

VIJAY GOVINDARAJAN
CHRIS TRIMBLE

Authors of
10 RULES FOR STRATEGIC INNOVATORS

the other side of **innovation**

**SOLVING
THE
EXECUTION
CHALLENGE**

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PREFACE

For the past ten years, we have been deeply immersed in the study of innovation within established organizations. We cannot think of a better topic to which we could have dedicated our energies. Through innovation, business organizations can change the world.

There is just one little problem. Business organizations are not built for innovation; they are built for efficiency. The day-to-day pressures are enormous, and combining a discipline of efficiency with a discipline of innovation is just damned hard.

One seasoned executive casually asked us not long ago, “Is innovation within an established organization even possible?” We do not regard the questioner as a cynic. We respect the question. In fact, here is a brutal truth: our organizations today are only modestly more prepared for the challenges of innovation than they were fifty years ago.

We are hardly alone in this view. Ray Stata, founder and chairman of Analog Devices, a \$2 billion semiconductor manufacturer, is extremely thoughtful on the topic of innovation. About ten years ago, he said to us, “The limits to innovation in large organizations have nothing to do with creativity and nothing to do with technology. They have everything to do with management capability.”¹

The statement seemed provocative to us at the time. Today, after a decade of rigorous research, it seems an obvious truth. Most companies have plenty of creativity and plenty of technology. What they lack are the managerial skills to convert ideas into impact.

But how can this be? Today’s global business leaders are smart and talented. Many are experienced innovators, veterans of the whiz-bang late 1990s when everyone seemed to have innovation on their minds 24/7. Most have collected a few hard-won lessons learned.

¹Unless otherwise noted, quotations of business leaders come from interviews conducted between 2001 and 2010.

Nonetheless, there are limits to what executives can learn about innovation, even over an entire career. Innovations come in many shapes, sizes, and colors. They are context-specific. Experience from one endeavor often has little or no relevance for the next. A full perspective would require a career spanning multiple industries and multiple innovation types. Sadly, innovation initiatives are long and careers short.

Seeking insight outside their own experiences, executives often look to icons of innovation like Apple. Many have wondered: What is Apple's secret? What managerial magic led to the runaway success of the iPod?

But in ten years of research, not one of the companies we have studied has claimed to have innovation all or even mostly figured out. This is not a matter of modesty. In fact, these icons of innovation are usually trying to answer the same questions, only by looking in the mirror. They are asking themselves: What exactly did we do that made our past innovation efforts a success? How can we make innovation more routine?

This is what is currently happening, for example, at General Electric (GE). The company has a rich history of innovation successes, including breakthroughs in tungsten filaments for light bulbs, jet engines, and magnetic resonance imaging (MRI) devices for medical diagnostics. Nonetheless, GE faces the same difficulties we see everywhere and is now actively engaged in trying to figure out exactly what it has done when it has succeeded and how to reliably repeat it.

That is the current state of the practice of innovation, even in the world's best companies.

Nonetheless, we are highly optimistic. The organization of the future—the near future—will be much more adept at simultaneously delivering efficiency *and* innovation. (If you are eager to learn exactly how, please skip to the introduction.)

The Story of Management Research

We are so strongly optimistic because we have seen that while there are sharp limits to how much practitioners can advance knowledge about managing innovation on their own, partnerships between business and academia can

be very powerful. And management research has only recently advanced to the point that a significant breakthrough is possible.

Believe it or not, until recently, scholars have not aggressively advanced the field of innovation. Given the number of business schools around the world engaged in management research, this is surprising to many. It is less so when put in historical context.

The story of ideas about management begins at roughly the start of the twentieth century, around the time that the first business schools were founded. Back then, management thinking was rooted in experiences in factories, railroads, and assembly lines. People and organizations were viewed as mere components in the machinery of production.

Progress in advancing knowledge about management was slow through the first half of the twentieth century, in part because business schools viewed themselves primarily as trade schools, not research institutions. By the middle of the century, however, leading thinkers had at least acknowledged that people are different from tools and that organizations are more like organisms than machines. (Physicists were advancing their field somewhat more rapidly. By then, they had developed the theory of relativity and cracked the secrets of the atom.)

In the latter half of the century, business schools expanded their charters. They dedicated themselves to advancing knowledge about management through rigorous academic research. Many business concepts that today seem basic and mainstream originated from this new commitment and, thus, are newer than many people realize. It wasn't until the 1970s, for example, that senior executives widely accepted that their number one job was a newfangled thing called *strategy*.

