HARVARD BUSINESS REVIEW PRESS

COLLECTIVE GENIUS

THE ART AND PRACTICE OF LEADING INNOVATION

LINDA A. HILL, GREG BRANDEAU,
EMILY TRUELOVE & KENT LINEBACK

COLLECTIVE GENIUS

THE ART AND PRACTICE OF LEADING INNOVATION

LINDA A. HILL
HARVARD BUSINESS SCHOOL

GREG BRANDEAU
FORMER SVP TECHNOLOGY, PIXAR

EMILY TRUELOVE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

KENT LINEBACK
EXECUTIVE & BEST-SELLING AUTHOR

HARVARD BUSINESS REVIEW PRESS

BOSTON, MASSACHUSETTS

HBR Press Quantity Sales Discounts

Harvard Business Review Press titles are available at significant quantity discounts when purchased in bulk for client gifts, sales promotions, and premiums. Special editions, including books with corporate logos, customized covers, and letters from the company or CEO printed in the front matter, as well as excerpts of existing books, can also be created in large quantities for special needs.

For details and discount information for both print and ebook formats, contact booksales@harvardbusiness.org, tel. 800-988-0886, or www.hbr.org/bulksales.

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

The web addresses referenced in this book were live and correct at the time of the book's publication but may be subject to change.

Library of Congress Cataloging-in-Publication Data

Hill, Linda A. (Linda Annette), 1956-

Collective genius : the art and practice of leading innovation / Linda A. Hill, Greg Brandeau, Emily Truelove, Kent Lineback.

Pages cm

ISBN 978-1-4221-3002-5 (hardback)

1. Leadership. 2. Organizational behavior. 3. Technological innovations. I. Title.

HD57.7.H55 2014

658.4'092--dc23 2013050672

The paper used in this publication meets the requirements of the American National Standard for Permanence of Paper for Publications and Documents in Libraries and Archives Z39.48-1992.

TABLE OF CONTENTS

ACKNOWLEDGMENTS

Written by Linda A. Hill

The roots of this project go back to 1986 when I wrote a case study about Suzanne de Passe, then the president of Motown Productions, who had just won numerous awards for producing *Motown 25: Yesterday, Today, Forever*. Suzanne was gracious enough to let me shadow her as she went about her work, all the while offering her well-honed point of view about what it takes to lead talented, passionate, creative people. The lessons learned were never forgotten and I made a promise to return to the question of "leading creatives" someday. In 1999, I met Ahmed Kathrada, known by his friends as "Kathy," a South African anti-apartheid activist and former political prisoner who spent decades in a cell across from President Nelson Mandela on Robben Island. Kathy introduced me to his "comrades," who shared their experiences of what it took to lead a revolution. Many recited a passage found in Nelson Mandela's autobiography: A leader is like a shepherd. He stays behind the flock, letting the most nimble go out ahead, whereupon the others follow, not realizing that all along they are being directed from behind.

Despite their divergent circumstances and ambitions, I was struck by the commonalities between the leadership philosophies of Suzanne and Kathy—both consummate leaders of innovation who knew how to unleash *and* harness people's creativity to fulfill a collective purpose. In 1999, when

asked to write an article about leadership for the new century, I titled it "Leadership as Collective Genius." Not surprisingly, I argued that building organizations that could innovate was going to be *the* critical leadership task for the foreseeable future—whether that meant creating competitive advantage in the private sector or addressing recalcitrant social ills in the public or not-for-profit sectors.

As faculty chair of the Leadership Initiative at Harvard Business School, I decided it was time for me to get serious about reexamining our image of the ideal leader and figure out what it takes to lead innovation. As in all great adventures, my coauthors and I came together in large measure through fortuitous events. We share a passion: how to develop leaders who can build organizations that can innovate time and again. For almost ten years we have been engaged in a collaborative project on leadership for innovation. We are an interdisciplinary and multigenerational team and have introduced each other to colleagues and friends in our respective worlds. We have had the privilege to work and study with individuals in organizations across industries, sectors, and the globe.

This book would not have been possible without the generosity of hundreds of people who have assisted us along the way. First and foremost, we must thank the leaders and their colleagues who have allowed us to become intimately acquainted with the inner-workings of their organizations. They have been true partners in our journey, pushing our thinking forward with their insights and incisive questions. A special thanks to our friends at Pixar, the company that came to serve as the touchstone for this project. Truly everyone at Pixar was welcoming. Ed Catmull and Lori McAdams were tireless champions of our efforts.

We are indebted to those who critiqued the manuscript allowing us to refine our argument and narrative: Robert Cohen, Rob Cook, Lorraine Delhorne, Carol Franco, Letty Garcia-Pacheco, Joline Godfrey, Paul Hemp, Barbara Hood, John Kirkman, Karim Lahkani, Ann Le Cam, Steve May, Anthony Mayo, Sunand Menon, Gautam Mukunda, Randy Nelson, Karen Paik, Anne Pia, Maurizio Travaglini, and the anonymous readers Harvard Business Review Press enlisted for us. Many of these individuals read multiple drafts and served as our community of developmental editors. It is only fitting that I dedicate this book to my research associates, my intellectual

partners from data collection and writing to handling the countless details associated with the final production of a manuscript. Three in particular must be noted: Dana Teppert, Jennifer Suesse Stine, and Allison Wigen.

Others who assisted in indispensable ways include our editor at the Press, Jeff Kehoe, whose confidence in and commitment to this endeavor kept us going; Carol Franco, our agent, who inspired us to do "just one more rewrite" though we were weary, and to keep talking when discord more than collaboration seemed to be the state of affairs; and Barbara Devine, my assistant, who kept our virtual team organized. I also extend a special thanks to the Harvard Business School Division of Research for providing me with the significant resources required to complete this work.

We'd also like to acknowledge the support and sacrifices made by our families; they gave us the encouragement, time, and space to fulfill our ambitions. For me, that includes Roger Breitbart, Jonathan Hill Breitbart, Dana Hewett, and my lifelong cheerleaders, my parents Clifford and Lillian Hill. For Greg: Joan, Pinky, and Snapper. For Kent: his wife, Carol Franco. For Emily: her parents and siblings and her husband, John Truelove.

A few words from Greg: Linda and I met when I had been wondering why some companies thrived and others didn't. I had been lucky enough to work with terrific people at amazing companies who taught me which things mattered and which didn't. She and I had a number of fascinating conversations on that subject that eventually led to our work on this book. Thanks to everyone I have worked with over the years, particularly Dominique Trempont at NeXT and Lawrence Levy at Pixar, who hired me into great organizations and helped me flourish.

