, the organization's leaders will devise a different method for solving the problem and continue to search until a method successfully solves it. As any particular method for solving a problem is profitably used over and over, it becomes part of the culture. Not surprisingly, Schein observes that a company founder has a significant influence on the methods chosen to solve the organization's early challenges. Ultimately, if the founder's methods for reaching solutions work reliably and successfully, they come to be taken for granted for accomplishing particular tasks in the company. It is through the repeated, successful application of the founder's initial solutions that they become embedded in the organization's culture.

The point, of course, is that the DNA of innovative organizations likely reflects the founder's DNA. As we talked to innovative founders about creating innovative organizations and teams, they repeatedly discussed the value of populating the organization with *people* who are like them (in other words, innovative), *processes* that encourage the innovative skills they depended on (e.g., questioning, observing, networking, experimenting), and *philosophies* (a culture that encourages everyone to innovate and take smart risks). Our observations of other companies on

our most innovative list revealed the same thing. This led us to develop a set of *working hypotheses* about the DNA of innovative organizations that we put into a 3P framework of innovative organizations.

### **People**

First, we found that innovative companies were often led by founder entrepreneurs, leaders who excelled at discovery and who were not bashful about leading the innovation charge. In fact, key leaders of these companies showed a higher discovery quotient than leaders of less innovative companies (more on this in chapter 8). We also found that highly innovative companies had stronger discovery skills in all management levels and each functional area of the organization. They also monitored and managed the appropriate mix of decision makers' discovery and delivery skills throughout the innovation process (from ideation to implementation). Finally, they often had created a senior-level position focused on innovation, which is what Lafley did when he hired Claudia Kotchka as vice president for design, innovation, and strategy. Put simply, these companies were filled on average with far more people who excelled at the five discovery skills described in chapters 2 through 6, and they were wiser than less innovative companies about the strategic use of discovery-driven people.

### **Processes**

Just as inventive people systematically engage their questioning, observing, networking, and experimenting skills to spark new ideas, we discovered that innovative organizations systematically develop processes to encourage these same skills in employees. Most innovative companies construct a culture that reflects the leader's personality and behaviors. For example, Jobs loves to ask "what if" and "why" questions and so do Apple employees. Lafley has devoted hundreds of hours to observing customers, just as anthropologists observe tribes, and has put specific processes in

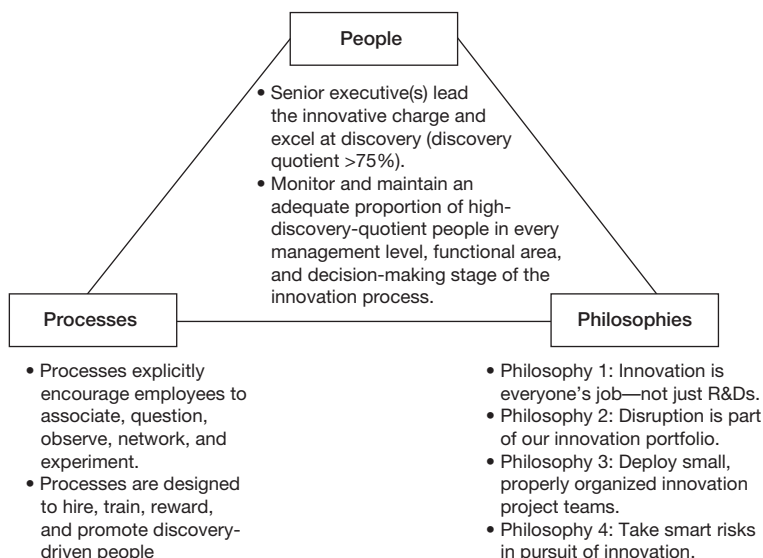
place for observing customers at P&G. Benioff is a great networker, and at Salesforce.com he introduced Chatter and other networking processes to help employees network both inside and outside the company for unusual ideas. As an exceptional experimenter himself, Bezos has tried to institutionalize experimentation processes at Amazon that allow employees to go down blind alleys in pursuit of new products or processes. By creating organizational processes that mirror their individual discovery behaviors, these leaders have built their personal innovator's DNA into their organizations.

### ***Philosophies***

These organizational discovery processes are supported by four guiding philosophies that imbue employees with the courage to try out new ideas: (1) innovation is everyone's job, (2) disruptive innovation is part of our innovation portfolio, (3) deploy lots of small, properly organized innovation project teams, and (4) take smart risks in the pursuit of innovation. Together, these philosophies reflect the courage-to-innovate attitudes of innovative leaders. They believe innovation is their job, so they constantly challenge the status quo and aren't afraid to take risks to make change happen. To illustrate, the most innovative companies don't relegate R&D to one unit. Instead, virtually everyone, including the top management team, is expected to come up with new ideas, which results in a democratization of innovation efforts. The notion that everyone should innovate and challenge the status quo is supported by a risk-taking philosophy, such as IDEO's "fail soon to succeed sooner." The remarkable companies we studied not only show a tolerance for failure; they see failure as impossible to avoid and a natural part of the innovation process. Moreover, since they believe that everyone can be creative, they work hard to keep units small so that each employee feels empowered and responsible for innovating (Amazon's Bezos employs a "Two Pizza Team" rule, meaning that teams should be small enough—six to ten people—to be adequately fed by two pizzas).

FIGURE 7-1

### People, processes, and philosophies in the world's most innovative companies



In sum, our interviews and observations revealed that innovative companies build the code for innovation right into the organization's *people*, *processes*, and guiding *philosophies* (the 3P framework that comprises the DNA of innovative organizations.) (See figure 7-1.)

Of course, the devil is in the details in making the 3P framework real to employees. Many organizations *say* that they have innovative people and that they encourage innovation through the company's processes and guiding philosophies. But they can be clueless about how to embed them deeply into the organization's culture. In this chapter, we have identified some of the world's most innovative companies and provided a framework to help you see how creative organizations do it.

## How Innovative Is Your Organization or Team?

To get a quick snapshot of your organization or team's innovation profile, take the following short survey (1 = strongly disagree; 2 = somewhat disagree; 3 = neither agree or disagree; 4 = somewhat agree; 5 = strongly agree). Remember to answer based on the people, processes, and philosophies that *actually* exist within your organization or team, not what you would like them to be.

### People

1. Our organization or team has leaders with a well-known track record for generating innovative ideas for new processes, products, services, or businesses.
2. Our organization or team actively screens for creativity and innovation skills in the hiring process.
3. Evaluating an employee's creativity or innovation skills is an important part of the performance appraisal process within our team or organization.

### Processes

4. Our organization or team frequently engages in brainstorming to generate wild or very different ideas by drawing analogies from other products, companies, or industries.
5. Our organization or team encourages team members to ask questions that challenge the status quo or conventional ways of doing things.

6. Our organization or team cultivates new ideas by giving people frequent opportunities to observe the activities of customers, competitors, or suppliers.
7. Our organization or team has instituted formal processes to network outside the company to find new ideas for processes or products.
8. Our organization or team has adopted processes to allow for frequent experiments (or pilots) of new ideas in search of new innovations.

#### **Philosophies**

9. Our organization or team expects everyone to offer creative ideas for how the company should change products, processes, and so on.
10. People in our organization or team are not afraid to take risks and fail because top management supports and rewards risk taking.

#### **To score your survey:**

Add up your total score for all ten questions. Your team or organization scores very high on the innovator's DNA if the total score is 45 or above; high if the score is 40–45; moderate to high if the score is between 35 and 40; moderate to low if the score is 30–34; low if the score is below 30. The short survey is drawn from a more systematic organization or team assessment available from the authors; for more information, see <http://www.InnovatorsDNA.com>.

As we mentioned at the beginning of this chapter, chapters 2 through 6 focused primarily on how individual innovators do their work. In this chapter, we've suggested that the innovator's DNA has some clear organizational analogs and applications. We think there are equally compelling applications to teams at work (where the principles apply as they do with individuals and organizations). We believe this because the boundaries between what an organization is and what a team is are becoming increasingly blurred in our fast-paced world where organizations like Vodafone start entirely new business units with twelve people. Is that an organization or a team? We see it as a classic case of both, since an organization is a collection of teams, and the innovator's DNA works well in each. In the three chapters that follow, we describe in detail how innovative organizations and teams build the code for innovation into their people, processes, and philosophies.