By the 1980s, there had emerged a single, dominant strategic idea: to sustain success, identify an attractive industry, carve out a strong position in it, and defend it however possible—by creating entry barriers, for example. The notion of *strategy as stability* was powerful. At the same time, it is hard to imagine a doctrine more antagonistic to innovation. The mantra of the 1980s was one of fierce resistance to change.

The 1990s brought a backlash. A new group of strategists insisted that playing defense was futile. Change is unstoppable, they argued. All competitive advantages inevitably decay. Companies that resist change, those that fail to innovate, soon die. Therefore, strategy cannot be about maintaining

the status quo. It must be about creating the future. In other words, *strategy is innovation*.

This newer view of strategy is now widely accepted, and scholars are continuing to refine their ideas about the relationship between strategy and innovation. For example, there are many typologies that classify innovation efforts on the basis of their possible strategic impact. Innovations can be sustaining or disruptive. They can be radical or incremental. They can be competence-enhancing or competence-destroying.

While these classifications are useful in selecting *which* innovation initiative is likely to have the most powerful strategic impact, they offer little insight into *how* to make the innovations happen. Indeed, ideas about strategy and innovation have propagated much more rapidly than the managerial skills on which they depend. Can modern business organizations make *strategy as innovation* actually work?

Some of the most well-known researchers have taken a dim view of the possibility. Clayton Christensen has consistently warned that while established organizations will succeed with sustaining innovations, they will struggle mightily with disruptive ones. Chris Zook has recommended that companies take only small steps outside their existing business.

Their conclusions, however, are based on studies of what organizations have accomplished in the past, not what organizations might deliver in the future. Their research is akin to someone studying all the aircraft built through the mid-1940s, collecting voluminous statistical data, and claiming, on the basis of all available evidence, that traveling faster than the speed of sound is impossible.

Tell that to Chuck Yeager.

We believe that organizations *can* break the sound barrier. In fact, while acknowledging that there are still more questions than answers, we see no managerial reason why established organizations should be incapable of executing *any* innovation initiative.

How? The answers are becoming much clearer. There has been a dramatic and productive surge of research in the most recent decade. Our work is part of that surge. In this book, we offer practical new advice for senior executives, chief innovation officers, leaders of innovation initiatives, members of innovation teams, aspiring innovators, and all those who support innovation.

How We Produced This Book

The work that led to this book began in 2000, when we set our research mission: to learn by studying a variety of innovation endeavors in a variety of contexts, to generalize, and to prescribe. The endeavor has been satisfying, if lengthier and more labor intensive than either of us initially imagined.

Innovation research is challenging because very little can be quantified. Even a seemingly straightforward matter, such as calculating the profitability of a given innovation initiative, proves elusive. Corporations are under no obligation to make such information public. Furthermore, there are so many shared costs between innovation initiatives and other activities that *five different accountants could easily provide five different answers*.

The only effective way to study the management of innovation initiatives is to compile in-depth, multiyear case histories. Doing so is time consuming and expensive. It requires extensive interviewing, followed by the meticulous process of synthesizing hundreds of pages of interview transcripts and archived documents into meaningful narratives. This work requires access through unique partnerships with corporations, and corporations are generally willing to partner with only the top academic institutions.

We were fortunate to have the means and the opportunity to pursue this work through the William F. Ahtmeyer Center for Global Leadership at the Tuck School of Business at Dartmouth. With the support of many, we have assembled dozens of multiyear case histories of innovation endeavors. We believe that ours is the most extensive library of innovation case studies in the world. Several of the case studies are summarized in this book.

Five years ago, at roughly the midpoint of our effort, we wrote *Ten Rules for Strategic Innovators—From Idea to Execution*. This first book was, in essence, a midterm report. Until then, we had confined our study of innovation to a special case—high-risk, high-growth potential new ventures, the most extreme form of innovation. Studying extremes is useful for researchers. Extremes reveal fundamental principles with great clarity.

That said, the most common feedback we received after publishing *Ten Rules* was, “How do I apply these principles to the initiative that I am

involved with, which is not quite as dramatic as the case studies in *Ten Rules?*” At the time, we could make some conjectures. Now, we have answers. Our research is complete. We have collected case studies across the full spectrum of innovation initiatives—from small process improvements to high-risk new ventures. The principles and recommendations in this book span the full territory.