A few words from Emily: I would like to extend a special thanks to Doug Ready and the ICEDR team, who were not only wonderful colleagues, but incredibly patient ones as the research and writing process of this book moved along. I am also very grateful to my graduate school mentors—especially Kate Kellogg, John Van Mannen, and Lotte Bailyn—and my fellow doctoral students, who have pushed me to ask new questions and to refine my craft as a qualitative researcher.

We hope we have done justice to all those who have contributed to this effort. For any shortcomings, we collectively accept responsibility.

INTRODUCTION

Why does the world need yet another book on innovation or leadership? Haven't both been studied in great depth?

Our answer is simple: it needs this book precisely because it's *not* another book on either of those familiar topics. It is, instead, a book about a topic much less discussed or understood—leadership *and* innovation, or the role of the leader in creating a more innovative organization.

Search the literature and you'll discover what we found—volumes of research on innovation and as many or more on leadership, but almost nothing on the connection between the two.[1] Why is this so? Perhaps practicing leaders and management thinkers have simply assumed a "good" leader in all other respects would be an effective leader of innovation as well. If that's the case, however, we must report it's a deeply flawed and even dangerous assumption. Leading innovation and what is widely considered good leadership, we found, are not the same.

We know this because for more than a decade we've been studying leaders who were proven masters at fostering organizational innovation. The people they led, from small teams to vast enterprises, were able to produce innovative solutions again and again.

To understand what they did, how they thought, and who they were, we sought them out, from Silicon Valley to Europe to the United Arab Emirates

to India and Korea, and we explored businesses as diverse as filmmaking, e-commerce, auto manufacturing, professional services, high-tech, and luxury goods. We spent hundreds of hours in total with them and their colleagues. In the end, we interviewed and observed sixteen and studied twelve in depth who included talented women and men of seven nationalities serving different functions at different levels in their organizations.[2] All this research, of course, was built on the foundation of the thousands of leaders and organizations the four of us have experienced, observed, and studied in our varied individual careers.

What we found in our research—confirmed, actually—was the critical role of the leader. That leadership matters to innovation should come as no surprise. Look beneath the surface of almost anything produced by an organization that is new, useful, and even moderately complex, and you'll almost certainly discover it came from multiple hands, not the genius of some solitary inventor. Innovation is a "team sport," as one leader told us, in which individual effort becomes something more. Somehow, in the language we've come to use, truly innovative groups are consistently able to elicit and then combine members' separate *slices of genius* into a single work of *collective genius*. Creating and sustaining an organization capable of doing that again and again is what we saw our leaders do.

They understood the nature of innovation and how it worked, and so they fully appreciated that they could not force it to happen or get it done on their own. Consequently, they saw themselves and their role differently. They focused their time and attention on different areas and activities. They made different choices when faced with the difficult trade-offs leadership constantly required of them. In studying these leaders, we found, above all, that leadership as it's widely understood and practiced today isn't what these leaders of innovation were doing.

The source of this discrepancy, we suspect, is that over the past few decades, the leader's role has become equated with setting out a vision and inspiring people to follow. This conception of the leader's role can work well when the solution to a problem is known and straightforward, but is counterproductive when it's not. If a problem calls for a truly original response, no one can know in advance what that response should be. By definition, then, leading innovation cannot be about creating and selling a vision to

people who are somehow inspired to execute that vision. So common is this notion of the leader as visionary that many of those we studied had to rethink and recast their roles before their organizations could become truly and consistently innovative.

What we observed across all the diverse individuals and organizations we studied was a surprisingly consistent view of the leader's role in innovation, which can be expressed this way: *Instead of trying to come up with a vision and make innovation happen themselves, a leader of innovation creates a place—a context, an environment—where people are willing and able to do the hard work that innovative problem solving requires.*

One of the leaders we studied neatly summed this up by repeating a line he had heard from a CEO he admired. "My job," he said, "is to set the stage, not to perform on it."

Based on what we saw in our research, we present in *Collective Genius* a framework that you and other practicing leaders can apply to "set the stage"—that is, to create a place where people are willing and able to innovate time and again.

That framework is reflected in the flow of chapters ahead.

Why Innovation Requires a Different Kind of Leader

The first three chapters open by looking in depth at Pixar Animation Studios, a company with a formidable innovation track record. During the period we studied, Pixar was able to produce hit film after hit film, each one an innovative tour de force. Because its work is so widely known, Pixar is an ideal choice for showing what's required to transform the individual efforts of hundreds of people—all those slices of genius—into a single, coherent work of collective genius. In chapter 2, we explore the unavoidable tensions and conflicts built into the innovation process, which explain both why innovation is so rare and difficult and why it requires leadership. But what kind of leadership? In chapter 3, we paint a detailed portrait of a CEO who went far beyond the conventions of "good leadership" to turn a declining Indian computer company into an international dynamo of IT innovation.

The chapters that follow focus on what leaders of innovation actually do to foster creative genius. They are organized around the two great tasks

we saw our leaders perform. In part I, chapters 4 and 5, we show what they did to create organizations *willing* to innovate. In part II, chapters 6 through 8, we show how they created organizations *able* to innovate.

What Leaders Do: They Create Organizations *Willing* to Innovate

It's tempting to believe that people and organizations are naturally eager to create something new and useful, when, in fact, they often are not. The diversity innovation thrives on, the conflict of ideas and options it requires, the patience it needs to test and learn from multiple approaches, and the courage it demands to hold options open until possibilities can be integrated in new and creative ways—all these things can make innovative problem solving feel awkward, stressful, and even unnatural. Without leadership, internal forces common to virtually all groups will stifle and discourage innovation, in spite of everyone's rhetoric about how much they want it. In part I, we show how our leaders overcame these destructive forces by creating communities whose members were bound by common purpose, shared values, and mutual rules of engagement.

What Leaders Do: They Create Organizations *Able* to Innovate

The organizational ability to innovate is equally important and, unfortunately, equally difficult. In part II, we show how the leaders we studied focused on three key aspects of the innovation process: collaboration, discovery-driven learning, and integrative decision making. Each of these aspects has already been identified and studied by others, though typically in isolation from each other. Our contribution is to show how effective leaders actually build a key organizational capability in each of these areas—*creative abrasion* for collaboration, *creative agility* for learning through discovery, and *creative resolution* for integrative decision making. These are difficult for organizations to acquire, exercise, and maintain. They require leaders who can constantly balance the tensions and paradoxes built into the innovation process.

The final section of *Collective Genius* examines two forward-looking aspects of leading innovation. In chapter 9, we outline the leadership challenge of an increasingly common approach today—the innovation

ecosystem, which comprises disparate organizations and sometimes even competitors that join together for the purpose of developing something new. Given how hard innovation is within the same organization, it's easy to appreciate the supreme difficulty of crossing boundaries and getting diverse groups to collaborate creatively. In the epilogue, we look briefly at three organizations that have found effective ways of identifying and developing the leaders of innovation they will need tomorrow.

Because our goal is to provide practical and concrete guidance, we not only describe what leaders of innovation do, but we show it as well. Every chapter in *Collective Genius*, save one, is written around an in-depth portrait of one or more of the leaders we studied. In these stories and descriptions, we present both the art and practice of leading innovation by showing our leaders in action. Unless otherwise indicated, all quotations are based on our primary research, and because our leaders all believed that rhetoric matters, we have quoted them extensively. In this way, we hope to help practicing leaders bridge the knowing-doing gap between conceptual knowledge and an ability to apply that knowledge in everyday settings.

Some of our leaders worked in organizations widely considered hotbeds of innovation; others ran parts of firms rarely associated with the cutting edge. Some led start-ups; some led well-established companies trying to figure out how to sustain success, while others took over organizations that had lost their way and desperately needed rejuvenation. The innovations produced by their groups ran the gamut from new products and services to business processes, organizational structures, business models, and social enterprises. What their experience can teach us applies to organizations of all types and sizes and to leaders at all levels and in all functions.

Watching them at work, we hope, will not only inform but intrigue, challenge, and inspire you as well. These people are far from perfect and they would be the first to admit it. But they have mastered a difficult art and their examples can be highly instructive. We hope you will learn from them.

We don't claim to have cracked the code for leading innovation.[3] But we're convinced any leader can apply the lessons drawn from the experience of these accomplished leaders to make his or her group more innovative.

Leaders of Innovation in *Collective Genius**

Section	Name	Title	Company
Chapter 1	Ed Catmull	Cofounder, CEO	Pixar Animation Studios
Chapter 3	Vineet Nayar	CEO	HCL Technologies
Chapter 4	Luca de Meo	Chief marketing officer	Volkswagen
Chapter 5	Kit Hinrichs and others	Partners	Pentagram
Chapter 6	Greg Brandeau	Senior vice president, systems technology	Pixar Animation Studios
Chapter 7	Philipp Justus	Country manager, then senior vice president, Europe	eBay Germany and eBay
Chapter 8	Bill Coughran	Senior vice president, engineering, infrastructure group	Google
Chapter 9	Larry Smarr	Founder, director	Calit2
	Amy Schulman	General counsel, executive vice president, business unit leader	Pfizer
Epilogue	Steve Kloeblen	Vice president, business development	IBM
	Jacqueline Novogratz	Founder, CEO	Acumen Fund
	Sung-joo Kim	Founder, chair, chief visionary officer	Sungjoo Group

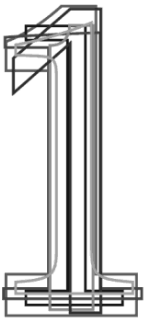
**All information as of time of story.*

When it comes to innovation, leadership matters, and it's not leadership as commonly conceived today.

Every person in your group, whether that's a small team or a large corporation, contains a slice of genius. Your task as leader is to create a place where all those slices can be elicited, combined, and converted into collective genius. Our goal in *Collective Genius* is to provide the insights, guidance, and real-life examples you need to do that.

We're not just making up how to do computer-generated movies, we're making up how to run a company of diverse people who can make something together that no one could make alone.

—**Ed Catmull**, cofounder, Pixar, and president, Pixar and Walt Disney Animation Studios



WHAT COLLECTIVE GENIUS LOOKS LIKE

Why are some organizations able to innovate again and again while others hardly innovate at all? How can hundreds of people at a company like Pixar Animation Studios, for example, produce blockbuster after blockbuster over nearly two decades—a record no other filmmaker has ever come close to matching? What's different about Pixar?[1]

This question is crucial. In a time of rapid change, the ability to innovate quickly and effectively, again and again, is perhaps the only enduring competitive advantage. Those firms that can innovate constantly will thrive. Those that do not or cannot will be left behind.

Pixar released *Toy Story* in 1995, the first computer-generated (CG) feature film ever produced. Since then, as we write this, it has released fourteen such movies, including *Toy Story 2* and *Toy Story 3*; *A Bug's Life*; *Monsters, Inc.*; *Finding Nemo*; *The Incredibles*; *Cars*; *Ratatouille*; *Wall-E*; *Up*; *Cars 2*; *Brave*; *and Monsters University*. Virtually all have been critical, financial,

and technological successes. The winner of numerous awards, including twenty-six Academy Awards, Pixar is one of those rare studios that command the respect of filmmakers, technologists, and businesspeople alike.

CG movies are mainstream today, but Pixar's founders took two decades to realize their dream of creating a feature-length CG film. After years in academia, Ed Catmull and a handful of colleagues joined Lucasfilm, where Catmull led the effort to bring computer graphics and other digital technology into films and games. Catmull and team pushed the boundaries of what could be done, securing patents and providing producers like Steven Spielberg with the tools to create scenes like those of the dinosaurs in *Jurassic Park*. Ultimately, however, the division was too costly for George Lucas. In 1986, Steve Jobs bought it for $10 million, and Pixar Animation Studios was born.

Pixar has survived since then only because it has been consistently inventive. Every film it produced has been an innovative tour de force. But conventional wisdom about innovation cannot explain its extraordinary accomplishments. No solitary genius, no flash of inspiration, produced those movies. On the contrary, each was the product of hundreds of people, years of work, and hundreds of millions of dollars.

What has allowed Pixar to accomplish what it's done? We begin to see at least part of the answer in a personal comment by Catmull, the computer animation pioneer who cofounded and then led the studio as it produced hit after hit:

> *For 20 years, I pursued a dream of making the first computer-animated film. To be honest, after that goal was realized—when we finished* Toy Story*—I was a bit lost. But then I realized the most exciting thing I had ever done was to help create the unique environment that allowed that film to be made. My new goal became ... to build a studio that had the depth, robustness, and will to keep searching for the hard truths that preserve the confluence of forces necessary to create magic.*[2]

What Catmull discovered in making *Toy Story* was the critical role of leadership in creating an organization or context that fostered and enabled innovation. He understood innovation could not be compelled or commanded. Indeed, this most voluntary of human activities could only be, to use his word, "enabled."

To understand what Catmull and other effective leaders of innovation do, we begin by looking at what collective genius looks like. For that, there's no better example than Pixar, because most of us have seen at least one Pixar movie. So when we describe all the individual slices of genius that go into making a CG film, you will be able to appreciate the difficulty of converting those slices into the collective genius you see on the theater screen.

What Pixar does may seem different from the work of most other organizations. Certainly, the product it makes is different. But think of any other firm that offers a product or service that no individual could provide alone. Clearly, such a firm must grapple, in form though not substance, with the same kinds of challenges Pixar has had to overcome in every film it's made. Every example of innovative problem solving embodies exactly what Catmull described: hundreds and even thousands of ideas from many talented people.

How Pixar Innovates

Innovation is the creation of something both novel and useful. It can be large or small, incremental or breakthrough. It can be a new product, a new service, a new process, a new business model, a new way of organizing, or a new film made in a new way.

Whatever form innovation takes, people often think of it as a chance occurrence, a flash of insight, a brainstorm by one of those rare individuals who's "innovative" or "creative." It can be, but most often such things play no role or only minor roles, and the actual process of innovation is more complex. This becomes crystal clear when we return to Pixar and look more closely at how it works.

Making a CG movie

Some have said that creating a CG animated film is like writing a novel because both start with a blank slate. The creator can do whatever he or she can imagine. Blow up the world? No problem. Hop over the Grand Canyon? Easy. In making a CG film, however, that freedom comes with a price. Everything in the film—*everything*, down to the tiniest speck of dust or the subtle flow of a shadow across a character's face—must be consciously chosen, created, and inserted by one of the hundreds of people involved. Every piece of it must be created, invented, innovated.

To explain the process in simple terms, we use a diagram produced by Greg Brandeau based on his experience running the systems group at Pixar (see figure 1-1).

Each block in the diagram represents not only a stage in the process but a group of highly talented people who perform some essential task.

The process begins with a director who has an idea for a story. He works with people in the story department over twelve to eighteen months to flesh out the tale in words and drawings, usually through many revisions. From the idea, they create a treatment or description of the story. From that, they produce a script. Once the script is approved, they put together thousands of individual storyboards (images) that are in turn cut together to produce reels. Meanwhile, the art department begins to work on the look and feel of the characters and film in general. The film's editor works with the director to cut together the storyboards and create reels that link together the art, dialogue, and temporary music. These reels are updated, revised, and refined as the production progresses. Now the work passes into the hands of various groups of artist-technicians who use sophisticated design software to create the thousands of digital elements that compose the final film. One group creates three-dimensional digital models of the story characters. Another builds and shades the digital settings—a bedroom, a racetrack, a city—where movie scenes will be placed and "shot." Another creates and places the digital objects—tables, chairs, books, beds—that appear in every scene. The layout group—the CG equivalent of cinematographers—roughs out how characters and objects will be shot as they move through each scene. Lighting specialists specify how light appears to fall in each scene.

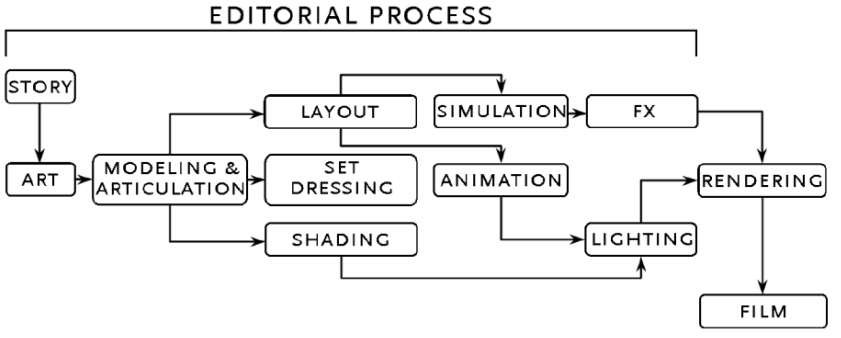


Figure 1-1 Core Activities of the Film Production Process

Animators specify the exact movements of characters in every scene to show not only what they do but also how they feel—happy, afraid, or angry, for example.

That's complicated enough, but there's even more. Yet another group creates the texture of surfaces, such as skin or hair, and how light interacts with the surface, which can be a major problem for a computer to recreate realistically. Simulators produce digital versions of various natural phenomena, such as hair blowing in the wind or the way a piece of loose clothing falls and drapes as a character moves. Special-effects specialists depict objects that move in complex ways, such as falling snow, wind, flames, sparks, and water. In the final step, called rendering, hundreds of computers run by systems experts use all the instructions created in earlier steps to compute each individual movie frame. At twenty-four frames per second, a feature film contains well over a hundred thousand frames, and each frame—*every one of them*—can require up to several hours of computer processing.

Reducing all this to a diagram seems to imply that producing a CG film is a simple series of steps these different groups take in a neat, sequential way. It fails to communicate how iterative and interrelated—in short, how messy—the steps of the process are, because the story can and usually does evolve throughout the making of the film. As it's being made, the thousands of digital objects in it, linked into shots and scenes, move through the production pipeline, but not in order. Different shots and scenes move through at different times and even at different rates. Some move quickly, while others take months or longer because they present difficult artistic and technical challenges, large and small, that require the joint efforts of many groups to resolve. For example, one gifted animator took six months to get ten seconds of the film *Up* right. Almost nothing is simple and straightforward.

For that reason, we often present a slightly different version of the diagram that reflects its inherent messiness. In concept, this is the same as the previous diagram except it shows all the feedback loops and multiple iterations that actually occur (see figure 1-2). No wonder CG films require so much time (years), money (hundreds of millions of dollars), and the creative exertions of so many people (200–250) to make.

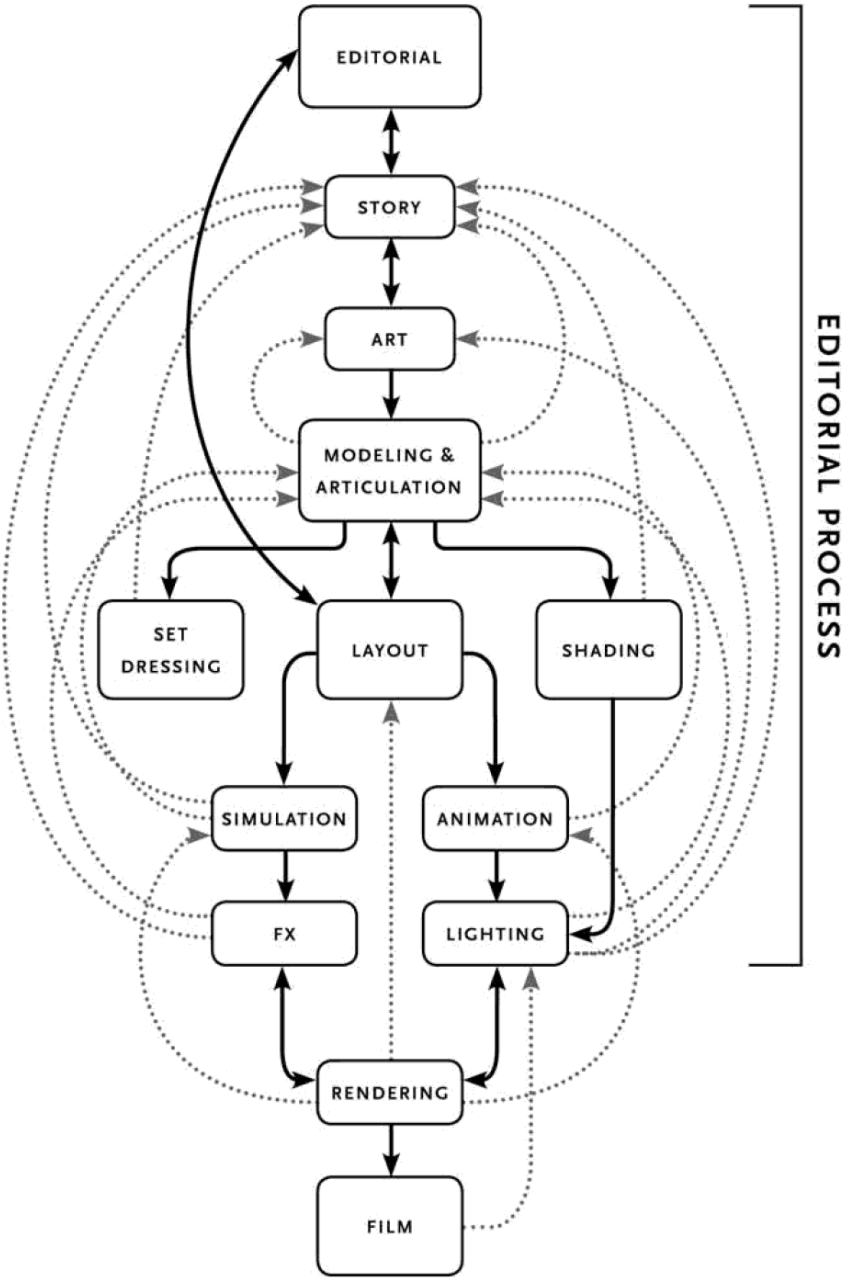


Figure 1-2 The Reality of the Film Production Process

The analogy we drew earlier between making a CG film and writing a novel is fundamentally flawed. It would only apply if a novel were written not by one author but by hundreds of people, some in charge of the story, some others in charge of nouns, some in charge of adjectives, some in charge of sentences, some in charge of paragraphs, and some in charge of chapters. Yes, every movie has a director—in effect, the master storyteller, the one with the overall creative vision for the movie—who determines what is ultimately seen and heard on the screen. But it's impossible for the director, or any other individual, to specify everything that must be invented to make a CG film. She must rely on the creativity of everyone involved.

As Catmull said, each Pixar film "contains tens of thousands of ideas."

> *They're in the form of every sentence; in the performance of each line; in the design of characters, sets, and backgrounds; in the locations of the camera; in the colors, the lighting, the pacing. The director and the other creative leaders of a production do not come up with all the ideas on their own; rather, every single member of the 200- to 250-person group makes suggestions. Creativity must be present at every level of every artistic and technical part of the organization.*[3]

Now, with your understanding of how Pixar makes movies, put yourself in a theater and imagine you're watching a Pixar movie—the final outcome of this long, complicated, arduous process. What do you actually see and experience? The engaging images and sounds flow by seamlessly, as though created effortlessly by a single master storyteller. Every part fits into a coherent whole. There's no indication of the process or the many disparate individuals who created what you're watching.

In this contrast between the simple coherence of the outcome and the complexity of the process that produced it, we can see the ultimate challenge of all organizational innovation: to create a coherent work of singular collective genius from the diverse slices of genius brought to the work by all the individuals involved. This is what all innovative organizations are able to do well, over and over.

Talent is critical, of course. Conventional wisdom at Pixar says that great people can turn a mediocre idea into a great movie, while mediocre people will ruin even a great idea. But the ultimate challenge of innovation

extends far beyond finding creative people. Pixar does have such people; it works hard to find and keep them. Unlike most film studios, which hire talent movie by movie, Pixar hires employees who stay and work on movie after movie. But Pixar certainly doesn't employ the only talented people in the world. Any organization that wants to innovate again and again must do more than hire a few "creative individuals" because, even with the right people, there's still the huge problem of getting them to work together productively.

That is the job of leaders who seek innovation. In the way they behave and structure an organization where talented people work, leaders create the environment that somehow draws out the *slice of genius* in each individual and then leverages and melds those many slices into a single work of innovation—a new product, a new process, a new strategy, a new film—that represents *collective genius*. This is what happens when organizations innovate.

Leading Innovation

Though each of our leaders and their firms differed in key ways, all leaders paid particular attention to making sure their organizations were able to:

- Collaborate
- Engage in discovery-driven learning
- Make integrative decisions

Our leaders' uniform emphasis on fostering these three capabilities will not surprise anyone familiar with existing research on innovative problem solving. Much evidence exists for the importance of each. However, they have been most often studied separately. Because our focus was on leadership in action, we were able to observe how these three interrelated organizational skills work in concert as leaders and their groups undertake to create something novel and useful. Based on those observations, we have developed an integrated framework for understanding, describing, and prescribing how leaders build organizations capable of consistent innovation by focusing on these essential abilities.

Leaders create collaborative organizations

Lore perpetuates the myth of innovation as a solitary act, a flash of creative insight, an Aha! moment in the mind of a genius. People apparently

prefer to believe in the rugged individualism of discovery, perhaps because they rarely get to see the sausage-making process behind every breakthrough innovation.

Three decades of research has clearly revealed that innovation is most often a group effort.[4] Thomas Edison, for example, is remembered as probably the greatest American inventor of the early twentieth century. From his fertile mind came the light bulb and the phonograph, along with more than a thousand other patented inventions over a sixty-year career. But he hardly worked alone. As many have observed, perhaps Edison's greatest contribution was his artisan-oriented shops—a new way of organizing for innovation he created that has evolved into today's R&D laboratory with its team-based approach.[5]

The process of innovation needs to be collaborative because innovations most often arise from the interplay of ideas that occur during the interactions of people with diverse expertise, experience, or points of view. Flashes of insight may play a role, but most often they simply build on and contribute to the collaborative work of others. Edison may get the credit for his inventions—it was his laboratory, of course—but each one typically arose from years of effort that included many others. Certainly he contributed many ideas himself, but he was equally an inventor and a leader of invention.

Collaboration was obviously a hallmark of Pixar's approach. Without the interplay and collaborative contributions of large numbers of people, it could not make a CG movie. One of Pixar's unusual features as a studio was that all three functions of the organization—art, technology, and business—were considered equal partners in the process of making great films. No one voice dominated, as often happened at other studios.

Another major shortcoming of the diagram in figure 1-1 is that it fails to convey how collaborative the process of making a CG film at Pixar actually was. Pixar instituted a number of practices that fostered collaboration among all the groups and individuals involved. Key among them was the "dailies"—gatherings of Pixar staff to watch and discuss presentations of work in progress. Such meetings occurred at other studios too, but at Pixar a wide array of those working on the production, not just a select few, attended and contributed ideas and comments regardless of their role or level. Thus, not only did individuals receive feedback and guidance on their own work,

but they were also able to see the work of others and understand how that work related to their own.

The collaborative nature of innovation is what leads us to talk of slices of genius that come together to create collective genius. No individual contribution will suffice to create a final solution, especially for large, complex problems. But each contribution—through collaboration—plays its part in creating collective genius. In the right organizational context, with the right leadership, a group can amplify the diverse talents and ideas of its individual members.

Leaders foster discovery-driven learning

Innovation usually arises from an often lengthy period of conscious experimentation and repeated trial and error.[6] As intuitive as it sounds, this characteristic also contradicts yet another myth of innovation, that great new ideas spring in full and final form from the mind of the inventor, ready to be applied. Innovation rarely works that way, and that's why the innovation process is usually so messy, which is what we tried to convey in figure 1-2 of the real CG movie-making process.

Since innovation is a problem-solving process, it's really about searching for a solution by creating and testing a portfolio of ideas. It often takes time even to frame a problem in the right way, especially if it's complex. Consequently, innovation is a process of trial and error, often to embarrassing degrees, even for the most skilled innovators. Thomas Edison used a cut-and-try method—test out an idea to see if it works, reject or refine it, and try again. Hence, Edison's famous definition of genius: "1 percent inspiration; 99 percent perspiration." Missteps, dead ends, and rework are inevitable and must be accepted, even encouraged. Innovation requires a mind-set of try, learn, adjust, try again. In a conversation we had with Catmull about Pixar's enviable track record, he reminded us that "our appetite always exceeded our ability" and that they are in the "business of hitting home runs." He went on to add, however, that if Pixar had "no failures," which he defined as a "less than spectacular outcome," then that would suggest it had lost its passion for doing cutting-edge work. This is why at Pixar, no one got beat up for making a mistake or for trying something that didn't work.

Some who study innovation make much of the difference between idea generation and idea implementation. That's understandable, because ideas must be created before they can be tested or implemented. However, once experimentation begins the distinction quickly makes less sense. Ideas beget experiments and experiments beget more ideas, and any difference between ideation and implementation quickly fades. We know that none of the many innovative companies we studied made much of the difference between the two.

Pixar certainly followed the discovery-driven approach. Yes, it prepared scripts and storyboards in advance of production, but even that process was iterative. People acted out scenes and drew characters again and again, until the characters and story seemed exactly right. But after that, during production, every story element continued to be tested and to evolve based on frequent reviews of work in progress.

Leaders support and encourage integrative decision making

Leaders and their groups can resolve problems, disagreements, and conflicting solutions in one of three ways. The leader or some dominant faction can impose a solution. Or the group can find a compromise, some way of splitting the difference between opposing options and viewpoints. Unfortunately, domination or compromise often leads to less than satisfying solutions.

The third way, integrating ideas—combining option A and option B to create something new, option C, that's better than A or B—tends to produce the most innovative solutions. Making integrative choices, which often combine ideas that once seemed in opposition, is what allows difference, conflict, and learning to be embraced in the final solution.[7]

Albert Einstein hinted at the integrative nature of the process when he said, "To raise new questions, new possibilities, to regard old problems from a new angle, requires creative imagination and marks real advance in science."[8] For him, innovation was about "'combinational chemistry' ... about taking ideas, half-baked notions, competencies, concepts, and assets that already sit out there and recombining them ... What's new in many instances is the new mix."

So important is integrative decision making that innovative organizations and their leaders don't just allow it, they actively encourage it. They

keep opposing options on the table as long as possible because they know fruitful integration can occur only after people have devoted sufficient time to debating options or testing them through trial and error. They also refuse to make trade-offs or accept compromises that merely produce a least-bad solution or allow people to feel good.

The CG process at Pixar was based on the use and value of integration because that process followed a simple principle: *no part of a movie is finally done until the entire movie is all done*. Anything and everything remained open to revision until the very end. People at Pixar knew that integrative decision making often involved more than simply and mechanically combining ideas.

For example, at a point midway through making a Pixar movie, an animator gave a character a sideward glance and a slightly arched eyebrow. Only a split-second long, it nonetheless hinted at some slyness or irony in the character; maybe he didn't mean exactly what he just said. It was an aspect of the character's personality that hadn't been seen before that scene. The director saw this moment in the daily review of work in progress and said, "No, no. That's out of character. This is the most innocent, straightforward guy you'd ever meet. What you see and hear is what you get. Nicely done, but it doesn't fit here. Lose it, please."

Then, two weeks later, the director came back with a different reaction. "I've been thinking about that moment, that little revelation, where we see a side of this guy we've never seen before. It makes his character richer and more interesting. In fact, it will help set up and explain some events that happen later. Let's keep it. Tone it down a notch. But put it back."

Though it was a small thing, adding that touch of irony improved the character and the story. It happened because an animator almost inadvertently added his understanding of the character, his slice of genius, in the process of animation, and that led the director to reconceive the character in a subtle but important way.

The problem, as it emerged in subsequent discussions, was that this new character twist couldn't just appear suddenly halfway through the story. The viewer would react the way the director reacted initially. So earlier scenes had to be adapted to hint at this aspect of the character so that the viewer's reaction would be, "Oh, yeah, I saw that coming," rather than,

"What!? I'm confused!" Also, of course, later scenes, which were already in various stages of production, had to be revised to take advantage of this new character element. If the story had been fixed and immutable, if the director hadn't been able to hold opposing views of the character in his mind until they could merge, none of that could have happened and the story would have been worse for it.

At Pixar, people knew the heart of a good movie was a good story, and they knew stories would get better throughout the process of making them. The stories got better through constant iteration; through trying different approaches, including approaches that at first seemed inconsistent; through the involvement of lots of talented people, like that animator; and through a willingness to wait and see what worked and what needed tightening or expanding.

When Pixar finished *Toy Story 2*, which took an incredible toll on all involved, it assembled a cross section of people to explore ways of avoiding so much pressure in making future films. One of the key suggestions was to lock the story—not allow any further changes after some point early in the process. Constant story iterations and changes are the source of much stress because they almost always have implications that ripple throughout the film and force multiple changes, as we just saw.

In that postmortem, one employee recalled that John Lasseter, director of the film and a cofounder of Pixar, responded to the idea by saying, "We need to focus on quality and that only happens by iterating. If we lock in the story, we will be disappointed. I can't do it. I know it would save us pain, but Hollywood is littered with films that refused to change." By refusing to lock a story, Pixar was able to put a variety of ideas on the table and keep them there until they began to gel, often in ways that no one could ever have anticipated.

The three characteristics reinforce our earlier point that innovation requires more than talented people. History, and not just Hollywood, is littered with star-studded teams that failed. So it's not just about talent, but it *is* about talent *in the right context*. We all know, perhaps from firsthand experience, that it's not easy to get people to collaborate on a straightforward

task, let alone to create something new and useful. Almost all cultures have some version of the saying, "Too many cooks in the kitchen."[9] We know how hard it is to keep testing possibilities before choosing one. It's often easier to make an initial choice and move on. And we know how hard it is to do what that Pixar director did—keep a wrong idea in mind until it's no longer wrong. The job of the person leading innovation is to create the conditions that allow and encourage all these things to happen again and again.

Catmull and other leaders at Pixar were able to create an organization superbly able to collaborate, learn through testing and iteration, and find integrative solutions. By focusing on those aspects of the innovation process, they made Pixar a place that could take the "tens of thousands of ideas" Catmull mentioned and make of them the seamless work of art you see in a theater.

That's why, in recognition of all the individual contributions, the credits for each of Pixar's first dozen or so movies named *everyone* in the organization who played a role, including the cooks in the company cafeteria and babies born to employees during production.[10] This was no trivial matter. In the film business, credits are serious stuff, not given lightly. As Ed Martin, Pixar vice president of human resources at the time, told us:

> *Pixar has always erred on the side of having people feel like they're a part of the process. I know of very few employees who don't immediately go to the theater just to see how many people are lined up when a film first comes out. You'd be hard pressed to find that at any other business, and I would say any other studio. Imagine the receptionist going to do that. People are so engaged.*

We asked Jim Morris, then a relatively new senior executive at the studio, what he thought made it tick. Morris had joined Pixar from Lucas Digital, where as president he oversaw Industrial Light and Magic, the company that produced special effects for the *Star Wars* and *Harry Potter* films, among others. Without hesitating, he said, "Ed and John." In the remainder of *Collective Genius*, we will explore exactly what Ed Catmull, John Lasseter,

and other leaders of highly innovative groups actually did, as well as the thinking behind their actions that enabled their organizations to innovate over and over. In particular, we will look at how they fostered the willingness and ability of their organizations to collaborate, learn through discovery, and make integrative decisions—the three skills that all innovative organizations possess.

Managing tensions in the organization is an ongoing issue ... you don't want an organization that just salutes and does what you say. You want an organization that argues with you. And so you want to nurture the bottoms up, but you've got to be careful you don't just degenerate into chaos.

—**Bill Coughran**, then senior vice president, engineering, infrastructure group, Google

WHY COLLECTIVE GENIUS NEEDS LEADERSHIP: THE PARADOXES OF INNOVATION

We've described how innovative organizations need more than talented people. They also need leaders who can create and sustain a place—a context or environment—that unlocks the slice of genius in each of their people and then combines them into collective genius. And we described how leaders create that place by making sure their organizations are capable, in particular, of collaboration, discovery-driven learning, and integrative decision making.

This brings us back to the question raised at the beginning. Why aren't more organizations able to innovate again and again, like Pixar? One piece of the answer is the persistent myth that innovation requires a solo genius having an Aha! moment, and another is the misguided mind-set that leadership is primarily about vision. But even when leaders understand how innovation really happens, they will still find the challenge difficult.

Each element of leading innovation—fostering collaboration, discovery, and integration—asks organizations and leaders to act in unaccustomed or uncomfortable ways. Because each places enormous intellectual and emotional burdens on everyone involved, all three require uncommon courage and persistence.

By the end of this chapter, you'll understand why innovative problem solving is often discomforting hard work, what it requires of leaders, and why, as a consequence, it's so rare in most organizations.

Unleash *and* Harness—the Fundamental Paradox

The heart of the difficulty is a fundamental tension, a paradox, inherent in what is required for innovation to occur. A paradox is a truth that contains contradictory elements but is true nonetheless. For example, "To succeed, you must be reflective *and* action oriented" seems, on the face of it, impossible. But anyone with work and life experience knows its fundamental truth. To succeed requires the ability to manage the tension between those disparate approaches either by learning when each is appropriate or by combining them in a never-ending process of rapid doing and reviewing.[1]

The unavoidable paradox at the heart of innovation is the need to *unleash* the talents of individuals *and*, in the end, to *harness* those talents in the form of a collective innovation that is useful to the organization. Both elements are essential. *Unleash* is how ideas and options get identified or created. *Harness* is how those ideas and options are shaped into a final solution. Our definition of innovation—something new *and* useful—reflects this paradox. It's easy to think of many new ideas, but it's much more difficult to convert those ideas into something new that actually solves a problem.

Perhaps the best way to understand this central paradox and its implications for leading innovation is to break it down. Look at each of the three characteristics of the innovation process using the unleash-harness paradox and you'll find that it appears in each characteristic in slightly different but obviously related ways. In our research, we identified six paradoxes related to the core unleash-harness paradox.

The Paradoxes of Collaboration

Innovation emerges most often from the collaboration of diverse people as they generate a wide-ranging portfolio of ideas, which they then refine, improve, and even evolve into new ideas through discussion, give and take, and often-heated contention.

Obviously, then, collaboration means far more than a simple willingness to work together. Innovation requires not "get along" or "go along" cooperation but creative collaboration, which typically involves—*should* involve—passionate discussion and disagreement.

Nor is creative collaboration, this give-and-take, something an innovative organization simply accepts or allows. On the contrary, it *encourages* the heartfelt clash of ideas and alternatives by creating routines and forums where it's expected and can occur naturally. At Pixar, for example, those involved in producing a film gathered every day to present their latest work for review by colleagues and the film's director and producer.

We saw something similar in all the innovative organizations we studied. Whether it was a no-holds-barred review of work to date, a star designer who deliberately placed himself in a setting where he'd stew in the creative ideas of others, or an idea-sparring session among marketing, sales, and manufacturing in an auto company, collaboration meant embracing diverse points of view and even conflict.

Yet the friction of clashing ideas can be hard to bear. The sparks that fly in heartfelt discussions can sting. At a minimum, they can create tension and stress. Many organizations consequently dislike conflict in any form and try to discourage it.

But blanket condemnation of all strife and conflict will only stifle the free flow of ideas and rich discussions that creative collaboration needs. What's required is that the leader manage the tension in the relationship between the individual and the group as a whole, the collective. That tension appears primarily in the form of the first two paradoxes. Getting these paradoxes right is what enables an organization to generate a rich portfolio of ideas through creative collaboration.

Affirm the individual* and *the group

A rich, diverse supply of ideas will only emerge if group members are willing and eager to contribute their thoughts. The more diverse their ideas, the better. Indeed, a leader needs to *amplify* people's differences because they are what produce a richer and more robust marketplace of ideas. Thus, leaders encourage and support the individuals in their groups because they are the source of ideas that constitute the raw material of innovation.

Yet the ultimate innovation will almost always be a *collective* outcome, something devised through group interaction. Rarely will it be the result of one person's flash of insight, though several such flashes may occur along the way. Most people's ideas will be considered and discarded by the group, adopted only in part, or combined with other ideas to make something different.

Moviemaking at Pixar worked because its leaders built an organization able to focus on the whole—the film in production—while recognizing the critical contribution of the hundreds of individuals involved. People were able to feel a part of the whole without giving up their individuality. This was evident in a number of Pixar's practices:

- In the steps built into its moviemaking process like the daily review of work in progress where individual ideas and contributions were encouraged and where the contributors were clearly valued even when their contributions were rejected.
- In the company's norms about open communication—anyone could talk to anyone else about a problem without having to go through official channels; everyone at all levels and in any role could give comments to the director of a movie in production.
- In the way the studio designed and used office space to foster spontaneous interaction of people from all parts of the organization.
- In the generous bestowal of credits at the end of every film where people could be recognized both as individuals and as part of something not one of them could possibly have done alone; the films were literally both "mine" and "ours."

In addition to the extensive credits that ended each film, Pixar's ability to balance "me" and "us" was perhaps most clear in the obvious respect that existed between the artistic and systems groups. Unlike what usually happened at other studios, neither dominated, nor was either considered better or more important. Everyone was encouraged to see his or her fingerprints on each movie. "I'm not a creative person sketching storyboards or animating a character," someone in systems told us, "but it's my support and service to the artists that allows Pixar to make a film. No one can make a movie alone." As the leaders at Pixar said—words we heard quoted throughout the organization—"The art challenges the technology, and the technology inspires the art."

In every organization we studied, we saw how leaders dealt with this ongoing source of tension. They made sure the disapproval of more experienced expert members didn't smother dissension, minority viewpoints, or the fresh perspectives of the inexperienced or the newcomer. They encouraged constructive disagreement. They gave people discretionary time to pursue their particular passions. They recognized that individuals need engagement and connection, as well as intellectual and emotional space, to do their best work. In short, leaders created places where individuals were willing to contribute their best efforts because they felt not only part of the group but also valued by and valuable to the group.

Of course, this is not what happens in many organizations where differences and disagreement are discouraged; where people are told to "go along and keep the peace"; where contrarians and disrupters are ignored or driven out; where people's ideas and passions are discouraged, especially if they lead to conflict; and where ideas, when offered, are rejected in personal ways that make further contribution feel dangerous.

Support and *confrontation*

The leaders we observed allowed and encouraged confrontation as a way of fostering innovation. They knew that discouraging disagreement was unlikely to produce anything new and useful.

Yet here the job of leading can seem almost impossible. How can a leader support people in the free and full expression of their ideas while encouraging group members to challenge all ideas? Why would someone contribute an idea if the likely response is a storm of hard questions and criticism? Why would anyone expose herself in this way to the negative reaction and even implied scorn of people who disagree?

The "dailies"—the daily reviews of work in progress at Pixar that we've already mentioned—are a good example of one way the studio serves and balances both sides of the support-and-confront paradox. In one dailies session we observed, an animator jumped to his feet and acted out a moment in a scene as he thought it should go. Like many other Pixar animators, he was an actor, and his passion was obvious as he literally pranced around the room and his colleagues laughed at his antics—the exact reaction he wanted. Some suggested slight changes, and so he altered his performance—a little more head scratching, a little less prancing. But, in the end, the others—including, critically, the director—rejected his approach, and he sat down with a smile and a shrug as the group gave him an encouraging round of applause.

What happened next was illuminating. Though the group had refused his ideas, he remained engaged in the session, laughing and clapping as two others acted out their approaches, one of which was, more or less, accepted. Afterward, when asked about the group's response to his ideas, he said, "Oh, that's par for the course. Most ideas don't get adopted, but sometimes they do." He did admit it wasn't always easy to weather the countless critiques at the heart of Pixar's moviemaking process, particularly when he felt strongly about a character and a scene. But he distinguished between rejection of his idea and rejection of him as a person—a common distinction at Pixar. He had felt free and safe to make his animated suggestions, to put himself literally "out there," because he and everyone else in the room shared the same goal—to produce the best film possible—and they all knew it took a hundred ideas to find the right one.

As leaders of innovation deal with this paradox of support and confrontation, they face danger at both extremes. Confrontation can stifle the willingness of people to offer ideas. But group members can become *too*

supportive as well and stop challenging each other at all. In highly cohesive groups, strong norms to preserve harmonious and friendly relationships can discourage candor. People may disagree but not speak out. They may even suppress their own thoughts and feelings, sometimes at great personal cost, for fear of violating unspoken group rules for how they should behave. Here the leader's role is to create dissonance by injecting different points of view and forcing the group to deal with them, by encouraging dissenting voices, and by bringing in new members who think differently and letting their voices be heard.[2]

Because innovation depends on the generation of many diverse ideas, the ability to innovate depends on getting these first two paradoxes right. Collaboration means group members embrace the friction, make themselves vulnerable, and allow others to ask hard questions. Still, even in the best circumstances, these debates, no matter how well intentioned and constructive, can be emotionally draining.

The Paradoxes of Discovery-Driven Learning

Leaders and organizations require performance, and results are always the ultimate test of success. Consequently, most leaders prefer to march systematically toward the outcome they want. