Introduction

As a successful scaled company, you cannot
run the ship the way you used to. You'll get
run over by a swarm of start-ups.

—Scott Cook, Founder and Chairman of
the Executive Committee, Intuit

HAVE YOU EVER come up with an idea for a new product or service that you thought would be very cool, but didn't take any action because you thought it would be too risky? Or maybe you just didn't know how to take the next step? Or at work, have you had what you thought could be a big idea for your company—perhaps changing the way you develop or distribute a product, provide customer service, or hire or train your employees? The fact is, most of us have these kinds of ideas at one time or another. But neither we, nor our companies, are very good at taking advantage of them. Why? Because typically there is significant uncertainty around whether these ideas will work. They are risky. And most individuals—and especially companies—are programmed to avoid risk. But what if you could take much of the risk out of it? What if you knew a process to quickly test and validate whether the idea had merit?

The key message in this book is that new tools and perspectives for validating big ideas characterized by high uncertainty are emerging in many disparate fields. Whether you call it lean start-up, design thinking, or agile software development, these new methods are revolutionizing the way managers successfully create, refine, and bring new ideas to market. These and other tools help entrepreneurs, designers, and software developers lower uncertainty and risk through cheap and rapid experimentation.

To help managers apply these new practices inside established companies, we offer a new method for managing innovation that we call *the innovator's*

method: an end-to-end process for creating, refining, and bringing ideas to market. Drawing on our research of hundreds of established companies and start-ups, we show you when and how to apply the innovator's method, taking you step-by-step through these new practices. We answer such questions as: How do we know whether this idea is worth pursuing? Have we found the right solution? What is the best business model for this new offering? We focus on the "how"—how to test, validate, and commercialize ideas using the best tools from lean start-up, design thinking, and similar techniques used by a few corporations and most successful start-ups. We acknowledge that the innovation process is messy and unpredictable—and no process can fully remove the uncertainty. But these tools can be applied to create new innovations for customers or solve internal problems that have an element of uncertainty, whether in HR, finance, or another area.

Let's start with a story.

Rent the Runway

In 2008, Jenn Hyman, a second-year MBA student at Harvard Business School, spent Thanksgiving at her home in New York. During her visit, Hyman noticed her sister, Becky—an accessories buyer at Bloomingdale's—struggling to decide what to wear to an upcoming wedding. "Becky desperately wanted to buy a $1,500 Marchesa dress," said Hyman. "She felt compelled to buy a new dress—because she knew photos would soon appear on Facebook and she didn't want to be seen twice in the same outfit."[1] As she watched her sister wrestle with the cost of the dress, her sister's emotion was a clue to an important job-to-be-done for young women: helping them feel special and confident. Hyman realized that other fashion-oriented young women might have a similar challenge, an observation backed up by her years spent building a wedding event business at Starwood hotels and working in marketing and sales at Wedding.com. Hyman's insight led her to hypothesize a potential solution: instead of purchasing designer dresses, women might prefer the option of renting designer dresses online for special occasions.

Like many gifted young individuals—budding entrepreneurs and talented young managers—Hyman had used her powers of observation to generate a potentially valuable business idea. But what should she do next?

Pop quiz: imagine she came to you. What would you advise? For most business professors and executives, the answer would be, "Write a business plan." The plan would identify the customer need, describe the product or service, estimate the size of the market, and estimate the revenues and profits based on projections of pricing, costs, and unit volume growth. After all, without this type of analysis, how can we know whether an idea is worthy of investment? Indeed, Hyman received just this type of advice. *She didn't do it.*

Instead, Hyman recruited classmate Jenny Fleiss to help her test their proposed solution. Hyman and Fleiss set up an experiment to answer two key questions:

1. Will middle-to upper-class young women rent a designer dress if it is available at one-tenth the retail price?
2. Will women who rent dresses return them in good condition?

Then Hyman and Fleiss borrowed or bought 130 dresses from designers like Diane von Furstenberg, Calvin Klein, and Halston and set up an experiment to

rent dresses to Harvard undergrads. They advertised around campus, rented a location, and invited young women. The experiment answered both questions. Of the 140 women who came in to view the dresses, 35 percent ended up renting one, and 51 of 53 mailed them back in good condition (the other two had stains that were easily removed). This experiment resolved some of the uncertainty reflected in the two questions it was designed to answer.

But would women rent dresses they couldn't try on? To answer that question, Hyman and Fleiss set up another experiment, this time on the Yale campus, allowing women to see the dresses before renting but not allowing them to try them on. In the second trial they had more dress options, because the first pilot revealed that many women didn't rent because they couldn't find an option they liked. The Yale pilot showed two things: women would rent dresses when they couldn't try them on, and the percentage of women who rented increased to more than 55 percent because they had more options.

Now Hyman and Fleiss were ready to test the big idea: Would women rent dresses they could not physically see? The entrepreneurs took photos of each dress and ran a test in New York, where one thousand women in the target audience were given the option to rent a dress from PDF photos. The final experiment showed that roughly 5 percent of women looking for special occasion dresses were willing to try the service—enough to demonstrate the viability of renting high fashion over the web.

So Hyman and Fleiss gathered data on whether designers would go for their idea and whether they could use designers' websites as their rental channel. Less than two weeks after conceiving the idea, the two women cold-called Diane von Furstenberg, an influential fashion designer and president of the Council of Fashion Designers of America. The initial idea Hyman proposed to von Furstenberg was to set up a rental option on the websites of existing designers. Hyman's start-up would take care of fulfillment—taking the order, shipping the dress, and dry-cleaning the returns. Von Furstenberg was intrigued by the idea and helped Hyman and Fleiss set up meetings with more than twenty designers.

The initial response from most designers was extremely negative. "We were going to designers asking to buy their inventory so we could rent it at the same time it's available at Saks Fifth Avenue and Niemen Marcus for 10 percent of the retail price," said Hyman. "In the first meetings their response was basically, 'over my dead body.'"[2] Designers were worried about cannibalization. Renting dresses instead of selling them seemed like a bad idea.

Hyman and Fleiss realized that to make their idea work, they would need to

have their own website and inventory. So the idea of Rent the Runway—using the Netflix model to rent a wide variety of high-fashion dresses from multiple designers—was born.

Now that Hyman and Fleiss had resolved concerns about whether there would be demand for their product—and what their initial solution might look like—they were ready to launch. But the change in business model meant they needed capital to purchase inventory. The typical advice when you're going for capital is to make sure you have a top-notch business plan and get capital as cheaply as possible. *They didn't do it*.

Instead, as they took the idea to potential investors (including Bain Capital, which ended up financing their first round), they still had no formal written business plan. When asked why, Hyman replied, "We're anti-business plan people. We think that so many people just sit around all day and strategize but they don't act." Fleiss concurred, saying, "We had a bias for action, not business planning." In fact, one reason Hyman and Fleiss chose Bain Capital, even though it wasn't necessarily the cheapest capital, was the attitude of partner Scott Friend. "He shared our commitment to learning by doing," said Fleiss.[3]

With capital in hand, the two women were ready to build the team. The typical advice is to hire experts to head each functional area, perhaps someone who can leverage significant corporate experience to take the team to the next level. *They didn't do it*.

Instead, Hyman took on marketing, and Fleiss took on finance. They then looked for individuals having broad skills who could wear different hats. "Having Jenn serve as CMO and me as CFO is typical of our fluid approach to allocating responsibilities," said Fleiss. "We need managers who can wear different hats. We learned about the value of all-around athletes when Lara joined on an unpaid trial basis to help with our college market tests. Although she had years of experience at Coach, she wasn't afraid to move dress racks. Brooke, our director of customer insight, has had several different roles but she's never worried about the title . . . We make heavy use of unpaid internships to test whether employees have the same hungry jack-of-all-trades attitude."[4]

With a small team in place, the typical advice would be to carefully develop a flawless website and service with broad appeal, adding features that might attract a wider set of customers. *They didn't do it*.

Instead, Rent the Runway quickly launched a beta version of its service for five thousand invited members on November 2, 2009. RTR started with eight

hundred dresses from thirty designers—a relatively small inventory. "We followed the minimum viable product approach," said Fleiss. "At the outset we just wanted to provide the capability to rent dresses. Nothing fancy." But with the help of a *New York Times* article titled "A Netflix Model for Haute Couture," initial demand for the small inventory proved almost overwhelming.[5]

Now with proven demand and increasing customer feedback on how to improve the service, RTR was prepared to invest in a complete solution. Over the ensuing months, as demand continued to increase, it expanded its inventory to more than thirty thousand dresses with help from a $30 million round of financing. "Our revenue growth is amazing," Hyman told us at the end of RTR's first year. "This is a dream come true." But a more visible sign of success, perhaps, is that "its inventory dressed 85 percent of the ladies who attended President Obama's second inauguration."[6]

Lessons for Managers: How to Turn Uncertainty into Opportunity

Rent the Runway's story provides a window into the innovator's method. In a nutshell, it's a process by which successful innovators manage the uncertainty of innovation—a process to test and validate a creative insight before wasting resources building and launching a product customers don't actually want. We've found that this method is widely used by the most successful innovators in start-ups as well as established companies.

The method doesn't include writing a business plan. Hyman and Fleiss refused to write one even though virtually every business school holds "business plan" competitions for "start-up" ideas like Rent the Runway. Why do management experts call for writing a business plan? The recommendation comes from traditional management theory that was developed to solve a certain type of problem: established firms attempting to optimize under conditions of relative certainty. Indeed a closer look at many of our management practices— such as strategic planning, the precursor to business planning—reveals that many of our familiar management practices were originally designed to capture value under conditions of relative certainty. However, most new business ideas (inside or outside the corporation) are characterized by a completely different set of conditions: uncertainty. For example, how could Hyman possibly know what the demand for rented designer dresses would be?

Increasingly evidence suggests that our familiar management techniques work poorly when applied to the context of uncertainty. For example, research shows that under conditions of uncertainty, planning simply does not work.[7] Most of the time it wastes time and resources as you conjure evidence that your hypothesis—that is, your guess—is right; it does not resolve the uncertainty. In our example, instead of writing a plan, Hyman designed a set of experiments to test the leap-of-faith assumptions behind her big idea. Each experiment was designed to test specific assumptions, answering specific questions to resolve the uncertainties surrounding her idea.

These experiments helped Hyman and Fleiss "nail it"—our term for deeply understanding the uncertainty and resolving it well. For example, the first RTR experiments were focused on resolving demand uncertainty: Were Hyman and Fleiss really undertaking a problem worth solving? The initial experiments showed that there was definitely a demand for renting designer dresses. The right designer dress for a big social event nailed the job-to-be-done: making a

right designer dress for a big social event nailed the job-to-be-done: making a woman feel special, confident, and desirable.

But these experiments didn't show whether renting over the internet was a viable solution. To test this assumption, Hyman didn't waste time and resources building a website. Instead, she created a simple substitute, or *minimum viable prototype:* PDF pictures that she sent to potential customers in New York. This experiment provided crucial data on what customers wanted, and from there she iterated from the minimum viable solution to become an *awesome solution*, where RTR fashion advisers talk to customers "like a woman might talk to her girlfriend," suggesting shoes, accessories, and, when needed, shipping two dress sizes instead of one to make sure the dress fit.

Only after RTR nailed the problem and solution was it time to figure out the business model to ensure that the go-to-market strategy would work. Validating the business model involves experimenting to figure out how to communicate with your customers and capture value from them—developing the right pricing model to generate revenue streams that will cover the operational activities (cost structure) and the key resources and capabilities the firm will need to deliver the solution to customers. Hyman's initial hypothesis about the channel to the customer—designer websites—turned out to be wrong. A *pivot*—which we define as changing a key element of the problem, solution, or business model— was necessary. RTR pivoted from a business model as a fulfillment partner for existing designers to a Netflix-like business model.

Although this pivot turned out to be critical, the Netflix business model didn't exactly work either. It needed to be adapted to fit RTR clients' needs. Netflix customers don't need advisers to help clients choose a product, but RTR realized that its success depended on the effectiveness of fashion advisers to coach clients. Moreover, Netflix doesn't rent a movie for a specific night—and if the movie doesn't arrive as expected, the service isn't a failure for customers. So RTR searched for another approach, finding an analogy in the airlines' model of selling a product (reserving a seat) for a particular time and place; RTR adapted its business model accordingly.

FIGURE I-1

The innovator's method
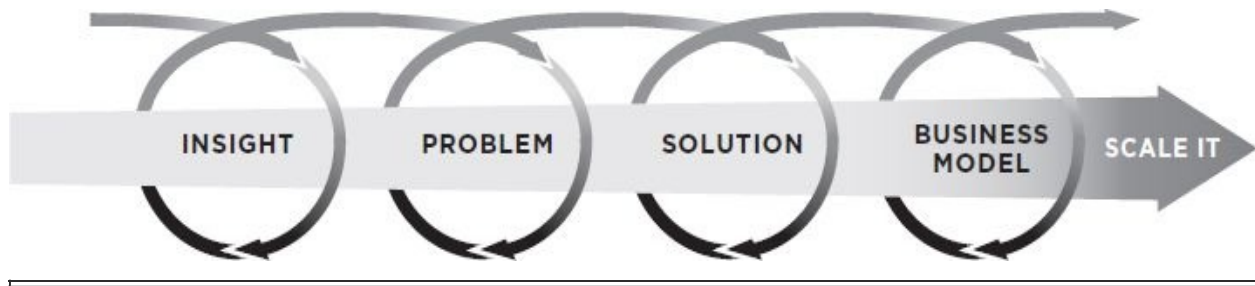
The RTR experience illustrates the "how-to" of the innovator's method: a series of experimentation cycles that resolve the uncertainties around the problem you're trying to solve, the solution you propose, and the business model to take your solution to market. We describe this method in a few steps—insight, problem, solution, and business model—during which your core tasks are to savor surprises (insight), discover jobs-to-be-done (problem), prototype the minimum awesome product (solution), and validate your go-to-market strategy (business model) (see figure I-1). Naturally, in a world of uncertainty, few things are linear. But we describe the innovator's method as a linear process to simplify a complex process and at other points in the book try to describe how the "steps" may overlap or be recursive.

Sources of the Innovator's Method

We conducted several overlapping research projects to understand how innovators successfully bring their ideas to market. This research starts with *The Innovator's Dilemma,* which first called for a different way of managing innovation, and then *The Innovator's DNA,* which identified the five discovery skills of disruptive innovators that help them generate insights.[8] Although *The Innovator's DNA* provides advice on how to generate innovative ideas, after you've generated an idea for a new product, process, or service, what is the next step? How do you know whether the idea is worth pursuing? How do you know whether you've found a problem worth solving? How will you know if you've nailed a solution to that problem? In short, what are the tools to test, validate, and commercialize new ideas?

To answer these questions, we reviewed and synthesized emerging perspectives from other disciplines about managing uncertainty. We're not the first to identify the need for a new way to manage the uncertainty of innovation. Each major discipline, upon encountering uncertainty, has developed its own answer, including engineering (design thinking), computer science (agile software), entrepreneurship (lean start-up), physics (active learning), the military (adaptive army), and so on. Each perspective offers valuable insights and valuable contributions that we have synthesized here. You may recognize elements of the innovator's method in other books, such as books on design thinking (Tim Brown's *Change by Design,* Roger Martin's *The Design of Business*), start-ups (such as Eric Ries's *Lean Startup,* Steve Blank's *Startup Owners Manual,* and Alex Osterwalder's *Business Model Generation)*, innovation (such as Christensen's *Innovator's Dilemma,* Shona L. Brown and Kathleen M. Eisenhardt's *Competing on the Edge*, Bob Sutton's *Weird Ideas that Work,* or Rita Gunther McGrath and Ian C. MacMillan's *Discovery-Driven Planning*) or agile software (such as Jeff Sutherland and Ken Schwaber's *The Scrum Guide* or Kenneth S. Rubin's *Essential Scrum*). We respect and recommend these authors to you for their thoughtful contributions.

Even with valuable insights from their disciplines, these books often cover only a part of the innovation process. In this book, we pull the pieces together to provide a holistic model—starting with generating an insight, then moving to deeply understanding the customer problem, rapidly prototyping your way to an awesome solution, and finally aligning the business model with the solution before scaling it. As shown in figure I-2, design thinking is exceptional in

helping people understand a customer problem, but it doesn't address the need to find the right business model. Lean start-up excels at prototyping the solution to a problem but often provides little guidance on generating ideas or determining whether you've found a problem worth solving. Books on business models provide excellent tools for figuring out other elements of the business model but do not address generating big ideas or how to deeply understand a customer problem. Our holistic model helps take you through the steps required to nail a business model before scaling it. And because most books focus on entrepreneurial start-ups, they don't take you through the crucial step of how to adapt these principles for a large company setting.