Our database includes one or more in-depth case histories from well-known and well-respected corporations such as Analog Devices, Cisco Systems, Corning Incorporated, Deere & Company, Dow Jones, Hasbro, Hewlett-Packard, IBM, Infosys, the New York Times Company, Stora Enso, the Thomson Corporation (now Thomson Reuters), and Unilever. (We have made these case studies available in full at www.theothersideofinnovation.com.) We also draw from interviews with several chief innovation officers and innovation leaders at companies including Aetna, Allstate, ABB, Ben & Jerry’s, BMW, Cargill, Citibank, Electrolux, General Electric, Harley-Davidson, Kimberly-Clark, Lucent (now Alcatel-Lucent), Mattel, Procter & Gamble, Sony, Timberland, and WD-40, and reviews of publicly available materials about innovation efforts at companies including 3M, Amazon, Booz Allen Hamilton, Dell, Disney, DuPont, Eli Lilly, FedEx, General Motors, Intel, Johnson & Johnson, Kodak, Microsoft, Nucor, Oracle, Philips, Polaroid, Porsche, R.R. Donnelly, SAP, Seagate Technology, Southwest Airlines, Sun Microsystems, Toyota, Visa, and Walmart.

For ten years, this work has energized us. It has convinced us, beyond any doubt, that while the problem of innovation within established organizations is daunting, it is solvable. The reflexes of efficiency can indeed be augmented with the muscles of innovation.

Onward.

—Vijay Govindarajan

Chris Trimble

Tuck School of Business at Dartmouth

Hanover, New Hampshire

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INTRODUCTION

Making Innovation Happen

THE CLIMBERS AWOKE just past midnight after hardly sleeping at all. They were excited and alert. They were among the nearly ten thousand climbers each year who attempt to reach the heavily glaciated summit of Mount Rainier in the northwestern United States. It is perhaps the world's most difficult climb that is accessible to novices, so long as they are accompanied by expert guides.

The first hour of the climb was easy. Each subsequent hour was harder. Finally, at dawn, the climbers got their first glimpse of the summit. It was as they had imagined—majestic and inspiring, gleaming in the morning sun. The climbers focused all of their energies on getting to the top.

With each step, however, their labors became more excruciating. Muscles ached. The air became thinner, and some of the climbers became dizzy. Some contemplated the very real possibility that they would not be able to make it. Each year, nearly half of those who attempt to reach the summit turn back unfulfilled.

But these climbers persevered. Step by step, they reached the summit. They were jubilant and exhilarated. Months of preparation had come to fruition. To be atop Mount Rainier is to sense that you are on top of the world. The city of Seattle lies more than fourteen thousand feet below.

But their adventure was hardly over. They still had to get back down.

Their expert guide was ever mindful, in fact, that the descent from Rainier's summit was actually the more difficult part of the expedition. Climbing a flight of stairs may be harder than descending. Hiking to the top of a local peak may be more difficult than the return trip. But Rainier is different. It is a dangerous mountain, one that claims a few lives each year.

The snow on the surface of the glacier can collapse into interior caves and tunnels, and climbers can slip into deep crevasses. As each hour passes, sunlight and rising temperatures soften the snow and increase the risk. Climbers are deeply fatigued and prone to mistakes.

No matter how many times they are told of the dangers in advance, climbers naturally relax at the summit. The glamorous part of the quest is over. The big aspiration—the big dream—has been fulfilled. The trip down is, instinctively, an afterthought.

Having invested very little of their emotional energies in the descent—and having little physical energy remaining—the climbers took their first steps down the other side of the mountain.

The Other Side of Innovation

There is a Rainier-like summit in the innovation journey. It is the moment a company says *yes!* That's a great idea! Let's take it to market! Let's make it happen!

Getting to the summit can be difficult. It might involve years of scientific research, months of building prototypes, endless creative brainstorming sessions, exhaustive market research, in-depth strategic analyses, intense financial modeling, and more. Dozens or even hundreds of possibilities might be eliminated before . . . finally . . . the search comes to fruition.

The challenge of reaching the summit lures many. It captures the imagination. The summit is majestic and inspiring. It gleams in the sunlight.

Indeed, getting a group of businesspeople engaged in a Big Idea Hunt is usually easy. Brainstorming sessions are fun! Out-of-the-box thinking is energizing! Ideation is cool! Not only that, generating a breakthrough idea is glamorous. It wins great status. If *you* come up with the brilliant idea, then *you* will always be associated with it.

Getting to the summit can seem like the fulfillment of a dream, but it is not enough. After the summit comes the other side of innovation—the challenges *beyond* the idea. *Execution*. Like Rainier, it is the other side of the adventure that is actually more difficult. It is the other side that holds hidden dangers. But because the summit itself has such strong appeal, the other side is usually an afterthought. It is humdrum. It is behind the scenes. It is dirty work.

Ideas Are Only Beginnings

Companies think far too little about the other side of innovation, and we are not the first to say so. In 2007, IBM ran an advertisement intended to convey that it could help its clients innovate. It featured a pudgy mock superhero sporting a capital “I” on his outfit who introduced himself as “Innovation Man.” A bemused colleague asked, “And your job is?” The superhero responded with gusto, “I for Ideation! I for invigoration! I for incubation!” The onlooker replied, “What about I for *Implementation*?” Innovation Man answered, “I knew I forgot something.”

We loved the ad. It captured so humorously and yet so perfectly the off-balance approach to innovation that is commonplace in corporations around the world. There is too much emphasis on ideas, not nearly enough emphasis on execution. Thomas Edison made essentially the same observation more than a century ago: “Genius is 1 percent inspiration and 99 percent perspiration.”

Nobody listened.

Several companies have shared with us their maps of the innovation process. These maps are revealing. One typical diagram showed innovation as a four-stage process: *generating ideas*, *refining ideas*, *selecting ideas*, and, finally, like a lazy afterthought, *implementation*.

No wonder, then, that so many innovation initiatives hit a wall. The guiding managerial model for innovation is just too simple. It reduces to:

$$\text{innovation} = \text{ideas}$$

As a result, most corporations have more ideas than they can possibly move forward. Far too many promising ideas on paper never become anything more than . . . promising ideas on paper.

Here is an improved equation for innovation:

$$\text{innovation} = \text{ideas} + \text{execution}$$

Take just a moment to rate your company on a scale of one to ten, first for its ability to generate innovative ideas, then for its ability to execute them. Repeatedly, when we do this exercise with executives, they rate their companies relatively high for ideas—say, seven or eight—but quite low for execution—typically one or two.

Where is there greater room for improvement? Yet most companies, in their efforts to improve innovation, focus entirely on the Big Idea Hunt. Focusing on ideas may unleash more immediate energy, but focusing on execution is far more powerful. And innovation *execution* is what this book is all about.

A Tale of Two Recessions

When we launched the research that led to this book in 2000, innovation was all the rage. It was the height of the dot-com boom. How quickly things changed. By 2001, markets were in a tailspin and the diagnosis seemed clear. Too much innovation! Too much hype! Too much belief in the power of the Internet to transform the world overnight!

Yet, many of the visions incubated during the dot-com boom *did* come to fruition. It just took a lot longer than anyone anticipated. For example, it turned out that there was tremendous value in business-to-business e-commerce. It just turned out to be much more complicated than online retailing, and so it took much longer to get it right. And the Internet did turn the music and video industries upside down, but not until there was widespread availability of high-speed Internet connections. A better diagnosis of the dot-com bust is: "Great ideas, haphazardly executed." With a more careful approach to implementation, far fewer dollars would have been lost.

In 2010, as we completed our research, the economy was in an even deeper recession. But this time, innovation was not seen as the source of the problem. It was seen as the solution to the problem.

Can the U.S. auto industry reinvent itself? Not without a range of innovative new products. Can the health care industry find a way to deliver access and quality *and* keep costs under control? Not without commercializing entirely new approaches. Can the global energy industry create a future far less dependent on fossil fuels? Not without breakthrough victories in renewables.

There is no shortage of great ideas on how to address these major challenges. The critical questions, then, are: What did we learn from innovation failures of the past? Are we better prepared to convert great ideas into great impact? Are we ready for the other side of innovation?

Innovation Comes in Many Shapes and Sizes

Let's take just a moment to define *innovation* and, in doing so, define the terrain for this book. We take the broadest possible perspective. An innovation initiative is any project that is new to you and has an uncertain outcome.

People have often described their initiatives to us and asked, "Is that innovative?" The question always amuses us a bit. We've never really viewed ourselves as authorities on what counts as innovation and what does not.

We've found that there is very little value in trying to draw the line. From small and simple projects to grand and gutsy gambles, it is all innovation to us. When a salesperson experiments with a new pitch, it is innovation. When a company spends hundreds of millions of dollars to launch a high-risk new venture, that's also innovation.

That said, some innovation projects are much harder to execute than others. Sometimes the other side of innovation is a hop, skip, and a jump; other times it is a perilous descent from Rainier.

As part of our work, we've experimented with tools for assessing the managerial degree of difficulty of an innovation initiative. As it turns out, only two ratings are really needed: *routine* and *difficult*. There is not much middle ground. Well-managed corporations have mastered the other side of innovation for a subset of initiatives—the routine ones. This book delivers a prescription for all other initiatives—those that even the best-managed companies struggle with.

Before we do so, however, it is important to understand, briefly, what corporations have already mastered. What works? Why? And, more critically, what are the limitations? We look at two examples, Nucor and Deere & Company.

Continuous Improvement at Nucor Corporation

Nucor may not be a household name, but it is a remarkable company that unleashed the power of innovation in a decaying industry. Nucor makes steel. The company was of inconsequential size in 1970, but grew at an average of 17 percent per year to over \$4 billion in revenues by 2000 while returning 20 percent on equity. During the same time frame, the

U.S. steel industry struggled as it wrangled with competition from abroad, threats from alternative materials, and strained labor relations. In fact, the industry delivered one of the worst profitability and growth records in the economy.

Nucor's success cannot be attributed to a breathtaking strategy. Its strategy was plain and simple: operate efficiently and compete on costs. Therefore, Nucor could succeed only by innovating every day.

The company's model for innovation was not mysterious. Nucor galvanized the energy and ingenuity of its workforce. The company did so with two essential policies:

- To stimulate *ideas*, Nucor cross-trained its employees and rotated them among plants.
- To *motivate* each employee to find innovative ways for improving production efficiencies, Nucor paid for results. Base salaries were actually low for the industry, but bonuses ranged from 80 percent to 150 percent of base wage. Those bonuses were paid weekly based on the number of tons of steel produced that met quality standards.

Thus, Nucor's model for innovation can be reduced to a simple equation:

$$\text{innovation} = \text{ideas} + \text{motivation}$$

This combination created an environment in which innovation happened through grass-roots action, as close to the front lines as possible. When employees saw a way to improve performance, they simply took the initiative to make it happen.

We have seen several well-managed companies make the *innovation = ideas + motivation* model work. In fact, when companies speak of a "culture of innovation," this seems to be what they mean—an environment in which creative ideas are plentiful and employees are empowered and motivated to do something with them.

However, as powerful as this approach can be, and as potent as it proved for Nucor, consider what this model for innovation is *not* capable of. It quickly runs into a brick wall. What if pursuit of a particular innovation initiative requires more than the small sliver of free time that individual employees have left over after fulfilling their day-to-day responsibilities?

Imagine that you work on the factory floor at Nucor and you have a big idea for improvement; maybe it is a major reconfiguration of materials flow through the steel mill. Even if it is a powerful idea, it is far beyond your ability to pursue while on the job. You might try to gather some friends to contribute their energies, but even if you are very persuasive, the total resources available to you are tiny—a handful of employees and their spare time. Any project requiring more resources than that withers. It can get little further than the idea stage.

Innovation in the form of continuous process improvement is certainly possible with an *innovation = ideas + motivation* model. And, as Nucor's experience shows, thousands of small steps can add up to a powerful result. Still, larger innovation initiatives require a different approach.

Product Development at Deere & Company

One of Deere & Company's most important product lines is world-class tractors for large-scale agriculture. These are complex machines. Hundreds of people are involved in designing and bringing each to market. It takes about four years and \$100 million to design just one.

A company as well managed as Deere doesn't spend \$100 million casually. It brings as much discipline to the task as possible. In fact, the company treats product development much like any other business process. It tries to make it efficient and reliable.

Indeed, over many years, Deere & Company has gone to great lengths to perfect its recipe for developing new tractors. Documentation of the process constitutes, literally, several weeks of reading. As a result, everyone on the product development team understands his or her role. Everyone understands that he or she is accountable for completing each step in the design process on time and on budget.

Deere & Company's capability to quickly and efficiently launch new tractors with cutting-edge technology is impressive. At a high level, its approach to innovation is shared by many companies. It can be reduced to a simple equation:

$$\text{innovation} = \text{ideas} + \text{process}$$

The execution challenge is reduced to creating a step-by-step process that can be used again and again. Such an approach can be powerful.