FIGURE I-2

The method in detail
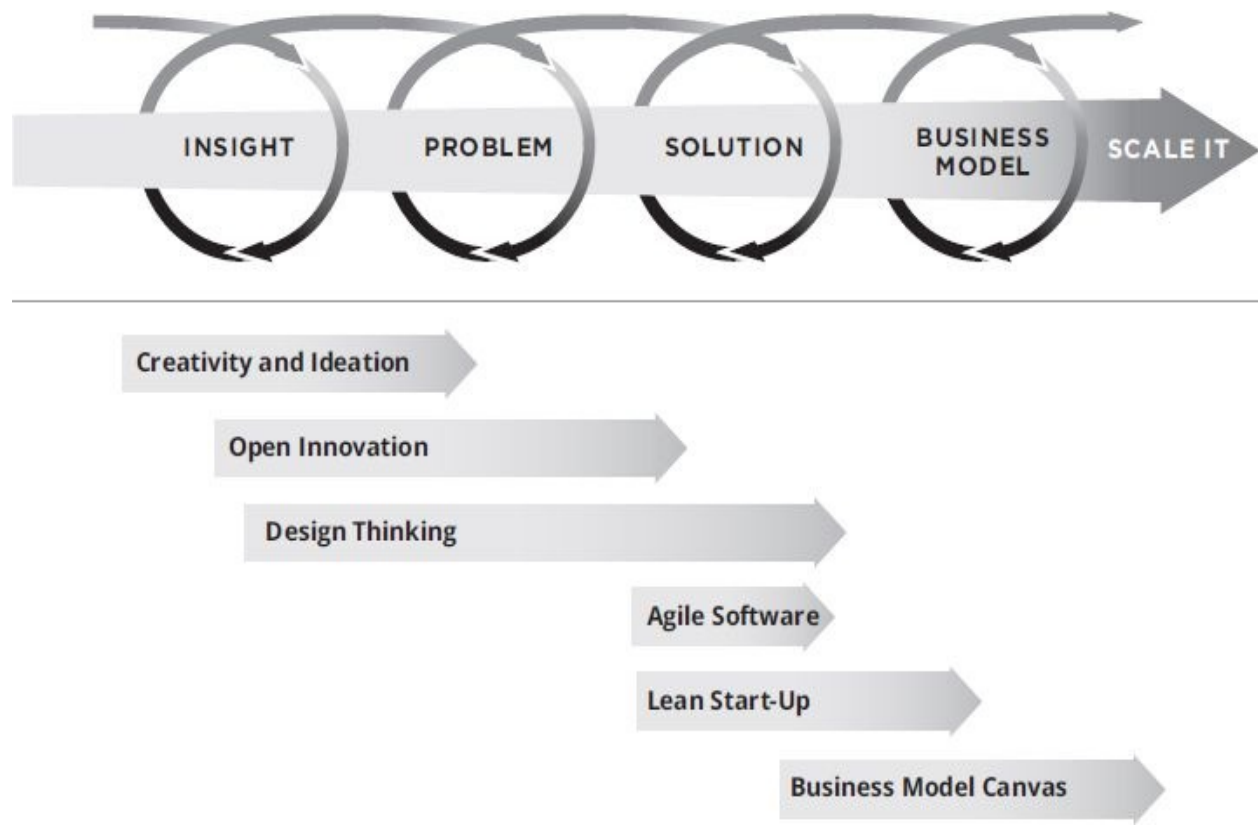
To understand how managers applied and adapted these principles in

established companies, we conducted extensive research—both qualitative and quantitative—with hundreds of companies to understand what managers do to bring their ideas to market. We studied successful as well as unsuccessful companies to discover the differences between success and failure. These companies fall into four categories:

- Established companies that maintained their innovation capabilities after founding
- Established companies that had lost (or were losing) their innovation capabilities but then reignited them
- Successful and failed innovation initiatives in new ventures
- Successful and failed innovation initiatives in established companies

Although we do not describe all the companies in this book, table I-1 provides a sample of those that fall into the first three categories. These companies represent most of the case studies we use in the book.

TABLE I-1

Sample companies

Established companies that maintain innovation	Established companies that have reignited innovation	Startup innovators
Amazon	Intuit	Rent the Runway
Salesforce.com	Hindustan Unilever	Qualtrics
Google	Procter & Gamble	Motive Communications
Valve Software	Mondelez	GitHub
Regeneron	Banco Davivienda	Asana
Starbucks	Godrej & Boyce	Chegg

Starbucks	Godrej & Boyce Manufacturing	Chegg
W.L. Gore	AT&T	Ultimate Arena/Xfire
IDEO	Cemex	Big Idea Group

Some companies, such as Amazon, Google, and Valve Software, have done a remarkable job of institutionalizing the entrepreneurial management principles on which they were founded. For example, under the leadership of Jeff Bezos, Amazon has sustained an extraordinary innovation track record since its founding in 1996. Indeed, the company has maintained an *innovation premium* (IP) that has averaged 73 percent.[9] (We introduced this metric in *The Innovator's DNA* and use it to rank the *Forbes* list of most innovative companies.) Amazon's IP means that investors are willing to pay a premium for its stock that is 73 percent higher than the net present value of cash flows from its existing businesses. Amazon's IP has been the highest of any company in the world during the past fifteen years.[10]

Other companies, such as Intuit, Procter & Gamble, and Hindustan Unilever, represent innovation turnaround stories. After years of stable but uninspiring innovation performance, these firms applied tactics we describe to dramatically boost innovation. Other companies are start-ups, such as Rent the Runway, Qualtrics, and Motive Communications, that provide rich insight into the process. Finally, some companies tried to bring techniques like lean start-up inside their companies but failed. Their efforts teach us about the challenges of such attempts.

Does the Innovator's Method Make a Difference?

We started this research by asking, "What processes do successful innovators use to validate their ideas and bring them to market?" Despite our claims of success, you may ask yourself, Does the innovator's method make a difference? Perhaps the most telling evidence comes from the established companies we studied that boosted their innovation performance after adopting elements of the method. Among the publicly traded companies we describe in this book, we observed that three to five years after adopting key elements, their IPs increased by an average of 57 percent (see table I-2).

TABLE I-2

Growth in IP after use of the innovator's method

Company	Innovation premium before[a]	Innovation premium after[b]	Percentage increase	Additional value to market cap[c]
Intuit	20%	29%	45%	$1.8 billion
Hindustan Unilever	51%	61%	17%	$2.0 billion
Mondelez	17%	31%	78%	$8.3 billion
Procter & Gamble	18%	36%	95%	$40.5 billion
Godrej	40%	60%	50%	$0.9 billion
AT&T	−13%	6%	n/a	$35.8 billion

Although it always takes time for innovations to bear fruit, these numbers are accompanied by growth in revenue, profit, and general excitement at the companies involved. For example, Hindustan Unilever increased its revenue by 40 percent in a single year; Intuit multiplied its revenue from successful new products tenfold over three years; Mondelez China was failing but turned itself into a successful $1 billion business; Godrej created a new category of consumer products sold through an entirely new distribution channel; Procter & Gamble created several multibillion-dollar businesses; and AT&T turned a negative IP into a positive one (investors in the mid-2000s were expecting AT&T's current businesses to shrink, but they now expect them to achieve growth).

Who Needs *The Innovator's Method*?

Anyone wanting to innovate or facing problems characterized by uncertainty needs to understand when and how to apply the innovator's method to increase their chances of success. We envision three primary audiences for this book:

- Managers from any function or division who want to innovate or solve problems characterized by uncertainty, but don't know the steps or feel frustrated by the impediments
- Leaders who face the challenges of declining growth, the need to sustain existing growth, or the difficulty of retaining talented managers who may leave for start-ups
- Entrepreneurs, many of whom may have been frustrated managers, who want to maximize their chances of success

Although the ideas in this book clearly apply to managers, leaders, and entrepreneurs, they are relevant to anyone trying to solve a complex problem—someone trying to reinvent education, improve political decision making, or even solve a challenging family problem. For example, we think US government officials would be more effective if they would design experiments and run them in parallel to see what they could learn before rolling out a policy to the entire country. (In fact, China has been successfully setting policy through experiments and is currently running, in parallel, seven experiments to determine the best way to control air pollution.) Ultimately, our goal is to teach you about the principles that you can use to solve any challenging problem.

The big idea that differentiates this book is that uncertainty requires a new set of management principles. While traditional management works well for problems of relative certainty, it works poorly for problems characterized by uncertainty. By using the tools described here, you will learn how to creatively solve high-uncertainty problems. You will learn how to transform an idea into a reality. This knowledge is valuable for leaders and managers in large organizations as well as budding entrepreneurs. For anyone who has thought, "I wonder whether this idea could work?" but hasn't known how to take the next step, *The Innovator's Method* is your operating manual.

1

The Innovator's Method

How do we turn Intuit into an eight-thousand-person start-up? That's what we are trying to do.

—Brad Smith, CEO, Intuit

IN 2008, INTUIT celebrated its twenty-fifth anniversary and named Brad Smith as CEO. Founded by Scott Cook, Intuit—maker of successful financial software packages like Quicken, QuickBooks, and TurboTax—had achieved remarkable success, growing revenues to more than $3 billion and creating a market value of $10.2 billion. But Cook and Smith were worried. Intuit had seemingly reached a performance plateau, and its market value had begun to fall. Annual revenue growth had dropped in half, from 15 percent (1998–2003) to 8 percent (2004–2008), and annual income growth had slowed even more dramatically, from 31 percent to 6 percent. Not surprisingly, Intuit's annual market value growth had taken a hit as well, dropping from 14 percent to 5 percent.

Worse, after studying Intuit's new product launches over the prior decade, Cook discovered that fewer than 10 percent could be called successful from a revenue and profit perspective. Meanwhile, Intuit's net promoter score (NPS), a measure of whether customers like a product enough to promote it to friends and colleagues, had flattened.[1] Finally, the company's innovation premium (IP), a measure of stock price premium paid by investors because of expectations of future growth through innovation, had dropped from 57 percent in 2000 to 20 percent in 2008.[2] After twenty-five years, by every measure, it seemed as if the company had reached the telltale limit of the S-curve: Intuit was moving from growth to maturity, with the threat of failure not far behind.

Cook and Smith didn't want that to happen. But what could they do?

The Innovation Crisis: Unprecedented Uncertainty

Intuit was experiencing what happens to most successful start-ups as they grow into large, established corporations: execution becomes the highest priority as they scale the business to meet the demands of existing customers. Over time, the focus on execution crowds out innovation. Intuit was losing the ability to perform what Peter Drucker called management's fundamental task: "to create a customer."[3] Ironically, as companies focus on capturing value from customers, they often lose the ability to create customers.

And something more had changed. It's a cliché to say that the world is more uncertain than ever before, but few people realize the extent of the increase in uncertainty over the past thirty years. More important, they don't understand that greater uncertainty has created the need to change the way most organizations are managed. The challenge of creating a customer is more complex and uncertain than ever before. Here's why.

There are two types of uncertainty that influence a firm's ability to create a customer: *demand uncertainty* (will customers buy it?) and *technological uncertainty* (can we make a desirable solution?).[*] Uncertainty arises from the unknowns associated with solving any problem, which are sometimes called "unknown unknowns," such as hidden customer preferences or undiscovered elements of a technical solution.

The more unknowns there are about customer preferences and behavior, the greater the demand uncertainty. For example, when Jenn Hyman of Rent the Runway came up with the idea to rent designer dresses over the internet, demand uncertainty was high because no one else was offering this service.[4] In contrast, when Samsung and Sony were deciding whether to launch LED TVs, which offered better picture quality at roughly the same price as plasma TVs, there was lower uncertainty about demand because customers were already buying TVs.

Technological uncertainty results from uncertainty regarding the technologies that might emerge or need to be created for a new solution to emerge. For example, a wide variety of clean technologies (including wind, solar, and hydrogen) are vying to power vehicles and cities at the same time that a wide variety of medical technologies (chemical, biotechnological, genomic, and robotic) are being developed to treat diseases. As the overall rate of invention across industries increases, so does technological uncertainty.

To better understand the uncertainty facing firms like Intuit, we studied the depth and degree of the shift in demand and technological uncertainty. First, we looked at multiple measures of the rate of technological change. One measure is the rate of invention patenting (see figure 1-1).

This is an imperfect measure, but clearly it reflects a striking increase in the rate of invention in the past twenty years.[5] Not surprisingly, there has been a similarly dramatic increase in total R&D spending.

As new technologies emerge, companies are rising, and falling, at a much faster pace than ever before. This phenomenon is amplified by increasingly faster changes in customers' demands for a new mix of products and services. For example, consider how quickly entertainment preferences have changed. For more than three decades—between 1950 and 1980—we accessed TV shows and movies primarily through three networks (ABC, NBC, CBS) or at movie theaters. Then with the advent of the VCR, we've progressed to watching movies on our home TV screens via videocassettes and then DVDs, to watching them on our computers, then on our laptops, then on tablets, and now on our phones, mostly via internet streaming. When the DVD emerged, it was adopted more quickly than any previous consumer electronic device selling just over three hundred thousand units in the first year—until the iPad, which sold three million units in its first eighty days.[6] In short, customer preferences are not only changing but also changing at an accelerating pace.

FIGURE 1-1

Total US patent applications
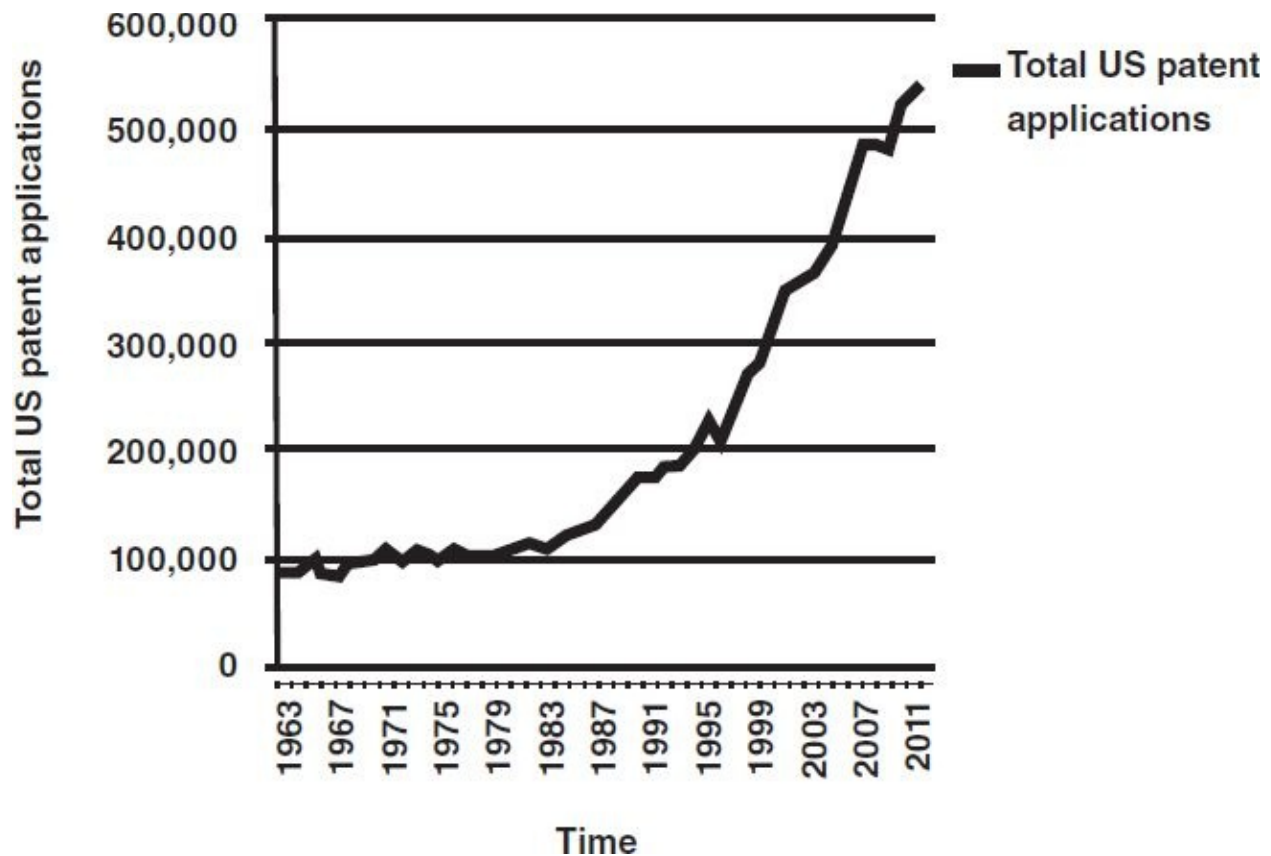
Source: US Patent and Trademark Office, "U.S. Patent Statistics Chart, Calendar Years 1963–2012,"
http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm.

A closer look at demand uncertainty among the *Fortune* 500 underscores this pattern. The churn among this highest-echelon group increased significantly between 1950 and 2010 (see figure 1-2): in 1960, twenty-seven firms moved in and out of the *Fortune* 500 per year, but now the churn has increased to thirty-seven firms—an almost 40 percent increase. This means that the average firm now stays in the *Fortune* 500 for seven years, compared with twelve years in the recent past. Other academic studies confirm that competitive advantage has become harder to sustain over a broad range of high-and low-tech industries.[7]

FIGURE 1-2

Average annual *Fortune* 500 turnover
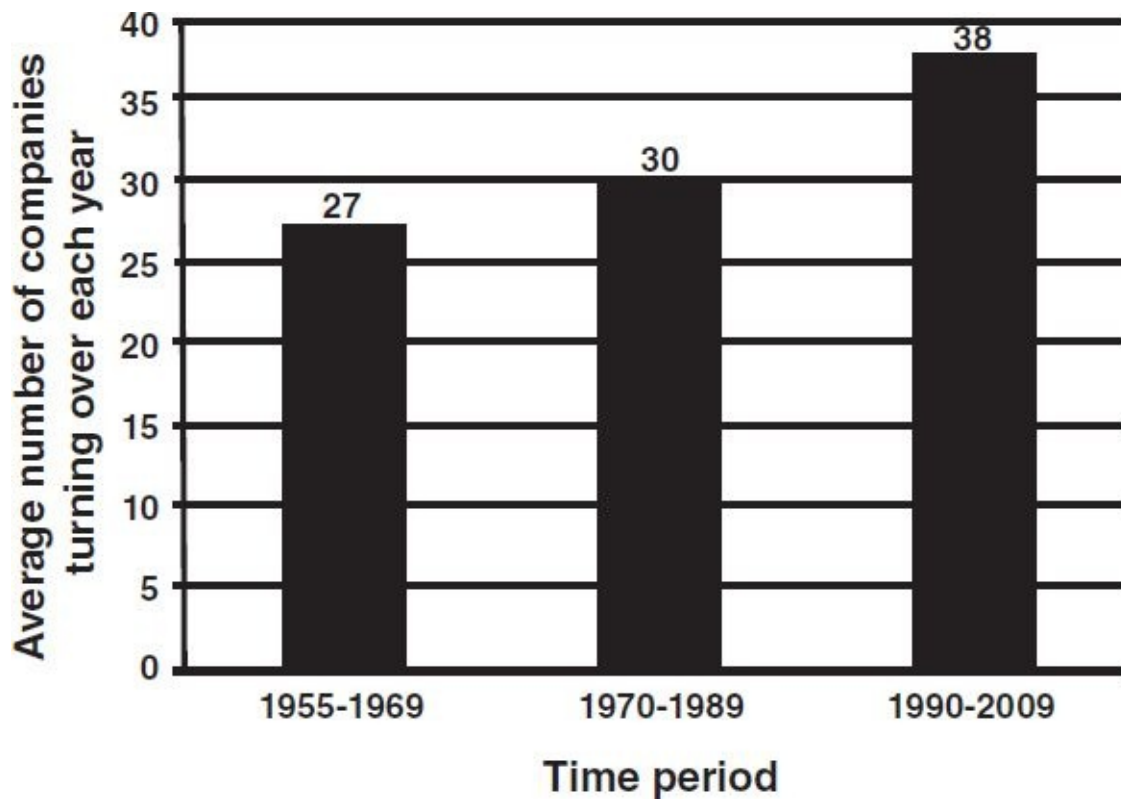
Source: CompuStat, 2013.

It's not an exaggeration to say that a second Industrial Revolution has occurred, a revolution fueled by new technologies and customers and accompanied by radical uncertainty. Companies don't hold on to customers as long as they used to, and new technologies and competitors are emerging faster than ever before.

What drives these dramatic increases in uncertainty? There are many reasons, but two disruptive technologies have played a crucial role: personal computing and the internet. Another key is the emergence of capitalism in countries such as China, India, Russia, and Brazil.

Personal computing has placed powerful analytical tools into the hands of everyone having the motivation to master them. It has democratized and decentralized complex problem solving. Similarly, the internet has had a profound effect as a low-cost marketing and distribution channel for anyone wanting to sell a product. This means that more new products can be launched to a larger audience, and faster, than ever before.

Finally, as China, India, Russia, and Brazil have joined the global economy, they have expanded the pool of potential entrepreneurs by 2.5 billion people.

These new entrepreneurs enjoy lower technical barriers to entry (with open source software, programming platforms, and cloud technologies), lower capital barriers (with the growth of venture capital, angel funding, and crowd-funding), lower production barriers (with the adoption of 3-D printers and global suppliers), and lower distribution and marketing barriers (with the internet and the emergence of direct shipping and social media). As a result, there are simply more competitors than ever before.

These changes have increased uncertainty to a tipping point—a threshold where the traditional ways we organized and managed corporations will no longer work to sustain growth in the future. This is especially true of companies in the industries having the highest uncertainty, such as computer software and medical equipment (see "How Much Uncertainty Do You Face?"). In fact, the computer software industry—where Intuit competes—is at the high end of the uncertainty spectrum, with volatile revenues, heavy R&D spending, and new entrants emerging at an unprecedented rate. Intuit's Scott Cook was aware of the difficulty of predicting and meeting customer demand. That's why many of the company's new products had flopped. He had also seen new competitors come along to attack Intuit in new ways, with different technologies and business models. He realized that he needed to figure out a new way to manage in the highly volatile computer software industry if he hoped to compete with the start-ups. Here's where the Intuit story gets interesting.

How Much Uncertainty Do You Face?

Not everyone faces the same levels of uncertainty. Some industries have greater inherent demand or technological uncertainty. Consider the 2×2 matrix shown in figure 1-3. The horizontal axis plots each industry based on technological uncertainty, measured as the average R&D expenditures as a percentage of sales in the industry over the past ten years. The vertical axis plots each industry's demand uncertainty, measured as an equal weighting of industry revenue volatility, or change, over the past ten years and percentage of firms in the industry that entered or exited over the past ten years. Although these are imperfect measures, they identify the industries facing the highest, and lowest baseline levels of uncertainty (see figure 1-4).

FIGURE 1-3

Demand and technological uncertainty by industry (2002–2011)
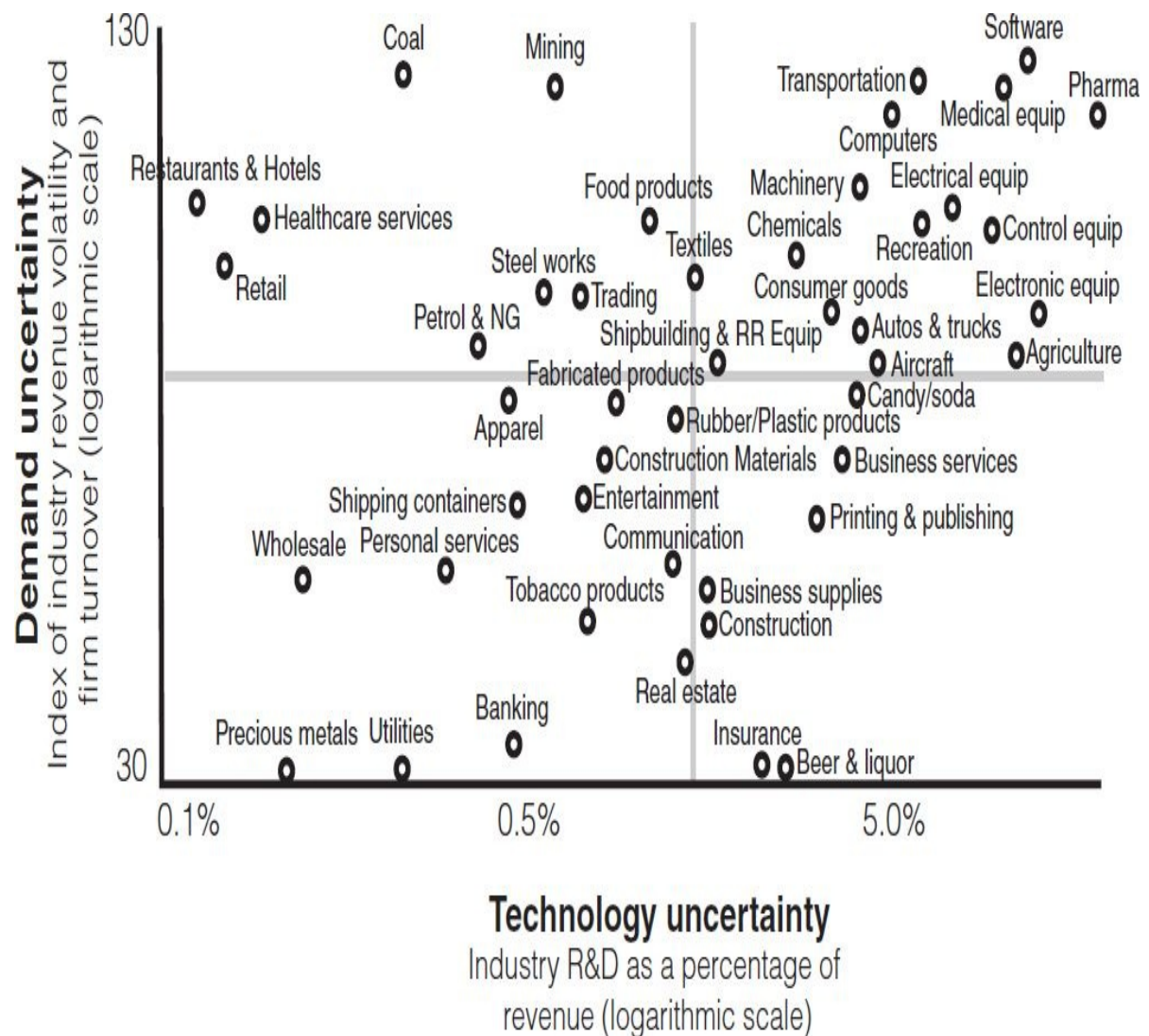
Source: Compustat, 2013.

Note: Quadrants drawn at median values: (1.4, 67.5).

Note: Beer & liquor, insurance, utilities, precious metals displayed at demand uncertainty = 30 for visual purposes. True demand uncertainty values are 28.9, 14.4, 21.6, respectively.

Where does your industry sit? Do you face high or low uncertainty? As you can see, some industries face low uncertainty; examples include providers of personal services, such as hair styling and dry cleaning, who have used similar technologies to provide solutions for well-known

demands. By contrast, in the lower-right quadrant in figure 1-3 are industries that face lower demand uncertainty but high technological uncertainty. For example, aircraft makers can generally predict the demand for aircraft production. The challenge they face is technological uncertainty; Boeing and Airbus spend large sums developing advanced new aircraft like the Boeing 787 and the Airbus A350.

FIGURE 1-4

Industries ranked by level of uncertainty

| | Measures of uncertainty | | |
Industry	R&D % of sales	Revenue volatility	Firm turnover*
1. Medical equipment	8.2%	90.7%	13.1%
2. Computers	5.8%	98.8%	12.0%
3. Computer software	9.8%	69.9%	14.4%
4. Pharmaceutical products	17.4%	63.3%	12.7%
5. Measuring & control equipment	9.3%	97.0%	8.8%
6. Machinery	3.2%	100.5%	9.3%
7. Agriculture	10.8%	123.3%	4.9%
8. Electronic equipment	5.2%	61.5%	10.5%
9. Chemicals	3.0%	71.2%	9.2%
10. Electrical equipment	9.8%	35.0%	9.2%
24. Business services	3.2%	46.2%	6.5%
40. Business supplies	1.4%	34.8%	5.0%
41. Shipping containers	0.5%	65.1%	4.9%
42. Real estate	1.3%	57.6%	3.0%
43. Beer & liquor	2.3%	12.8%	3.7%
44. Personal services	0.3%	59.7%	4.4%
45. Tobacco products	1.0%	20.3%	5.2%
46. Insurance	2.2%	30.4%	0.9%
47. Wholesale	0.1%	14.1%	6.3%
48. Utilities	0.2%	45.6%	0.2%
49. Precious metals	0.1%	40.7%	1.5%

*Percentage of (entrance + exits) / total firms in the industry per year

In the upper-left quadrant are industries that face high demand uncertainty but low technological uncertainty. For example, restaurants and hotels often have difficulty predicting demand for their services, because many factors influence whether, when, and where people eat out or travel. However, the technologies of offering food or lodging have not changed much over the years.

Finally, industries in the upper-right quadrant—such as software, pharmaceuticals, and medical equipment—face high uncertainty in both demand and technology. For example, who would have predicted that medical robots would perform surgeries? When Intuitive Surgical launched the Da Vinci System medical robot—which allows surgeons to operate using 3-D visualization and four robotic arms—the company faced significant technical as well as demand uncertainty.

Our analysis suggests that, on average, the top ten most uncertain industries require greater innovation management skills than the bottom ten. However, even if your industry provides clues about average uncertainty, every problem is characterized by its own level of uncertainty. For example, although Webvan was a food retailer in an industry with relatively low uncertainty, its online platform of home delivery faced both high demand uncertainty (will customers buy groceries online?) and high technological uncertainty (can we fulfill orders in a cost-effective way?). Demand uncertainty was high, because the company had few facts about demand and many assumptions. The same was true of technological uncertainty; it had many assumptions about which fulfillment technologies would work best.

The ratio of assumptions to facts equals your *uncertainty ratio.* If your problem is characterized by a low uncertainty ratio, you can probably apply traditional management. If you have a high uncertainty ratio, then *The Innovator's Method* should guide you. Unfortunately for Webvan's investors, the company was not successful in experimenting to resolve its high-uncertainty problems before a full-scale launch—$500 million— that proved disastrous.

A New Way to Manage: Intuit's Transformation

The story of Intuit's journey gives managers an archetype for a new way of managing in a high-uncertainty industry. Intuit's transformation arguably began in 2004 with its adoption of the net promoter score. NPS is based on a single question posed to customers: How likely are you, on a scale of 0 (not at all likely) to 10 (extremely likely), to recommend this product or service to a colleague or friend? A product's NPS is the percentage of promoters (those who score themselves 9 or 10) minus the percentage of detractors (scores 0–6).[8]

Net promoter score = % promoters minus % detractors

Historically, Intuit products had dominated their markets by being significantly easier to use than competitors'. But soon competitors were catching up, so Intuit launched an effort to improve ease of use and NPS. It spent even more time with customers, observed detractors, and redesigned products. "We put a big focus on making our products easier to use," says Kaaren Hanson, design vice-president. "And when this company decides to go after something, we do it. So we pulled the lever." But these traditional management moves failed to move the meter. "Our net promoter scores didn't budge," Hanson says. "And it didn't result in a big jump in sales, which is what we expected. We pulled the damn lever, and nothing happened."[9]

In other areas of the company, customer response to new products was especially disappointing. "We were humbled when we looked back at ten years of innovation," says CEO Brad Smith, who took over for Steve Bennett in 2008. "We'd launched fifty-four products, and fewer than five had achieved any commercial success, measured by revenue or profit. And we were bad at shutting down the failures. When we did, we got labeled as not being patient enough."[10]

Design for Delight

Intuit's leaders knew they needed to figure out what would move customers and discover how to improve the success rate of new products. So a team was pulled together. "We went out to understand what was beyond ease," says Hanson. "And we looked at a lot of the usual suspects. We looked at Nike, we looked at the W Hotels, we looked at Harley-Davidson, and we looked at Apple. You name it, we probably looked at them."[11] The Intuit team realized that the most successful companies didn't just offer products that were easier to use; they offered products that delighted customers.

Products that delight customers do the unexpected. They solve a problem customers didn't know they had, or they evoke a positive emotion. But how does a company create products that delight customers?

The team discovered that design thinking offered critical new tools not in their familiar management tool set. Cook had the benefit of sitting on the board of Procter & Gamble and saw up close how P&G incorporated techniques like design thinking into product development. Drawing on design thinking principles, Cook, Hanson, and her team created a training program called Design for Delight (D4D), a program intended to transform Intuit into a design-driven innovation machine. Intuit's D4D initiative was based on searching for a big unmet customer need and then applying three principles.

- *Gain deep customer empathy.* Understand customers better than they understand themselves.
- *Go broad to go narrow.* Generate lots of solutions before winnowing the list.
- *Experiment rapidly with customers.* Seek feedback early and often.

Hanson realized that to infuse D4D principles into the DNA of all eight thousand employees, she needed to get top management on board. To jump-start the process, Hanson and Cook helped plan a two-day offsite for Intuit's top three hundred managers. At first the group paid polite attention, but as the audience plowed through a five-hour PowerPoint presentation, Cook saw that the design thinking approach was falling flat. But then Alex Kazaks, a young associate professor at Stanford, led the team in a unique participatory exercise: Kazaks asked each person to design, and prototype, a wallet for the person next to him. As the managers worked through the design challenge, creating prototypes, getting feedback, and redesigning, the hands-on experience helped them see the

value of design thinking as a tool to discover and deeply understand customer needs to create new value.

Hanson then organized a series of design forums, typically attended by roughly three thousand employees, to teach people the key principles and let them practice D4D. However, after several forums and a huge effort, Hanson discovered a disappointing fact: the company wasn't changing enough to produce different results. "We did this for about a year," says Hanson, "and what I was hearing in the hallways—that made me feel absolutely nauseous—was that 'design for delight' is this flavor of the month. This was very disheartening, because we actually had senior leaders involved and engaged. As it turns out, senior leaders are not enough."[12]

Innovation Catalysts and "Lean StartIn" Workshops

Structural changes were needed deep inside Intuit. Hanson and her team began thinking about how to create deeper expertise in D4D. If she could create D4D coaches—what Intuit now calls "innovation catalysts"—she thought they could coach teams applying D4D in their everyday work.[13] So she selected nine individuals from a variety of business units and fields—design, research, and product management—to become the new D4D experts.

The innovation catalysts were charged with assisting project teams to give them the confidence to use the D4D playbook. Hanson asked the catalysts to spend 25 percent of their time on "big-payoff projects." Why? Hanson knew that without a visible win, the program would fade quickly. As the first few successes trickled in, the demand for expert help grew. Over the next few years, Hanson's team recruited and trained an additional two hundred innovation catalysts, who spent roughly 10 percent of their time coaching teams.

As Intuit rolled out the D4D program, the catalysts found that design thinking provided highly useful tools for gaining deep customer empathy. But it didn't have great tools for testing potential solutions once customer pain points were discovered. Cook and his team became familiar with *lean experimentation,* ideas popularized by Eric Ries in *The Lean Startup* and by Steve Blank in *Four Steps to the Epiphany.* The tools of lean experimentation were well suited to test a *leap-of-faith assumption,* a term used at Intuit to refer to a hypothesis being tested through experiment.

So Intuit began running "lean startin" workshops. Employee teams brought an idea to meet a big unmet customer need, and in two days the team went through the entire cycle of identifying a customer pain point, prototyping a solution, and testing with customers.[14] These workshops have become a useful vehicle for developing and prototyping new ideas. Indeed, the combination of forums, workshops, and catalysts has not only helped everyone at Intuit understand the new D4D playbook but also provided deep expertise to successfully execute the plays.

Implementing the Innovator's Method

What exactly was happening inside Intuit? As managers were adopting ideas from design thinking and lean start-up, they were learning how to systematically experiment their way to success. Moreover, they began to create start-up teams throughout the company that used a similar process to that used by start-ups to bring new products to market.

As we observed what was happening at Intuit—and what happened at other innovative corporations and start-ups—we realized that these companies were using a similar process for testing and validating ideas. This process, what we call the innovator's method, consists of four steps to solve high-uncertainty problems and turn insight into a successful innovation (see figure 1-5).

> *Step 1. Insight: savor surprises*. Leverage the behaviors identified in our earlier book, *The Innovator's DNA*— questioning, observing, networking, and experimenting—to search broadly for insights about problems worth solving.
>
> *Step 2. Problem: discover the job-to-be-done*. Rather than starting with solutions, start by exploring the customers' need or problem—the functional, social, and emotional job-to-be-done—to be sure you're going after a problem worth solving.
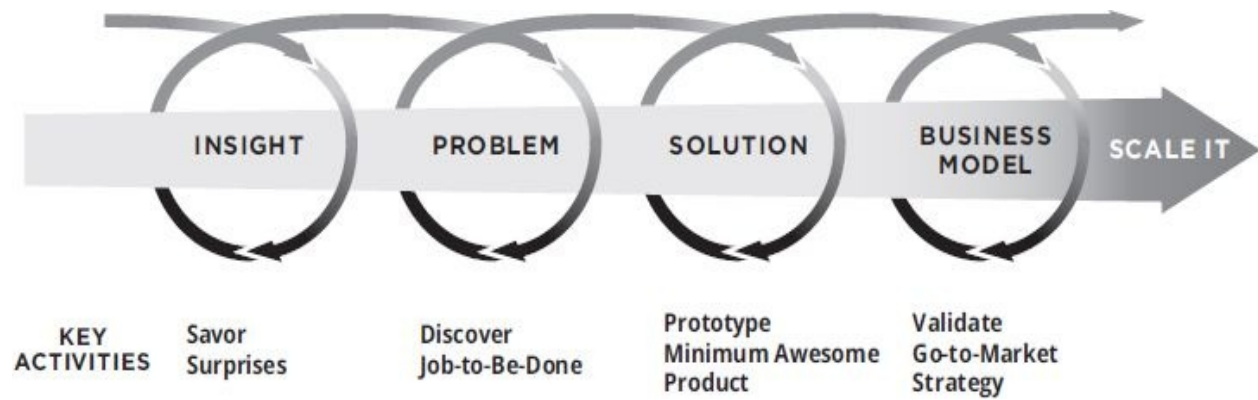>
> *Step 3. Solution: prototype the minimum awesome product*. Instead of developing full-scale products, leverage theoretical and virtual prototypes of multiple solution dimensions. Then iterate on each solution to develop a minimum viable prototype and eventually a minimum awesome product.
>
> *Step 4. Business model: validate the go-to-market strategy*. Once you've nailed the solution, you're ready to validate the other components of the business model, including the pricing strategy, the customer acquisition strategy, and the cost structure strategy.

FIGURE 1-5

The innovator's method

	INSIGHT	PROBLEM	SOLUTION	BUSINESS MODEL	SCALE IT
KEY ACTIVITIES	Savor Surprises	Discover Job-to-Be-Done	Prototype Minimum Awesome Product	Validate Go-to-Market Strategy	

Each step in the method is critical and involves an experimentation loop to test leap-of-faith assumptions in a repeated "hypothesis, test, learn" loop.[15] Let's return to Intuit and see how it has applied the innovator's method.

Insight: Savor Surprises

The innovator's method starts with generating insights into potential customer problems by looking for surprises or other clues, such as symptoms of a problem. We use the word *problem* interchangeably to mean a need or problem that can exist for external customers or internal users. (For example, at Intuit, half the projects are targeted at solving an unmet customer need; the other half target internal needs, such as developing better technology tools to serve customers or creating a better working environment.) The insight can come from anyone, and that explains why Intuit gives 10 percent unstructured time to every employee to generate ideas and participate in a start-up team. In a convenience sample, we found that insights were developed most often through user or customer observations and through conversations with customers, Intuit employees, and various individuals outside Intuit.

Insights often start when you notice a symptom or a surprise, which provides the clues to an opportunity. For example, Intuit's Barath Kadaba and Deepa Bachu (an innovation catalyst) were looking for opportunities to create new businesses to improve the financial lives of the 1.2 billion residents of India. After initial observations and analysis, Bachu and a team of three other people decided to explore the needs of India's 150 million farmers, a large segment of potential customers with many challenges.

The team spent three weeks following farmers—in the fields, in their villages, and at the markets where they sold their produce. As they watched, they were surprised at the incredible challenges farmers had selling their produce at a good price. As they listened to farmers complain, worry, and often lose money, they had the clues of a potential problem to solve. Furthermore, the team was surprised by the powerful role played by middlemen in the market, who had no incentive to provide farmers with accurate information on supply and demand. These symptoms and surprises pointed to a potential opportunity. If the problem was as serious as Bachu thought it was, and if Intuit could come up with a solution that would translate into higher prices for farmers, Bachu knew it could be a big opportunity for Intuit.[16]

Problem: Discover the Job-to-Be-Done

Managers tend to start by building solutions, but we emphasize the need to first deeply understand the problem. Keep in mind that "problem" may mean either a customer's pain or a customer's desire, such as a desire for connection, expression, fulfillment, and the like. At the core you are trying to discover the functional, social, and emotional elements of the job-to-be-done—the need for which customers might purchase your product. For example, although a BMW may do a similar functional job as another car (transport), a BMW can also accomplish important social jobs (prestige, status) or emotional jobs (feels "cool") that may be overlooked at first blush.

At Intuit, teams follow up on an insight into an unmet customer need by using a technique called *pain-storming.* According to Rachel Evans, one of the innovation catalysts who developed it, "The purpose of a pain-storm is to get crisp on what we think the problem is so we can test our hypotheses."

Pain-storming involves creating a customer's "journey line" to understand how customers now complete a task and identify their main pain points (and emotions) along the way. The team then conducts a root-cause analysis to understand the causes of the biggest pain points. Of course, it doesn't work if team members just sit in their offices and imagine what customers might want. Instead, Intuit's team members directly observe and talk to customers in their offices or homes. As CEO Smith told us, "To walk a mile in your customer's shoes, you have to take your own shoes off first."[17] In short, you must "be the customer."

As Bachu and her team spent weeks living with, observing, and talking to farmers and middlemen in seven agricultural markets, she learned firsthand about the pain farmers felt when faced with a decision to sell perishable crops, whose prices might fluctuate as much as 50 percent in a single day. The team validated their initial observation that the farmers had no information on supply or demand to guide them, resulting in spoilage or suboptimal prices. They also validated the fact that farmers were often exploited by the middlemen, who had an incentive to minimize market price transparency. As the team members gained confidence that they had identified an important problem worth solving, they translated the problem into a vision statement for the customer: "10 percent higher prices for farmers." Drawing on the insights into the causes of the farmers' problem—and using the vision statement as a guide—the team then was ready to focus its energies on developing a solution.

Solution: Prototype the Minimum Awesome Product

After identifying a customer problem worth solving, most managers unleash the product development team to build a full-featured, error-free product to attract as many customers as possible. Although this approach makes sense in familiar markets, it is the wrong thing to do when you face uncertainty. Instead, managers should search broadly for a variety of solutions and then use a series of four prototypes to converge on the solution that best solves the job-to-be-done (theoretical prototype, virtual prototype, minimum viable prototype, and minimum awesome product).

Although rapid prototypes may seem like old news, there is a subtle process to leveraging prototypes in the right way to rapidly validate your hypotheses. In the early days, although Intuit adopted the idea of rapid prototyping to test solutions, they found it led to premature development, as high-potential solutions were quickly thrown into Intuit's traditional software development process. This process often yielded long development cycles and disappointing results. Intuit's leaders soon realized that the better way to gain momentum was to fake the product in order to get something into users' hands more quickly. This *virtual prototype*, as we would call it, allowed the Intuit team to quickly test many, many solutions with customers to determine if they had any potential.

For example, the Mobile Bazaar team (Intuit's name for the team searching for a solution to the farmers' pricing problem) experimented with several simple prototypes to test potential solutions. One prototype was an eBay-like auction where the farmers could auction their products directly to buyers. However, initial tests of virtual prototypes, drawn in PowerPoint, suggested such a system would be complex for farmers to set up and use (most of them were not well educated, nor did they have experience with computers).

The team observed, however, that all the farmers had cell phones and knew how to send and receive text messages. So the team tested virtual prototypes, and then a minimum viable prototype, of a solution that involved gathering information on prices that buyers and middlemen were prepared to pay; this information was then sent to farmers in real time through text messages. Farmers then would use that information to decide when, and to whom, they would sell. The team "faked the back-end" by having three team members manually send text messages to farmers to see how they responded. Farmer response to this solution was extremely positive. Within one year, Mobile Bazaar had 180,000 farmer subscribers, and tests showed that farmers' prices had increased an

average of 16 percent.

In addition to demonstrating the use of specific prototypes, the Mobile Bazaar example demonstrates a more general principle of the innovator's method: "go broad to go narrow." At Intuit, teams apply this principle by generating as many solutions as possible during what the company calls a "solution-jam" before reducing the concepts to a short list for prototyping. After selecting at least three solutions, the team initiates a "code jam," with the goal of creating a working software prototype of each solution that isn't perfect but is good enough to test with customers. In this way, Intuit progresses from pain-storming to a customer-tested prototype within four weeks, thereby enabling rapid experimentation with customers numerous times before the solution is put into software development.

However, as we will argue, truly delighting customers comes from the unexpected: it comes from understanding a problem in a way that others haven't and then going beyond customers' expectations in providing a solution. Therefore, the ultimate goal of this stage of the process is to create a *minimum awesome product*— one that remains "uncomfortably narrow" in feature set but is awesome at what it does.[18]

Business Model: Validate the Go-to-Market Strategy

At Intuit, Kaaren Hanson argues, "Until you've figured out how to delight a customer, don't even think about the business model."[19] But once you've discovered a solution customers want, you're ready to figure out the best way to get your solution into the hands of customers at a price that generates the revenues called for in your strategy. However, although most managers assume they understand how to get products to market, many companies have killed their new products by forcing them into existing business models. For example, managers often use the same distribution channels, a similar marketing strategy, a similar pricing strategy, and so on, as they use for existing products. But even when innovations appear similar, they often require their own unique business models. Properly aligning the business model involves discovering and validating your go-to-market strategy directly with your customers. This process requires validating how to acquire and influence customers, how to set price, and which resources will be required to deliver your solution to the market.

Intuit currently manages this process by dividing innovation into groups. Innovations related to its core financial software products (Quicken, QuickBooks, and TurboTax) are labeled "Horizon 1" (H1) products and generally borrow the existing business model. But products only partially related to the core are labeled "Horizon 2" (H2), and new or unrelated products are labeled "Horizon 3" (H3). The new H3 and H2 products, in particular, require rapid experimentation to test assumptions about the new business model. Furthermore, H3 products require a unique set of metrics to measure progress in nailing the new business model. Rather than measure financial performance, such as ROI or contribution to top-line revenue, Intuit starts by measuring what it calls the "love metrics" (see chapter 8). The point is that you can't assume that new solutions will work with your existing business model.

Mobile Bazaar typifies an H3 business, and the team is still in the process of experimenting with the business model. Unlike Quicken or TurboTax, the Mobile Bazaar distribution channel to customers will operate via cell phones (as will all digital marketing), and pricing must also be different (likely through subscription or a "free" advertising supported or freemium model). Intuit has not attempted to scale Mobile Bazaar at this point, because it has not yet validated a profitable business model.

A New Style of Leadership

Corporations are designed for execution, not innovation. But as uncertainty increases in the world around us, the way we manage has to change to meet these circumstances. To apply the innovator's method requires a new style of leadership. In the age of uncertainty, leaders are no longer chief decision makers. Instead, they're chief experimenters who formulate hypotheses with their team, conduct experiments, and let the data speak for themselves. "We want our leaders to be coaches and facilitators, not decision makers," says Cook. "The experiments that the team runs should provide the data to help the team make decisions so the leader doesn't have to."[20]

Thus the manager's role shifts to coach and facilitator of "fast and frugal" experiments. If the manager, or anyone else on the team, says, "I think we should do X" or "I believe X," that statement is translated into a leap-of-faith assumption, and the next question should always be, "What's the fastest way to run an experiment to help us know whether we should do X?"[21] "With our new focus on experimentation, our leaders should stop trying to be Jobs or Bezos and predict the future," says CEO Smith. "Our leaders should nurture innovation wherever it comes from. With lean experimentation, employees can come to leaders and have the boldness to say, 'I've got an idea, and here's the proof.'"[22]

So within each of the first few steps (problem, solution, and business model), Intuit teams follow this process: (1) writing down the most important leap-of-faith assumption, (2) designing an experiment to test it, (3) conducting the experiment to provide the answer, and then (4) looping back to figure out the next leap-of-faith assumption that the team needs to answer.

Leaders have to walk the talk. Key decisions they want to make should be tested as leap-of-faith assumptions. Remember, in high uncertainty, anything you believe to be true is only your best guess. What is your leap-of-faith assumption?

Intuit's Results

How has Intuit's application of the ideas we describe here affected innovation at the company? First, Intuit has become an experimentation machine. In 2006 the TurboTax unit ran only one customer experiment; in 2012 it ran more than six hundred, and by 2013 it had run almost 2,500 customer experiments in a single year. Not surprisingly, this increase in market experiments has produced a plethora of successful new products. Mobile apps have increased from zero in 2008 to fifty in 2013, including the very successful SnapTax app, which generated 350,000 downloads in its first three weeks.

But the proof is in the financial pudding. In 2010 Intuit generated $10 million in revenues from products launched in the prior three years. That number jumped tenfold—to $100 million—by 2012, and the company expects to earn much more as these nascent businesses mature.[23] Perhaps more important, Intuit's product launches and product improvements are being well received by the market, and profits are up considerably. Operating income has more than doubled, from 7 percent annual growth from 2004 to 2008 to 15 percent annual growth from 2008 to 2012.

And investors have rewarded Intuit. Its market cap jumped from $10 billion in 2008 to $17 billion in 2013—a 70 percent increase (for comparison Intuit's market cap increased only from $9 to $10 billion from 2003 to 2008). Moreover, Intuit's innovation premium has jumped from 20 percent in 2008 to 30 percent in 2012—a 33 percent increase. Intuit is once again acting, and performing, like an innovative company and, some might say, like a start-up (see "Is Your Company an Eight-Thousand-Person Start-Up?").

Is Your Company an Eight-Thousand-Person Start-Up?

If you're working in a larger organization, you may wonder, What does this start-up stuff have to do with me? Although we describe both start-ups and established companies, the issue isn't the size of the company. The issue is the type of problem you face and how you are solving it: uncertainty requires a different management approach that is critical for either entrepreneurial or corporate start-ups. However, because start-ups often spend their time solving high-uncertainty problems, you may incorrectly associate the innovator's method with start-ups rather than

with the type of problem.

We define a start-up as does Eric Ries in *The Lean Startup:* as "a temporary organization designed to search for a business model under conditions of extreme uncertainty."[24] The definition includes three important dimensions. First, anyone (or team) who is creating a new product, service, process, or business—no matter the size of the company—is the founder of a start-up. The definition includes corporate and entrepreneurial start-ups.

Second, a start-up has a special purpose and structure; it's a temporary organization focused on searching for a problem, a solution, and a business model. Third, the founders are trying to launch something new under conditions of uncertainty. It isn't clear whether there will be demand for the new product (demand uncertainty) or whether the technological solutions will work as desired (technological uncertainty). If you're a start-up founder (manager or entrepreneur), you should apply this method to avoid the number 1 pitfall that kills start-ups: scaling the business before you've nailed it.

Similarly, we define "customer" as anyone with a problem or need, whether inside or outside the organization. You can apply the innovator's method to solve problems with some uncertainty *inside* your organization, whether in IT, HR, or finance. Wendy Castleman, an Intuit innovation catalyst, recalled such a process for an internal customer. An employee in IT observed that billing agents took fifteen minutes to answer customer questions. This spark of an insight and further observation identified the core problem: billing agents had to look across multiple systems to identify the various components of a customer bill. So she designed a series of experiments, testing different prototyped approaches to solutions for agents, ultimately finding a new tool that decreased call times from fifteen minutes to three!

Using a similar approach, Intuit's Full-Service Payroll team wanted to see whether they could improve the customer experience of calling in for support. One idea was to answer the phone in a more personal way. Instead of saying, "What is your EIN number?" they hypothesized that they would get higher customer satisfaction by beginning with, "How can I help you today?" They tried it with one agent, and the results were stunning. The agent's NPS scores jumped more than 20 points, well beyond the rest of the team (or her prior scores). They quickly rolled out the change to the rest of the team, and the experiment ultimately led to a

the change to the rest of the team, and the experiment ultimately led to a 21-point increase in their NPS scores. The point? The innovator's method works for internal as well as external customers.

A Guide to This Book

In this chapter we've examined how an established organization can implement the key steps in the innovator's method, and we've introduced leadership principles that enable the method to flourish. Now you'll take a deep dive into the leadership principles that will help you apply the method as well as each step of the method. Rather than give you theory and let you figure out how to implement it, we focus on giving you both the big idea (why to) and the tools and tests we've seen successful innovators use (how to). (See appendix A for a summary of the model and the tools and tests discussed in each chapter. See www.theinnovatorsmethod.com for further tools and tips.) Here's an overview of the chapters to come.

In chapter 2, we explain why being a good manager can make you a bad innovator. We describe how your role changes when you're managing for innovation in a high-uncertainty environment. Chapter 3 discusses how managers generate insights—the seeds of innovation—by applying five key skills (questioning, observing, experimenting, networking, and associating) and by searching broadly to understand the job-to-be-done. Then in chapter 4 you'll learn how to determine whether your insight represents a problem worth solving. Discovering the job-to-be-done (functional, social, and emotional job) is the critical first step, and one that's often overlooked. This chapter has tests for determining whether you've discovered a worthwhile problem.

In chapter 5 you'll find tools to help you broaden and then narrow your solution ideas as you use progressively detailed prototypes to discover an awesome solution. Once you've generated a solution to a worthwhile customer problem, you're ready to figure out your go-to-market strategy. In chapter 6 we introduce the business model snapshot, which pinpoints six components of your business model that you need to identify before fully launching your product. These include value (your value proposition and pricing strategy), customer acquisition (customer relationships and channels), and cost structure (activities and resources).

The great benefit of the innovator's method is that it gives you the tools you need to resolve uncertainty; it teaches you how to experiment to answer your questions and then pivot when necessary. But because you face uncertainty, your chances of guessing right on the first try are nearly zero; this means that changes —pivots and iterations—are critical. In chapter 7 we reveal crucial principles for mastering the pivot.

Once you've turned many of your hypotheses into facts, you can scale your idea to reach a broader market. But the process that helped you nail the business model doesn't help you scale it. Now it's time to reapply traditional management while keeping your ability to test the remaining uncertainties. In chapter 8 we explain the often overlooked art and science of scaling.

Lastly, not everyone has support from the top management team, and at times you may find yourself the only believer in your idea. In chapter 9 we address how to adapt the method to work for you individually and for a team, or use it to ignite innovation in the organization more broadly. We also explain how to adapt the method based on whether you're pursuing disruptive or incremental innovations.

In the conclusion chapter, we tell the story of how Regeneron, an established corporation in a technically complex industry, used the ideas in this book to become one of the world's leading biotechnology companies. Using this example, we discuss the future of management and competitive advantage.

A tectonic shift has exponentially increased the level of technological and demand uncertainty faced by companies. Even established organizations need to be good at solving high-uncertainty problems—the kinds of problems they have tended to leave to start-ups. The need for managing uncertainty is a serious challenge, because established organizations must execute under an existing business model to meet the needs of existing customers. As a result, they typically adopt management practices that run counter to managing for innovation.

But Intuit, and dozens of other companies we studied, have shown that it's possible to reconceptualize the role of management and to create processes and infrastructure to radically decentralize the process of idea generation and assessment. When anyone in an organization is encouraged to be the founder of a start-up (a new product, a new service, a new process) and knows how to do it, it unleashes the kind of creative energy that can counter, or even embrace and exploit, uncertainty.

That doesn't mean that the innovation process is easy and clean. In practice innovation is always messy and recursive. There are often politics, contradictions, and setbacks. But with that caveat, we have tried to simplify the mess to clearly explain the most common steps and tools we observed successful innovators use. We describe the innovator's method in terms of four common

elements (insight, problem, solution, and business model) to help you clearly grasp and understand them. Although we generally observed that successful innovations start with an insight into a big problem and then progress through the steps we describe, in practice, these steps often overlap each other, or sometimes occur in a slightly different order—that is the nature of dealing with an uncertain world. Ultimately each element of the innovator's method is more important than the order, as is understanding the key tools and tactics to turn your ideas into innovations. As you encounter these challenges and confusions, embrace them as part of uncertainty, remembering that although uncertainty can be frustrating, it is also the source creativity, innovation, and new growth. The innovator's method is your guide to help you recognize what to do when.

* There is a third type of uncertainty called *environmental uncertainty*, which refers to the uncertainty of the macroeconomic environment and government policy; but demand and technological uncertainty are more directly relevant to creating a customer.

2

Leadership in the Age of Uncertainty

When MBAs come to us we have to fundamentally retrain them—nothing they learned will help them succeed at innovation.

—Scott Cook, Founder and Chairman of the Executive Committee, Intuit

ABOVE, WE QUOTE Scott Cook criticizing traditional management training. Is he simply being inflammatory? Perhaps. But many other innovative leaders have also criticized traditional management training. For example, Elon Musk, founder of Tesla, SpaceX, and PayPal, argued that "As much as possible, avoid hiring MBAs. MBA programs don't teach people how to create companies . . . At my companies, our position is that we hire someone in spite of an MBA, not because of one."[1] While we all recognize that management training has immense value, why do some leaders of innovative companies offer such harsh criticisms? Here's our explanation of where we have made a wrong turn when it comes to innovation.

In 1911 Frederick Taylor wrote the landmark book *Principles of Scientific Management*. It had such a powerful impact on the emerging industrial corporations of the twentieth century that it earned Taylor the title "father of scientific management." Taylor's management principles were taught at the new, emerging business schools of the day and applied at rising industrial powers such as Ford Motor Company and General Electric. Indeed, Henry Ford, Alfred Sloan, and other corporate legends looked to scientific management as their management textbook, and Taylor's influence is still felt in business schools worldwide.

What were Taylor's principles of scientific management? First, he recommended that work be carefully planned and broken into separate tasks. The idea was that managers could analyze the tasks of production—for example,

through time and motion studies—to determine the fastest and most cost-effective way to complete them. Then the manager's job was to make sure the task was standardized as much as possible and that workers followed the prescribed process. Taylor argued that task specialization was critical because it offered numerous benefits—for example, allowing for clear responsibility and accountability. It also enabled managers to match worker skills with the task, thereby facilitating a division of labor.[2]

These principles—task specialization, work standardization, accountability, and division of labor—quickly spread throughout US industry. Taylor's ideas greatly simplified the job of managing the complex tasks of the emerging industrial corporations. Moreover, his principles—when applied effectively—had a powerful positive impact on the performance of the large companies of his day. We see Taylor's handiwork everywhere. Every large company is broken into functions for task specialization—R&D, procurement, operations, marketing, HR, and finance. Every large organization seems to strive for division of labor, standardization of work, accountability, and the pursuit of best practices.

But even though Taylor's principles have done much good, there's one problem: they're exactly the wrong prescription for managing innovation. They're great principles for efficiently performing tasks to sustain a customer, but they work poorly for guiding work to *create* a customer (Peter Drucker's "central purpose" of business and the clear focus of start-ups).[3] They turn individuals into good managers (of execution) but bad innovators.

How does it happen? Consider task specialization and division of labor. Specialization makes sense when a problem is well defined and characterized by low uncertainty—the kinds of problems companies typically face as they move up the famous S-curve from growth to maturity (see figure 2-1). Let's say a company needs to produce a thousand widgets at the lowest possible cost, and to respond to five thousand daily service calls. The company knows roughly how many widgets to produce and how many calls to service; it needs to figure out the most efficient way to do it. Because these tasks are quite different, the company divides them into separate functions and hires experts in operations or service to perform the tasks. Managers are held accountable based on performance metrics—say, cost per unit produced or ratings of customer satisfaction with service calls. Managers quickly learn the value of hiring and developing specialists with deep expertise (as opposed to generalists with broad expertise), because the problems are well enough defined that it's easy to match

a specialist with the problem. These tactics are in fact the right ones for many problems that managers face, and applying them is simply good management.

FIGURE 2-1

The S-curve and the right style of management
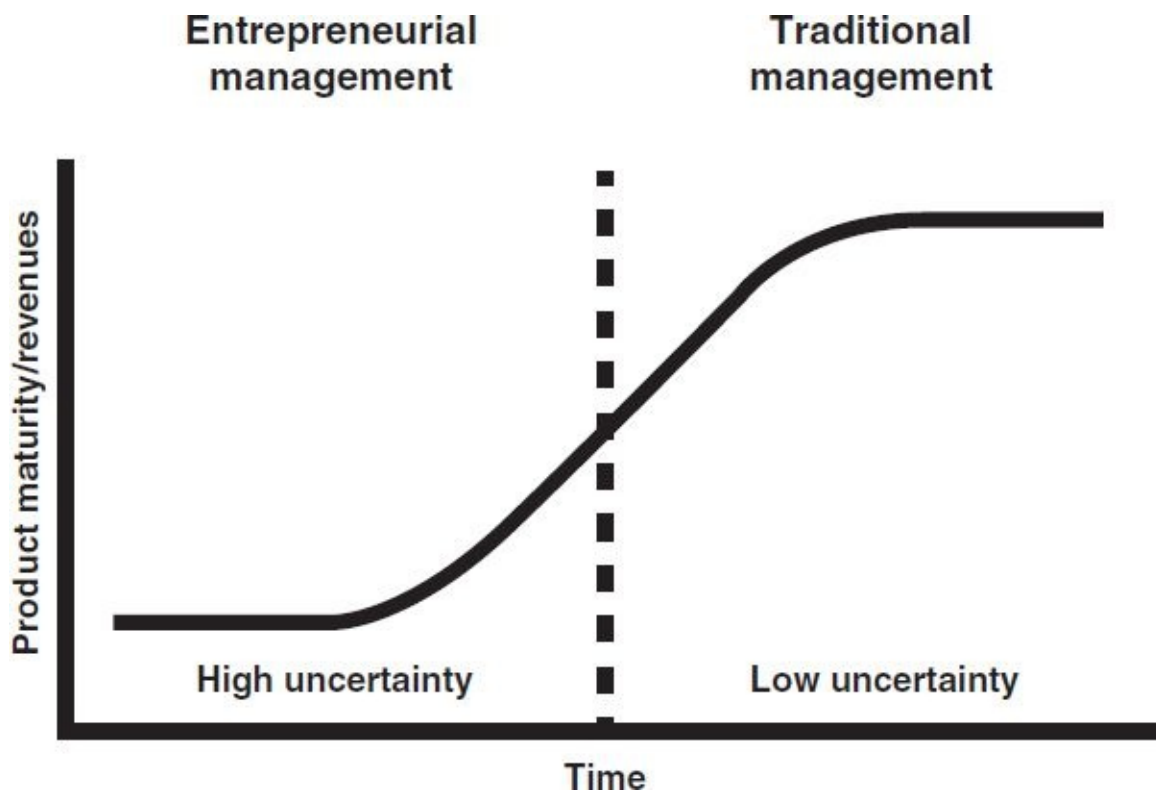
Unfortunately, this is the wrong approach when you're trying to solve high-uncertainty problems, the kind a company or start-up faces at the introduction and growth stages of the S-curve (see "Sloan Versus Durant: A Contrast in Management Styles"). When you face high uncertainty about how to create a customer, you aren't sure what type of expertise will be most valuable. So you want people who have broad expertise, the kind of people who can see the problem, and possible solution, from various angles. That's why the practices that make someone a good manager can be roadblocks in efforts to ignite insights and bring new ideas to market.

Sloan versus Durant: A Contrast in Management Styles

Alfred Sloan is known as the father of the modern corporation, having transformed General Motors into the model corporation of his era by introducing principles such as specialized management roles, decentralized organization, and cost accounting. Sloan's ideas on dividing tasks into manageable chunks led him to break GM into divisions (Cadillac, Buick, Chevy, Pontiac), each focused on a different customer segment.[4] Sloan's management principles—along with those of contemporaries like Taylor as well as Henry Ford, who pioneered mass production techniques—contributed much to the early development of management theory and practice.

Sloan's influence is evident today in the number of institutions that bear his name and the number of business schools that teach his ideas. But Sloan's success and influence on management overlook an interesting question: Where did General Motors come from? Indeed, Sloan took the reins of GM only after it was generating nearly $4 billion in inflation-adjusted revenues.

In fact, GM was founded by Billy Durant, a creative entrepreneur who made millions in the horse-and-buggy industry before starting GM. Durant was an experimenter who pioneered products in both industries and grew GM until the board of directors, recognizing that he was a talented entrepreneur but a poor manager, replaced him. Durant then cofounded Chevrolet, eventually repurchased control of GM, and ran the firm until the board removed him a second time and replaced him with Sloan.[5] That Sloan is so well known, and Durant so little known, is intriguing. What were Durant's management theories? Why did they work in the early days but fail as GM became a large corporation?

The answer is simple: management theory was developed to solve the large-company management problem and not the innovation problem. The former emerged during the Industrial Revolution, when the economy was transformed from small workshops to large businesses of unprecedented scale, producing things like oil, textiles, autos, and railways. To make the trains run on time and increase the production of autos, these large corporations required a new profession: management. They needed managers to plan, coordinate, rationalize, and optimize the operations of large, complex organizations. Business schools emerged to

train this new cadre of managers to be effective at resolving the problems faced by large corporations, such as "What new features should we add?" or "How can we lower costs by 5 percent?" These are low-uncertainty problems calling for incremental changes to existing products or processes.

In contrast, most start-up or corporate entrepreneurs are trying to launch new products that have disruptive potential. They face high-uncertainty problems such as "Will consumers want to use a personal computer (a demand problem faced by Apple), and can we make it easy enough for children to use (a technology problem)?" Or, "Will people buy products over the internet (a demand problem faced by Amazon.com), and can we provide fulfillment in a low-cost and reliable way (a technology problem faced by Amazon.com)?" "Will people make payments over the internet (a demand problem faced by PayPal), and can our technology provide them the ease of use and security they need?"

Although these firms successfully solved some high-uncertainty problems, business history is littered with failures—in many cases, because they applied the wrong theory: they followed business-school management theory (designed for low-uncertainty problems), and not innovation-school management theory (necessary for high-uncertainty problems).

Four Key Roles of the Leader

To apply the innovator's method, established companies must make a critical transition from their natural tendency to rely exclusively on traditional management to applying entrepreneurial management when facing the uncertainty of innovation. We've identified four key roles that leaders must fulfill if they hope to turn their organizations into successful innovators, composed of teams that innovate like a network of start-ups. These roles are critical to ensure that the innovator's method is incorporated into the company's processes and the day-to-day behaviors of employees.

First, and most important, the leader must become the chief experimenter and not the chief decision maker. As shown in figure 2-2, the other three roles support, and enable, the chief experimenter role. The second role is to set the grand challenge—not only to inspire others to pursue an opportunity but also to challenge the organization to break free of Taylor's principles of scientific management.

Third, the leader must build broad and deep expertise in the innovator's method, which is needed to ensure that the organization has the capability to generate insights, discover problems worth solving, and rapidly prototype solutions. The fourth role of the leader is to remove barriers to change and install systems to facilitate the fast experiments required to test the team's hypotheses —and resolve the uncertainties—at each step.

FIGURE 2-2

Be the chief experimenter

Be the chief
experimenter, not the
chief decision maker

Remove barriers and
provide tools for rapid
experimentation

Set the grand
challenge

Build broad and
deep expertise in the
innovator's method

Be the Chief Experimenter

In traditional management, managers are decision makers. You analyze information and make decisions that will affect the future of your organization. In a way, you're trying to predict the future, and position the company to succeed. For many managers, decision making is the essence of what it means to be a manager.

But when you're acting under uncertainty, the available information is too scarce, or even absent, for you to predict the future with any confidence. The best you can do is guess, and you may be wrong more often than you're right. But if you aren't making decisions, what is your role as a leader of innovative teams?

The innovator's method enables you to make effective decisions about the future—but you must first define a new role for yourself. You must learn a new way to be right. For Intuit's Scott Cook and Brad Smith, it's often a matter of reprogramming new hires. "Unfortunately, you know how big companies and hierarchies make decisions," says Cook. "They tend to rely on politics, PowerPoint, and persuasion."

> So to fix that, you've got to change how and where decisions are made . . . enabling decisions to be made by the best idea you can validate in the market. This means moving decisions from bosses voting their opinions, to enabling and measuring customers voting with their feet. This goes against what people have been taught in business school. Most leaders in business have been successful because of analysis. They see themselves as decision makers and their job is to do great planning and analysis. That's the kind of change that we are trying to create at Intuit.[6]

Rather than becoming great planners and power decision makers, the company's new leaders are taught to champion experiments. Similarly, at Google, founders Larry Page and Sergey Brin have always supported the notion that decisions should be made by rich data from experiments—so much so that in 2002 they experimented with a completely flat organization, eliminating engineering managers. That experiment lasted only a few months, until too many people went directly to Page with questions about expense reports and interpersonal and career issues.[7] But the philosophy that even top Google executives must back their ideas with data lives on. To illustrate, in one instance

Larry Page and Marissa Mayer (former VP at Google who is now CEO at Yahoo!) supported the idea to develop a massive digital archive of books. But rather than simply use their positions to make the decision to proceed, the two went so far as to clamp a three-hundred-page book to a piece of plywood, manually photograph each of its pages, and run the images through character recognition software, all to establish that it would take only forty minutes to digitize a book.

How do chief experimenters differ from decision-making managers? They focus on three things:

- Forming leap-of-faith assumptions with their team
- Rapidly testing those assumptions through experiments (mostly with customers)
- Letting the data (mostly from customers) make the decisions

As a leader, you don't have to do everything yourself: instead, decisions move downward in the hierarchy to small teams, where data reveals what the decision should be—or what the next experiment should be. Says Cook, "[Intuit CEO] Brad Smith and I have changed the questions that we ask. We used to ask things like, 'Well, what's your answer, and what's your analysis behind it?' And now we ask, 'OK, what's the fastest way to get an experiment to test that idea?'"[8]

Jeff Bezos of Amazon manages in a similar style using similar questions. A few years ago, Bezos charged a team with analyzing the supply chain to come up with recommendations for an overall design of the company's logistics. The goal was to ensure that fulfillment could be done fast and economically. As one team member recalls, "When we presented our analysis, while all other executives were happy with it, Jeff was not. He insisted on being more rigorous and envisioned everybody in the company making decisions based on simulation outputs. So a team was formed to build supporting supply chain simulations—simulations that allowed us to see the results of different kinds of decisions. These simulation tools are now currently used throughout the company to make decisions."[9] The simulations allowed Bezos to experiment under uncertainty before building solutions.

This leadership style is working at Amazon, Google, and Intuit because the leader walks the talk. Says Cook, "Brad and I have to live by the same rules. So we end up asking ourselves questions like, 'I have got a fundamental belief of what we should do. Now, what are the leap-of-faith assumptions on which it is

based? And how are we going to test the leap-of-faith assumptions that are crucial to my beliefs?' We need to do this just like we would do for anyone else . . . Experiments will be nothing but window dressing until you change who and how decisions are made."[10] So a key step in becoming a great leader of innovation is to change how decisions are made—and that starts with you.

Set the Grand Challenge

In a now famous 1979 visit to Xerox Palo Alto Research Center (PARC) in California, Steve Jobs recalled seeing a rough graphical user interface. "It was incomplete, some of it wasn't even right, but the germ of the idea was there," he said. "Within ten minutes, it was so obvious that every computer would work this way someday."[11] Jobs then took his engineering team on a tour of PARC—and returned to Apple focused on developing a personal computer that incorporated, and improved on, the PARC technologies.

Jobs assembled a team of brilliant engineers, gave them the needed resources, and infused the Macintosh team with a vision of creating the world's easiest-to-use personal computer. That's what an innovative leader does. In contrast, the executive team at Xerox lacked the discovery skills necessary to exploit technologies developed in their own company. As PARC scientist Larry Tesler observed, "After an hour looking at demos they [Jobs and Apple programmers] understood our technology and what it meant more than any Xerox executive understood after years of showing it to them." Jobs agreed with Tesler, saying, "Basically they were copier heads that just had no clue about a computer or what it could do. And so they just grabbed defeat from the greatest victory in the computer industry. Xerox could have owned the entire computer industry today."[12]

Years later, when Apple was considering offering a portable music device, Jobs and his leadership team set the vision with the tagline "1,000 songs in your pocket." That's why the first iPod was the size it was—small enough to fit in a pocket. These examples illustrate one reason Steve Jobs was a great leader of innovation: he had a nose for opportunity, and he set the grand challenge. You don't have to be Steve Jobs in terms of identifying the right opportunity, but you do have to set the grand challenge for your team.

To do that, says Intuit's Cook, "Leaders should ask questions like these: 'What is the most important problem, the biggest pain point, that we can solve? How does the customer measure the gain? How can we move the needle the most for the customer?'"[13] You don't necessarily have to articulate the solution (for example, the number of songs on a device), but you need to push people to search for opportunities. For example, when Intuit considered the Indian market as an opportunity, Alex Lintner, the executive overseeing Intuit's Indian operations, asked his team to "create new businesses that will improve the

financial lives of Indians." This grand challenge led the Mobile Bazaar team to identify an opportunity for the 150 million farmers in India to improve their financial lives by getting better prices. The Intuit team then sought to create a product that would do that.

Another dimension of setting the grand challenge may be even more important: giving the team and organization permission to break free of traditional management and use entrepreneurial management. This is extremely difficult. If you're like most people, when you started kindergarten you were assigned a desk and given clear instructions on what to do and how to do it. Most of us have been in those assigned desks ever since, completing our assigned tasks. To break that pattern, leaders must set a different grand challenge for the organization, saying something like, "I expect you to go figure out where your desk should be, and discover which assignments will create the most value for customers."

At Valve Software, a multibillion-dollar company that has already revolutionized the video gaming industry, founder Gabe Newell sets a radical vision to ruthlessly pursue customer value. To enable employees to do that, he has torn down all the bureaucracy.[14] He instructs every new hire, "Your desk has wheels. Your job is to figure out where you create the most value for customers, and move it there." Valve's leaders argue that as a company Valve has "spent the last decade going out of its way to recruit the most intelligent, innovative, talented people on Earth; telling them to sit at a desk and do what they're told obliterates 99 percent of their value."[15] Recent innovations include creating the platform on which 80 percent of all PC games are sold and making the first foray into the video game console market by a new company in more than a decade.

Similarly, Amazon's Bezos uses the slogan "It's Still Day One" to remind employees that Amazon is still a start-up—and there is lots of runway ahead. It's such a central motivating idea that Bezos named one of the company's buildings Day One. Asked when Amazon will reach "Day Two," Bezos responded, "Day Two will be when the rate of change slows . . . And that's the sense in which I believe it's still Day One, and that it's early in the day. If anything, the rate of change is accelerating."[16] A key role for Bezos is to set the grand challenge for Amazon: to behave like a start-up.

Build Broad and Deep Expertise

When Ricardo dos Santos joined Qualcomm, a *Fortune* 100 manufacturer of semiconductors used in wireless devices, he was confident he could transform the company's failing "idea management program" (effectively a suggestion box) into a corporation-wide innovation program. Dos Santos had the support of a visionary CEO, a mandate to create disruptive new products, and the freedom to design a sweeping program to kick-start new ideas. Because prior efforts had flailed, dos Santos searched for ways to teach people how to transform their ideas into experiments to test their validity but with the caveat that the program had to be integrated with existing business units where people continue working full-time on their current projects.

Dos Santos built a three-phase program called Venture Fest. In the first phase, employees submitted ideas, which were then reduced to the twenty best ideas based on peer review. Then Venture Fest trainees took part in a three-month, part-time boot camp, where they tested their ideas with customers and developed prototypes. In the final phase, they presented their ideas to top executives in a competition for funding, after which they attempted to convince an existing business unit to adopt the new idea. Generally Venture Fest was a success, with ideas submitted increasing from eighty-two in the first year to more than five hundred five years later. Moreover, Venture Fest participants identified many potential breakthrough ideas.

But although Venture Fest fostered some truly transformation ideas, a few organization members outside the program began to question, and even attack, the program. Some managers weren't happy releasing some of their best people to work on projects not under their control. And from a more traditional management perspective, the Venture Fest projects seemed too open, fluid, and flexible, clashing with Qualcomm's rational, deadline-driven culture. Perhaps more dangerously, some R&D managers, many of whom felt they owned innovation, argued that the emerging new ideas fell outside the scope of existing R&D programs or didn't have as much intellectual property as usual. Despite the best intentions of many inside Qualcomm, Venture Fest encountered the kind of allergic reaction to implementing innovation that we have observed at many other companies that excel at execution. After five turbulent and exciting years, Venture Fest was quietly folded into R&D.[17]

Build Broad Expertise

The Qualcomm experience is similar to those in many organizations that try to "do innovation" by creating pockets of entrepreneurial management and experimentation expertise without generating broad awareness of the processes and goals associated with successful programs. This lack of understanding and appreciation for goals and methods can lead outsiders to misinterpret the innovator's methods as well as its output. Dos Santos recalls that Qualcomm made great strides in igniting new ideas on the "sell" side (the innovators) and increased the start-up spirit in the company overall. But if he were to do it again, he would focus on one more crucial goal: educating the "buy side"—the rest of the organization—"so that we could all be using the same language and match discovery efforts."[18]

The greater the awareness and appreciation in your organization that innovation requires a different set of management tools, the easier it will be to apply the innovator's method. We aren't saying that everyone needs deep expertise in these principles, but simply that everyone needs some training to understand that managing uncertainty requires a different approach. Of course, if your organization faces greater uncertainty, you may choose to extensively train everyone. At Intuit, Cook and Smith make sure all new hires are trained in design for delight principles, completing a weeklong design training program within the first three months. The goal is not to make everyone an expert but to make sure everyone understands lean experimentation principles and knows the steps for generating insights and nailing the problem and solution. Employees gain a common language to describe the efforts to bring new ideas to market. Having the language to explain your actions gives people immense power in overcoming the inertia that often impedes change. In our interviews with dozens of innovators, they often cited the common language as one of the most important reasons for training everyone.

But there's another reason smart leaders want everyone to understand the innovator's method: it generates ideas. Almost every study shows that searching broadly is the best way to uncover novel ideas that are worth pursuing.

Build Deep Expertise

Building broad understanding is necessary but not sufficient. It's also critical to build deep expertise within your organization. We've seen it done effectively in a couple of ways.

One option is to create a lab or SWAT team that applies the innovator's method to new ideas. In addition to relevant engineering and technology experts, the lab has experts in design thinking and lean experimentation. For example, AT&T—not known for innovation in the past twenty years—recently created five labs (AT&T calls them "foundries"), each employing forty to fifty interdisciplinary experts. Their task: testing new insights generated inside and outside AT&T. The foundries house marketing experts from the business units, experts in telecommunications technologies, and experts in design thinking. What's more, AT&T has invited start-ups and established companies from many industries to participate in rapidly developing and experimenting with new technologies. Each new idea is run through a twelve-week project, where a team applies the kinds of tools we describe in this book to produce virtual or physical prototypes.

Where do the ideas originate? A team of senior leaders across AT&T selects ideas from three sources:

- An internal idea board called The Innovation Program (or TIP), where ideas are posted and voted on
- A "fast pitch" program, where individuals and companies, most of them from outside AT&T (suppliers, start-ups), make ten-minute pitches to key AT&T decision makers
- The business units, where lead marketing executives who are assigned to the foundry full-time are charged with polling their business units for new ideas

Each of the most promising ideas is funneled to a team of experts—a SWAT team—that applies elements of the innovator's method to generate a prototype.

Although AT&T has been at this for less than five years, the foundries are credited with developing ideas that have helped push the company's innovation premium from minus 13 percent in the mid-2000s to almost 10 percent today. "As the foundries have proved their value, we're now using the term *foundry* as a verb," says John Donovan, SEVP of AT&T technology and network

operations. "We've proven we get from prototype to product three times faster."[19] Other companies have developed similar labs and credit them with increasing their innovation output, including Hyatt Hotels and Hallmark as well as lesser-known companies like Banco Davivienda, a leading bank in Latin America.

A second option is to build expertise in a great many individuals who assist start-up teams. As described in chapter 1, Intuit has trained more than two hundred innovation catalysts (see "Why Designers Excel: Synthesis"). Each year, an additional twenty to thirty people are selected to join them. Many catalysts are trained as part of a team selected to attend a "Lean StartIn" workshop. Employee teams bring an idea for a significant unmet customer need, and in two days the team goes through the entire cycle of validating a customer pain, prototyping a solution, and testing it with customers. Ben Blank, a founder of the workshops, proudly highlights that many Intuit employees have been kicked out of Home Depot stores or removed from the Caltrain while testing ideas with customers.[20] More than twelve hundred Intuit employees have been through Lean StartIn workshops, building deep expertise in the innovator's method throughout the organization.

Why Designers Excel: Synthesis

If experimentation and analysis are key, why does Intuit train employees in design thinking? At the core, design thinking teaches people how to observe the world, make a guess, and then, through art and science, combine disparate pieces in a way that creates value—in other words, to synthesize. Whereas analysis breaks things into their component parts, synthesis identifies the connection between a problem and a solution, thereby identifying an opportunity. As Roger Martin writes in *The Design of Business,* synthesis is the marriage of intuition and analysis.[21]

Stanford University created an entire interdisciplinary d.school to teach these principles. Intuit, which borrows heavily from Stanford's d.school, teaches its employees about design as a complement to the analysis embedded in lean experimentation, because, as Design VP Kaaren Hanson argues, "The winning companies in the future will be 'design-driven'—because of the importance (and rarity) of synthesis capabilities . . . I also suspect that 'winning' will come from being clever

about who to put into what positions (versus assuming anyone can go into any position and play well)."[22] Hanson's point underscores why we believe the innovator's method has unique importance for leaders, managers, and entrepreneurs. Each discipline has developed its own approach to managing uncertainty and innovation (design thinking is engineering's approach), and each offers valuable insights into parts of the process. In this book we've synthesized these similar, but different, perspectives to provide you an end-to-end guide to the entire process, from idea to commercial success.

Remove Barriers and Support Experiments

Your final role is to remove obstacles to experimentation and provide the tools people need to accelerate experiments. What are the key barriers, and what kinds of tools are needed? Let's take a look at what we found when we interviewed dozens of individuals in large organizations.

Allocate Time for Innovation

We've often asked people who work for large companies, "What prevents you from moving more new ideas to market?" The most common answer? "I just don't have time. I have too much on my plate." That's what it's like to work in large organizations designed to execute routine tasks and processes. Good managers work to remove all slack in the system so that human resources (indeed, all resources) are fully utilized.

But innovation takes time. We've seen companies specify 10 percent unstructured time for every employee (Intuit), 20 percent project time for engineers (Google), and, at the extreme end, as much as 100 percent self-defined time (Valve Software). According to Valve's employee handbook, "We've heard that other companies have people allocate a percentage of their time to self-directed projects. At Valve, that percentage is 100. Since Valve is flat, people don't join projects because they're told to. Instead, you'll decide what to work on after asking yourself the right questions. Employees vote on projects with their feet. Strong projects are ones in which people can see demonstrated value; they staff up easily."[23]

Although many companies have innovation boot camps or other innovation events, few provide ongoing time devoted to generating and testing ideas—even though it can make a significant difference. How much time companies allocate depends on the level of uncertainty they face and the importance of innovation (for example, Valve competes in a high-uncertainty market and believes it creates all its value through customer-focused innovation). Time has the power to let people explore new ideas that may not make sense at first; but the greater the variation in new ideas you test, the higher the probability that some will prove valuable. In fact, Google's "20 percent" projects have produced hits such as Gmail, Google AdSense, and Google Docs. One senior executive estimated that roughly half of Google's new products are generated in this way.[24] Such projects account for more than 25 percent of revenues.[25] Sadly, like other maturing companies, Google recently put constraints on the program, a move that many observers predict will shrink its innovation pipeline. However, Google appears to be pouring significant resources into its Google X lab with projects like Google Glass, Google Express, Google Loon, and Google Self-Driving. Just as Google is doing with Google X, some companies, such as Amazon, identify opportunities and form teams to generate solutions to the challenges of uncertainty. Innovation time is explicitly built in.

No matter how it's done, leaders must make sure that employees are given the time—and the expectation—to conceive and test new ideas. It helps if leaders set an example. Facebook's Mark Zuckerberg tries to spend five hours a day on product development, and Scott Cook at Intuit tries to spend one day a week participating on innovation project teams. Ryan Smith, CEO of a billion-dollar survey company called Qualtrics, told us, "Every leader is a player and a coach. You have to get into the trenches if you want to innovate."[26]

Provide Customers, Specialists, and Tools

Another obstacle for start-up teams is a lack of tools. For example, teams need to run experiments with potential customers if they hope to discover the job-to-be-done and then nail the solution. Providing quick and easy access to various types of customers can facilitate rapid experimentation.

Amazon provides employees a list of customers (and merchants) with which they can quickly test new ideas. Intuit invites customers to its headquarters one day a week for experiments. It also provides a list of nearby customers who have agreed to accept visits. These actions have doubled teams' face-to-face interactions with customers.[27] Numerous people told us that until Intuit started regularly bringing customers into headquarters, they didn't realize how easily they could test solutions with them.

To help start-up teams generate a broad list of solutions, Intuit developed a technology palette. The company identified and hired experts in technologies related to mobile devices, social media, user interaction, collaboration, data, and the like. These experts are valuable for broadening solution searches, and they help teams identify what is technologically feasible.

Google's leaders also provide tools for rapid prototyping, such as digital tools for making prototypes and mock-ups as well as flexible code structures for rapidly prototyping software. Google X's "design kitchen" was created to build simple prototypes for big ideas. Located in a building next to Google X's main offices, the design kitchen is a large-scale fabrication shop filled with 3D printers, high-end lathes, and other sophisticated prototyping machinery. These tools can have a profound impact on the productivity of start-up teams.

Remove Organizational Barriers

For employees at companies that have ossified around execution, experimenting feels risky, unnatural, even against the (unwritten) rules. And because of the division of labor and accountability, employees need leaders' permission to test ideas that go beyond the scope of their business units.

At Valve Software, leaders provide permission in a radical way: there are virtually no managers or formal titles among the software designers.[28] "Everyone is a designer," according to the employee handbook. "Everyone can question each other's work. Anyone can recruit someone onto his or her project."[29] Not surprisingly, Valve's approach to minimizing obstacles frees employees to pursue any start-up idea that interests them.

Large companies also try to protect brand image and limit the liabilities of market experiments. In such companies, how do leaders give employees permission to take risks and freely run experiments? At Intuit, the legal team has assembled a list of guidelines; if you follow them, you're free to experiment without asking permission. For example, you don't need permission when these conditions are met.

- Testers (customers) understand they're participating in research.
- The experiment does not involve more than thirty thousand testers over two months.
- The experiment is labeled "Intuit Labs" to signal to testers that it is an experiment.
- The prototype does not actually complete transactions or collect user data.
- Intuit's data stewardship principles apply.
- Participants learn about the pilot via communication to the general public (and not targeted to government employees or agencies).
- Testers may be given a small token, if applicable, for their time.
- Intuit does a complete patent brainstorm before results of the experiment are shared publicly.[30]

These guidelines serve as a signal to employees: "We expect you to run experiments! Don't ask for permission, just do it!"

The I-School Leadership Curriculum

If you attend business school, you take classes in finance, accounting, operations, organizational behavior, and similar topics, all of them drawing heavily on the logic introduced by Frederick Taylor. Rarely do you have a class on product development or the innovator's method as a core course (although many forward-looking professors teach some of these principles, mostly in elective courses). In most business schools, leadership is seen as the set of skills needed to manage mature organizations focused on executing under conditions of low uncertainty.

But when you face uncertainty, you need a different set of management principles. Some of these principles are taught in design schools, led by Stanford's d.school. But we think that beyond d.schools we need an innovation school—curriculum connected to B-schools that teaches innovation leadership across all of an organization's main functions. An I-school, in contrast with the B-school, would deal with the emerging science of managing uncertainty. Entrepreneurial leadership falls under the umbrella of the I-school, as do each of the other functional areas, which you also must manage differently when you face uncertainty. Figure 2-3 shows the differences.

FIGURE 2-3

Differences between the innovation and business school

	B-school (traditional management)	I-school (entrepreneurial management)
Core focus	Execute in certainty.	Experiment in uncertainty.
Strategy	Protect existing resources. Leverage existing resources. Sustain competitive advantage.	Circumvent resources. Discover or build new resources. Temporarily ignore advantage.
Organizational behavior/HR	Hire experts (I-shaped people). Hire for divisional roles. Hierarchical organization	Hire generalists (T-shaped people). Hire for multifunctional roles. Flat organization
Leadership and teams	Vertical team Manager-supervisee structure Maximize and optimize.	Horizontal team Peer group structure Minimize and suffice.
Operations	Efficient routines for execution Longer cycles Avoid error	Flexible routines for search Radically short cycles Embrace error
Marketing	Full-featured, appealing product Quantitative market segmentation Build and protect brand.	Minimum feature set product Qualitative customer interaction Temporarily ignore brand.
Finance and accounting	Marginal cost logic Fixed costs to lower average cost	Full cost logic Avoid fixed costs to be flexible.

For example, in B-school, when you study marketing, you typically learn the importance of building and protecting your brand, or doing quantitative analysis to identify customer segments and get customer feedback. But in an I-school we argue that you should initially ignore your brand and obtain all customer feedback through direct interaction, observation, or interviews. What's more, rather than emphasize building brands by satisfying a broad range of customers through perfected products, I-school emphasizes the need to test low-fidelity prototypes with small groups of customers, embracing errors as opportunities to learn.

In B-school, when you learn finance you're taught about marginal cost logic: the importance of leveraging prior fixed-cost investments with new initiatives. But this approach biases you toward incremental innovation efforts. In I-school you learn about the dangers of marginal cost logic and other financial tools.[31] In a world of uncertainty, leveraging investments can often be a bad practice, because it may lead to building a workaround solution instead of one that nails the job-to-be-done.

We aren't saying that one approach is good and the other is bad. Both are good. The key to management success is to recognize when to apply a more familiar B-school approach and when to apply I-school thinking—a decision that rests primarily on the degree of uncertainty. When uncertainty is high, apply an I-school approach. When the uncertainty has been resolved, use a B-school approach. After all, there's no reason to waste time running an experiment when there is a low probability that your choice of action is wrong.

That being said, in our discussions with executives we see a rapidly increasing need for an I-school management approach. As Intuit's Cook observes, "We need to use these new leadership practices in our core business, because we face so much uncertainty and need to continue to reinvent ourselves."[32] For those of you reading this with a business degree, we have two questions: How many A/B experiments did you run in your classes before getting a business degree? How many prototypes did you build? For most of you the answer is: zero. That's got to change.

The "I-school" label describes a group of emerging practices for managing uncertainty, especially in start-ups. But in the future, as uncertainty continues to grow, we will see changes in how we organize and manage all businesses. As the science of managing uncertainty develops, the I-school approach will need to be taught side-by-side with traditional management disciplines in B-schools.

3

Insight: Savor Surprises

> ***If you want to innovate, savor the surprises.***
> ***Too often we overlook the surprises.***
>
> **—Kim Clark, Former Dean of Harvard Business School**
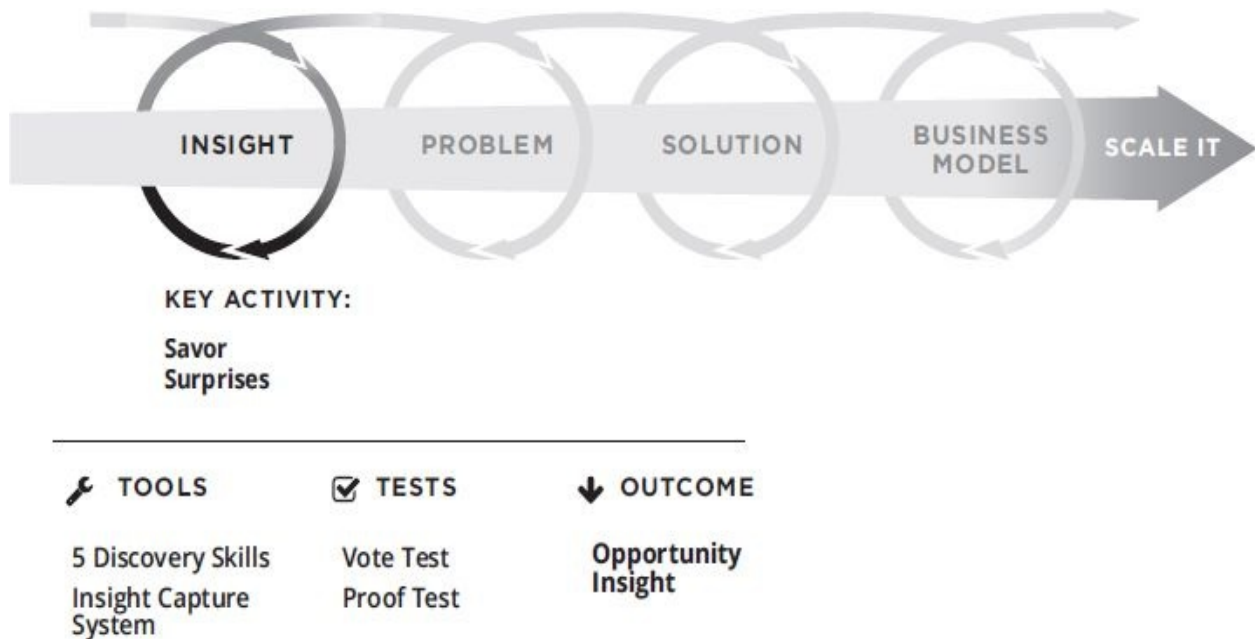
FOR TEN YEARS (2000–2010) Hindustan Unilever (HUL), subsidiary of one of the world's leading consumer goods companies, experienced declining revenue growth, a flat stock price, and a falling market share. Efforts to improve execution and efficiency led to increased margins but little growth and even less innovation. Few new ideas bubbled up, and even the few that did seemed to

struggle and disappear. As CEO Nitin Paranjpe and the management team wrestled to find ways to turn the company around, they hypothesized that the only way to save the company was to generate new ideas and insights. But how could it generate new ideas after ten years of the status quo?

Fortunately, Paranjpe recognized that when you're in the routine of doing your current job well, you're not likely to have epiphanies. So to change course, the management team decided that the company needed to better understand their customers' needs and challenges. In 2010 Paranjpe launched a three-phase initiative called Project Bushfire, with the goal of getting every employee—more than fifteen thousand people in India alone—to visit customers in their workplaces and homes.

In the first phase, HUL launched an internal campaign to create awareness, sending e-mails and hanging posters asking, "When was the last time you really listened to the customer?" Paranjpe also e-mailed employees to explain the program and to ask for ideas, adding that he would respond personally to every idea. But even with this appeal, skepticism remained high. In the halls, people whispered that the project was a "flavor of the season."[1]

In phase two, the team selected hundreds of sites across India for managers to visit and then required them to reserve a date and time through an online system. Although the top management team made a show of logging in on the first day, resistance began to mount, with hundreds of requests to be excused. One factory manager argued, "My job is to maximize the production in the factory every day. I am convinced that my absence from the factory for an entire day will result in a greater loss for the organization than any observation or insight I might have from meeting customers, who meet with our sales and brand managers quite regularly."[2] Despite the protests, Paranjpe held firm, requiring 100 percent participation (he had assistants call and assign recalcitrant managers to observation sites).

For the observations, managers were sent to shadow a frontline salesperson, meet consumers in their homes, or visit shops and ask questions. Each manager was given a sheet with questions such as, "What did I see that confirmed what I already know?" and "What did I see that was totally unexpected or surprising?" The goal was to capture the information in a central database.

Then, as managers visited the field in phase three, their early observations proved transformational: some had never met customers before and were surprised to see the issues they struggled with. Others had such limited interaction with the real problems of their customers that they had overlooked

interaction with the real problems of their customers that they had overlooked many opportunities. As the stories poured in (the Bushfire team made it a point to quickly share success stories), the recalcitrant attitude among many managers began to change. Just as important, ideas—small and large—began to flow in.

Some of the insights prompted smaller initiatives. For example, when Paranjpe himself stood on the sales floor discussing the new Soya drink with customers, a woman asked why a "health" drink contained sugar. At that moment the CEO realized the team had overlooked a critical factor in the way most customers evaluate health products. Other insights had greater impact. For example, one manager was surprised to find that *Shakti Ammas*, women who sold HUL products in rural areas, couldn't sell other, noncompeting products. This led to an expansion in what the *Ammas* sell, including telecomm and banking services from other providers, as well as new HUL products, such as a low-cost water purification system called Pureit. Yet other insights led to the company's expansion into five thousand additional retail outlets and the adoption of a zero-inventory model.

Other changes had a deeper impact on HUL's culture. For example, the project refocused HUL on generating insights from customers at all levels of the organization. Every member of the management team spends at least two hours every two weeks interacting with customers, and managers are expected to visit at least five customers per month. In addition, HUL captures insights differently than in the past: when an idea is proposed, a member of the management committee acknowledges it, and when ideas go into pilot testing, the person who generated the idea is acknowledged and invited to participate.

The rewards for these efforts have shown up in HUL's financial performance. After a decade of a flat stock price, in 2012 shares climbed 34 percent (double the Sensex index), and sales spiked 40 percent.[3] Moreover, HUL's innovation premium climbed to 44 percent, making it the top-ranked consumer goods company (and number twelve overall) on the 2012 *Forbes* list of the world's most innovative companies.

Generating insights represents the first step in our end-to-end innovation process. In this chapter, we show that insights are not the result of magic or of simply hiring "creative" people. Rather, they result from behaviors or processes you can apply. You'll learn how successful companies generate insights and how to effectively capture and select them.

Four Key Actions That Generate Insights

Innovations are only valuable if they solve problems. So the first step is to generate an insight about a problem worth solving. The insight could be finding a problem that others have missed or perhaps uncovering a potential new solution to a well-understood problem. We've found that the catalyst for an insight is a "surprise." A surprise is the clue that you've learned something new that might be a valuable insight—because if you are surprised then others may be as well. For example, when Intuit's Mobile Bazaar team was watching farmers conduct their business, they were surprised to find that crop prices could fluctuate by as much as 50 percent in a single day. This was a symptom of a problem that farmers were facing in their attempt to get fair prices for their crops. Similarly, when Michael Dell had purchased all of the components to build a PC in his dorm room, he was surprised to discover that they cost only $600 or $700 when an IBM PC was selling for $2,500. Dell told us this surprise raised a question: "Why does it cost five times more to buy a PC in the store than the parts cost?"[4] Intuit's Scott Cook teaches employees at Intuit to "savor surprises" and says that "at Intuit we teach our people to ask these two questions: What is surprising? What is different from what you expected? That is where true learning and innovation starts."[5]

Our earlier book, *The Innovator's DNA*, explains how great innovators uncover surprises and generate new insights.[6] It describes four behaviors that provoke *associational thinking:* the ability to connect seemingly unrelated information or ideas and put them together in new ways—for example, crossing a kayak with a surfboard to come up with the idea for a paddleboard. Associational thinking happens as the brain tries to synthesize and make sense of information gleaned from questioning, observing, networking, and experimenting. As figure 3-1 shows, the four key actions of questioning, observing, networking, and experimenting are the key to triggering new insights through associational thinking.

FIGURE 3-1

The innovator's DNA behaviors

| Discovery behaviors | Cognitive process to synthesize novel inputs |

Questioning, Observing, Networking, Experimenting → Associational thinking ▶ Insight
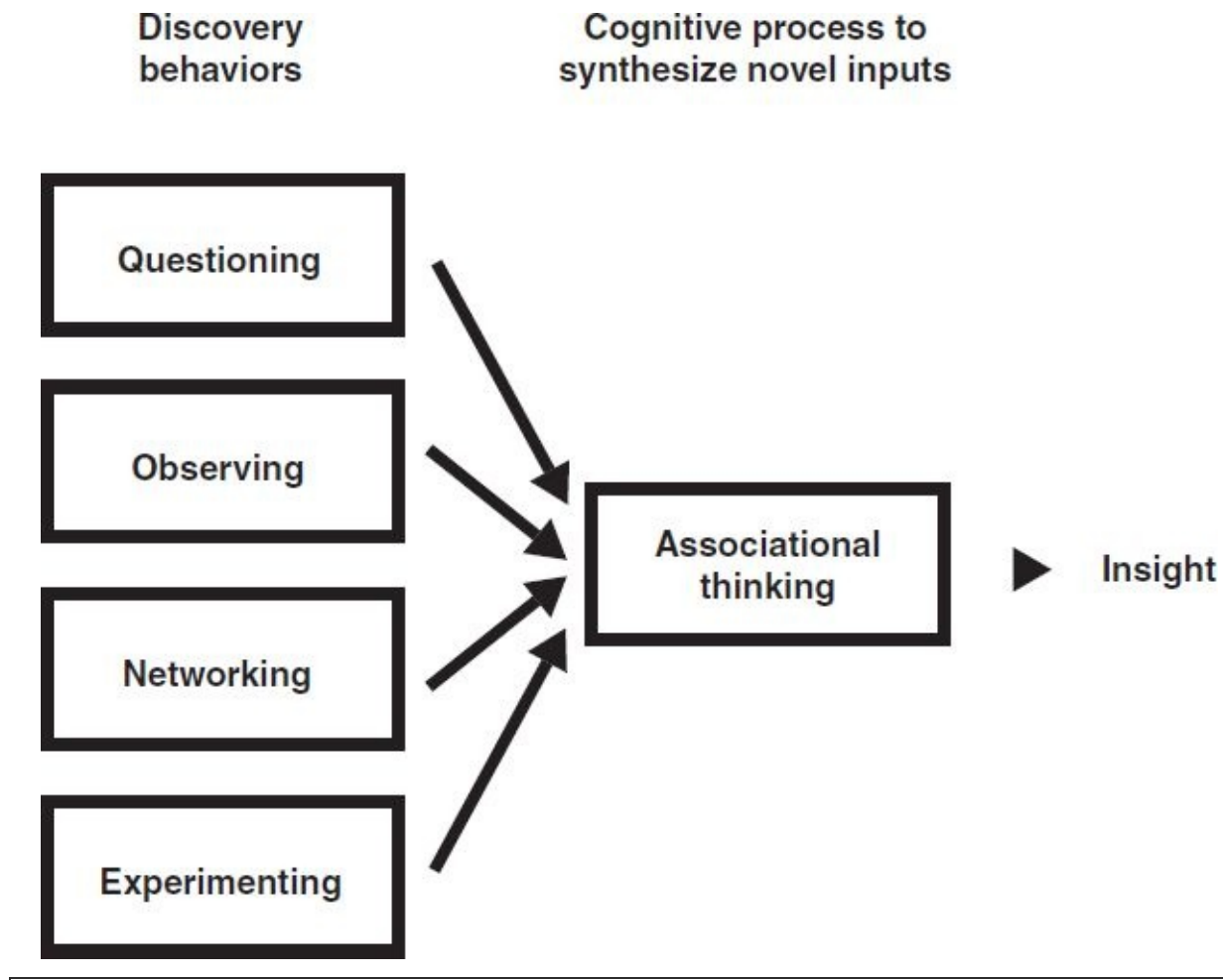
First, people generate insights through questioning, constantly challenging the status quo with "why" and "why not" questions to turn things upside-down. They often ask "what if" questions to envision a different future. Questioning gives you the fuel to power new associations and insights.

Hindustan Unilever's Bushfire project is an excellent example. The HUL team members started with a list of questions as they went out into the field, including "What surprises you?" and "What should HUL be doing that they are not doing?" These questions often acted as a catalyst. The manager of an HUL factory in Mangalore asked why he couldn't buy HUL products at the local store. The observation was a symptom of problems in the distribution network that, after study, led the company to expand into new retail outlets. Questions help you see things in a new light and open new avenues and possibilities.

Second, managers garner new ideas by observing the environment as if they were anthropologists. They get out of their cubicles to closely watch the world around them—especially customers, products, services, and processes—to spark

unique ways of doing things. For example, an HUL manager observed that a shopkeeper didn't have inventory even though the distributor had a large stockpile. The observation helped the manager improve inventory by adopting a retail-driven model: shopkeeper orders are sent directly to HUL, and HUL ships the required product to distributors, eliminating stagnant inventory and improving fulfillment for the retailer. And don't underestimate the value of small, unexpected ideas. For example, one manager, an expert in product packaging, recalled his surprise at seeing a customer reengineering Tetra Paks to hang them from the ceiling, increasing their visibility to passing customers.

Third, the successful innovators we studied excel at networking, talking with people to find—or spark a new way to solve—perplexing problems. They regularly talk with people who don't look, act, or (most importantly) think as they do. Instead of networking simply to gain resources, they interact with diverse people to get new ideas. Although the HUL initiative started with field visits, as managers met with people outside their discipline, they established new relationships that led to new ideas; for example, the managers in marketing and sales realized that a supply chain manager could solve a sales problem. As one manager put it, "You would be making a huge mistake by assuming that a Ph.D. in Organic Chemistry has no value to add to the selling process wired into a tablet PC."[7] Another noted, "A couple of years ago, a brand manager wouldn't be caught dead asking his finance counterpart for an opinion on a piece of advertising. Today, it is common."[8]

Fourth, you generate insights by constantly experimenting. Innovators try out new experiences wherever they go. They take apart products or processes to see how things work—and how to improve them. Moreover, as you'll see in chapter 5, they rapidly pilot or prototype various solutions to find one that works. For example, when an HUL factory manager visited a shopkeeper, he was amazed to hear about a myriad of problems that could have been resolved by calling the factory's published help line number. So the manager tried an experiment: he printed the help line number on the outside of every box. Immediately, the number of calls increased dramatically, and the number of long-term issues plummeted.

We studied a sample of founders and leaders of companies that enjoy a high innovation premium (those ranked in our *Forbes* list). We found that they spend 31 percent of their time engaged in the four discovery behaviors in pursuit of new insights. In contrast, leaders of companies having a low IP spent only 15 percent of their time thus engaged.

What kinds of things can leaders do to facilitate the process? And how can they make sure that insights are captured and the best ones are selected to be put through the innovator's method?

Search Broadly

As you engage in the four behaviors, it's crucial to search broadly: look for ideas across countries, industries, companies, technologies, functions, and so on. Einstein called this "combinatorial play." A broad search leads to variation in the knowledge you gain—and that leads to more combinatorial thought trials, increasing the odds of discovering an insight. And we've found that people who searched broadly are much more likely to have an epiphany—an insight that seems to come from nowhere.

Amazon's Jeff Bezos is an excellent example. Before deciding to sell books over the internet, Bezos researched the top twenty mail order products. He hypothesized that people would buy standard products (those that vary little) via the web. To his surprise, books—certainly standard—weren't in the top twenty products. Then he discovered why: there were so many books in print that no one catalog could cover them all. It would be huge and expensive to mail. As Bezos saw it, the internet was the ideal vehicle for offering such a catalog.

Although rooted in books and positioned as a leading book retailer, Amazon has a track record of searching broadly for new business ideas. It has expanded into a wide variety of products and services, from electronic readers and tablets (with the Kindle) to cloud computing services (Amazon EC2) to video streaming services (through Amazon Prime) to daily grocery delivery (AmazonFresh). Amazon has recently moved into merchant lending (Amazon Lending) and reportedly is considering entering categories such as smart phones and TV set-top boxes.

Bezos encourages employees to search broadly despite criticism that Amazon is not focused enough. "Every new business we've ever engaged in has initially been seen as a distraction by people externally, and sometimes even internally," says Bezos. "They'll say, 'Why are you expanding into media products? Why are you going international? Why are you entering the marketplace business with third-party sellers?' We're getting it now with our new infrastructure web services. 'Why take on these new developer customers?' "[9] Bezos adds that most companies' big errors have been acts of omission and not 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," he says. "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.'"[10]

Most people naturally search narrowly, because they're told to leverage their expertise. Although this strategy makes sense for expanding into known territory, it limits you to only incremental insights. Searching broadly might include exploring new industries for your product, taking apart products from different industries, or asking yourself challenging questions that force you to look elsewhere ("How would we make money next year if we were legally prohibited from selling any of our current products to our existing customers?"). Searching broadly for new knowledge or new possibilities greatly increases the probability of uncovering a breakthrough insight.

Capture the Insight

In the past few decades, many companies have initiated processes to capture new ideas, such as idea repositories and knowledge databases, but many of them are glorified suggestion boxes that simply do not work. Successfully capturing ideas is a critical part of innovation, and managers need to use the right tools and the right process.

A popular process we studied is the *American Idol* model. You challenge employees to submit ideas to be screened and selected by a panel of judges. For example, Google holds an Innovator's Challenge four times a year. Employees submit ideas for top management review; winning ideas receive the resources to be pushed forward (we discuss selecting ideas in the next section). Marissa Mayer (former director of consumer products at Google and now CEO of Yahoo!) championed regular brainstorming sessions during which engineers had ten minutes to pitch their ideas to Mayer and a group of as many as one hundred others. The goal of these sessions was not only to capture the insight but also to build on the initial idea with at least one new complementary idea.

A second approach is to use a digital collaboration platform, sometimes called an idea management system. Google refers to its platform as an idea board, at Intuit it's called Brainstorm, and at AT&T it's called TIP. Many companies, such as Cisco Services, source from an outside company like Brightidea (Spigot and AHHHA are other popular tools). These tools allow employees (or outsiders) to post, view, sort, and filter ideas; vote and provide feedback; and use other social networking features like notifications and tagging. These tools use *crowd-sourcing* (outsourcing tasks to individuals or organizations) to encourage, refine, and advance ideas in ways that a static, centrally controlled suggestion box cannot.

That being said, you must overcome challenges to encourage employees to participate. At Intuit, use of the Brainstorm platform is robust because it's embedded in the culture, but it's still necessary for innovation catalysts to pull out promising ideas to nurture and champion. Other companies, such as Cisco and Qualcomm, create engagement by using a batch-type process to focus everyone's attention on the idea platforms at particular times. Yet other companies, such as HUL, assign teams to respond to and develop each idea. The lesson is to marry crowd engagement with encouragement and cultivation from a trained team.

AT&T's TIP is the largest idea board we've seen, with more than half of AT&T's two hundred thousand employees participating. It helps turn the company's typical innovation weakness—a vast employee base—into a strength. It's egalitarian; frontline employees participate in early stages with a voice equal to those of senior managers. The online platform allows employees worldwide to vote, comment, and collaborate on ideas. At the end of a designated time period, called a "season" (à la *American Idol)*, the top ideas are evaluated by "angels," a group of high-level executives, who then select ideas to be presented in a live pitch session. Chosen ideas receive seed funding. Selected projects are managed by innovation champions: employees who act as "CEOs" of each project. They shepherd the idea through the proof-of-concept phase and receive additional funding if a business unit will match the investment for a second round.

To illustrate, a call-center employee who lost a close friend in an accident caused by a distracted driver conceived of an app to help prevent texting while driving. Within one week of posting her idea on TIP, peers were providing helpful guidance on improving and implementing it. Ultimately, she was asked to present her idea to AT&T leadership, including CEO Randall Stephenson. Executives provided funding and moved the idea to an AT&T foundry, TIP's incubation process, where a prototype was developed and eventually released to the market. Dubbed DriveMode, the app has been downloaded hundreds of thousands of times and was a cornerstone of AT&T's "It Can Wait" public service campaign.

Some companies also set up a database to capture ideas. For example, HUL entered all the Bushfire field observations into a database. To keep the ideas alive, it did two things: it promised to respond to every idea, and it assigned managers to probe the database, find strong ideas, and then push them forward with participation of the originator.

Some companies set up processes to capture insights from outside the company. For example, Procter & Gamble has deployed seventy "technology entrepreneurs," who spend all their time searching for new ideas that will make a difference for P&G. These senior people help identify key customer needs and write the technology briefs that define the problems the company is trying to solve. They create external connections by, for example, meeting with university and industry researchers, and they combine aggressive mining of the scientific literature, patent databases, and other data sources with physical prospecting for ideas—say, surveying store shelves in Rome or attending product and technology fairs. It was a technology entrepreneur, exploring a local market in

Japan, who discovered what ultimately became the Mr. Clean Magic Eraser. P&G's technology entrepreneurs work out of six Connect and Develop hubs in China, India, Japan, Western Europe, Latin America, and the United States. To date, they have identified more than ten thousand products, product ideas, and promising technologies.[11]

Select the Insight

Recently the editors at *Budget Traveler* magazine had a great idea to generate new material: Why not crowd-source an entire issue from readers? They sent out a call for submissions and received more than 2,800, including more than five hundred for a single piece on "50 Reasons You Love New York." Although the project generated new material, the editors now faced a monumental task: How to sort through almost three thousand submissions and then, for those chosen, rework and edit them to fit into an article. In the end, editor Erik Torkells reflected on the bittersweet experience, saying, "Let's be perfectly clear, making this issue was neither cheap nor easy."[12]

Leaders at large companies can create similar problems when they succeed at inspiring—and capturing—insights but have broken mechanisms for winnowing them to those that are most promising. To solve the problem, most companies fall back on familiar techniques, usually a competition resembling a business plan contest, judged by senior executives. Unfortunately, this approach may not work well. Recall our earlier discussion of the problems of leaders making decisions under high uncertainty. We've found that leaders are more successful at selecting insights for their organizations to further explore by using either a "vote test" or a "proof test."

Vote Test

How could *Budget Traveler* have solved its editorial problem? What if the editors had used their readers to both source and evaluate the material? People both inside and outside your organization can be valuable for selecting insights through a form of crowd-sourcing we call "crowd-voting." One example is Threadless, an online community of artists and an e-commerce website. Threadless enlists its customers in a member community to submit ideas for T-shirt slogans and designs, tapping in to new artists and generating ideas without the need to hire professional designers. Just as important, Threadless uses crowd-voting (by customers and designers) to select which designs to take to market. By using the crowd, Threadless can better predict which t-shirts will sell. It has developed an enviable track record of never having produced a flop; every t-shirt ever produced has sold out.

Crowd-voting works well when you use a crowd to evaluate an offering or predict uncertain events. However, use it with caution if you're trying to predict complex, technical, or radical problems or solutions. In these cases, expertise matters, and hands-on use can be a more viable predictor than opinions.

As an alternative, you can create a system for choosing insights based on whether the advocate can get others to volunteer time to pursue it. This is what founders of start-ups must do. Similarly, Google and Valve Software, among others, challenge employees to recruit other colleagues to use their self-directed time on the employee's project. Compelling ideas are selected for further development because they draw volunteer resources (See "How to Make Innovation Time Work").

How to Make Innovation Time Work

Researchers asked students at Yale to do something for their own benefit: get tetanus shots. To one group, the researchers gave the time and location for the shots and then tried to scare them into attending. To the other group, they gave the same information but added a map to the building. All the students were familiar with campus, but when they received a map their attendance jumped from 3 percent to 28 percent. Even for students who knew what to do, providing a helpful tool increased participation.[13] Similarly, giving your team members time to

innovate will be more effective if you provide a "map" to use it.

For example, when Jeff Zias was put in charge of unstructured time at Intuit, he noticed that few people used it. To create a map, he started by encouraging people to mark their calendars with the days they would use unstructured time. This act increased employee engagement 20 percent. Then Zias recruited volunteers to share best practices and champion innovation time.

Even so, Zias found that people didn't know how to use the time. So he created a series of "hack-a-thons": for twenty-four to forty-eight hours, people blocked out everything else and focused on innovation. At first, employees got together in "idea jams" and brainstormed problems and products. More than a dozen products, including TurboTax on the iPad, came out of the early idea jams. Then Zias created a pipeline of increasingly specific jams: "pain jams" to find problems worth solving, "solution jams" to brainstorm solutions, and "code jams" to develop prototypes or try variations to existing products.

Zias argues that much of Intuit's success in new products can be traced to an overall increase in the use of unstructured time. But the greater benefit may be its role as a myth buster. Six years ago, Intuit was perceived as "an old, slow company," and people said it was too hard to be innovative and agile. The idea jams and code jams busted those myths by telling employees, "Go ahead—just hack that."[14]

Even more radically, Valve Software has created an internal market for ideas—a true network of start-ups—by requiring that the generators of insights recruit others. From Valve's employee handbook:

Since Valve is flat, people don't join projects because they're told to. Instead, you'll decide what to work on. Employees vote on projects with their feet (or desk wheels). Strong projects are ones in which people can see demonstrated value; they staff up easily. This means there are any number of internal recruiting efforts constantly under way. People are going to want you to work with them on their projects, and they'll try hard to get you to do so. But the decision is going to be up to you. . .

There's no rule book for choosing a project or task at Valve. But it's useful to answer questions like these: Of all the projects currently under way,

what's the most valuable thing I can be working on? Which project will have the highest direct impact on our customers?[15]

This approach is unusual. As Valve employee Paul Kirschbaum (a former Amazon employee) observes, "It's different at Valve. You have to figure out where to allocate your time—which projects you think will create the most value. And if you want to pursue an idea, you've got to convince others that it's worth pursuing. No manager is telling you what to do. Ideas draw resources if others think they have merit."[16] The freedom to choose is critical for innovation success, because research shows that creative ideas come from folks who are intrinsically motivated to generate and pursue those ideas.[17]

This approach also has the benefit of creating an environment where folks are happy and motivated because they work on things they care about. "We want innovators, and that means maintaining an environment where they'll flourish," say Valve's leaders in the employee handbook. "That's why Valve is flat. It's our shorthand way of saying that we don't have any management, and nobody 'reports to' anybody else. We do have a founder/president, but even he isn't your manager. This company is yours to steer . . . You have the power to green-light projects."[18] That's a powerful vote test for an organization to use to select ideas to work on.

Proof Test

It is possible that individuals (or teams) who are passionate about an idea but lack the "votes" may be on to something. How do you sort them out from the passionate individuals who lack votes because their idea is bad? Give them the tools we describe, and ask them to run a quick experiment. If the insight has merit, they'll return with data—the proof—that the idea is worth further exploration. For example, when Paul Buchheit, an engineer at Google, came up with the idea for a system that would read keywords distilled from your Gmail message and automatically find a related ad to display next to it, Marissa Mayer told him to drop the idea. "I was like, 'Paul, Paul, Paul—ads are never going to work,'" Mayer said in a Stanford University podcast. "We'll never make any money, or we're going to target the ads at their e-mail, which is just going to be creepy and weird. People are going to think there are people here reading their e-mails and picking out the ads and it's going to be terrible."[19] Luckily for Buchheit, empirical results trump opinions in Google's culture. So even after Mayer made him promise not to build a prototype, he stayed up all night and built one anyway, gambling that it would prove Mayer wrong. He released the prototype of his system, called AdSense, at 7 a.m. right before Mayer came to work. When Mayer first saw the prototype, she was annoyed. But when she checked her Gmail she saw there was an e-mail from a friend who invited her to go hiking—and next to it, an ad for hiking boots. Another e-mail was about Al Gore visiting Stanford University for a speech—and next to it was an ad for books about Al Gore. Mayer grudgingly admitted that AdSense was more useful, entertaining, and relevant than she imagined.[20] More importantly, the data from the prototype won out. (Buchheit's prototype led to additional prototypes, and AdSense was adapted to identify advertising opportunities through keyword searches, website content, and browsing that led to $10 billion in annual revenues.) In fact, Google CEO Eric Schmidt would often advise Googlers to get "100 happy users inside of Google" as proof of concept before launching a product to the market.

In similar fashion, Regeneron, an emerging biotech star, has achieved a lofty 63 percent innovation premium (number 4 on our most recent *Forbes* list of most innovative companies) by placing many small bets in lots of places—and letting the experiments reveal which ideas are best. According to a *Forbes* analysis of 220 drugs approved over the past decade for publicly traded companies, the companies that invented three or more medicines spent an average of $4.3 billion in R&D per drug. Regeneron's cost per drug? Only $736

million. Setting criteria for success and then letting fast and frugal experiments show which bets to make is a far better way than having senior managers pick the insights to test and develop. According to Regeneron CEO Leonard Schleifer, having leaders pick the ideas to focus on is a bad idea. " 'Focus' is a dirty word for us, OK? It's a big mistake to think that you can pick the very best thing that you should focus on and then ignore all the other things."[21] The point: picking winners under conditions of high uncertainty is extraordinarily difficult: let experiments validate the best insights to pursue.

Watch Out: Innovators Innovate, Customers Validate

Most of your insights into problems to be solved will come from watching and interacting with customers and others. But don't fall into the trap of asking your customers to innovate for you. In later chapters we emphasize the importance of asking for feedback, but don't expect them to tell you what the innovation should be. Customers have a hard time imagining the future or resolving contradictory demands. For example, when customers told Kimberly-Clark they didn't want their toilet-trained children to wear diapers but they also didn't want them to wet the bed, those same customers couldn't imagine the solution: disposable underwear with the absorbent features of a diaper (called Pull-Ups, they became a multimillion-dollar category). To avoid this trap, as we will teach in the next chapter, focus on the customer's job-to-be-done, come up with a variety of prototyped solutions, and then, using tools of the innovator's method, rely on customers to validate the solution.

The Insight Business

You cannot expect to see a flood of insights by doing the same things you've done in the past. But you can generate many new insights by changing what you do. Questioning, observing, networking, and experimenting will increase the probability that you will learn something new that will surprise you. Savor those surprises. They might be the catalyst to something big.

   Let us add that you cannot ignite more insights by just throwing money at people. Counterintuitively, some of the most successful innovators we studied offered almost no monetary rewards for innovation. Why did people participate? It's because many people, once they get a taste of it, find innovation the most fulfilling activity in their lives. People typically want to be acknowledged and want to be a part of taking their insights forward and turning them into real businesses, including taking time off to push the idea forward (many companies we observed offer three to twelve months of sabbatical for originators of the most promising ideas). You shouldn't forget to reward people, and it's a good idea to provide financial participation to retain your best innovators. But ultimately, giving people the time and opportunity to pursue their ideas may be the most important thing you can offer. And changing your behavior in simple and easy ways can make all the difference in helping trigger insights that can make a difference.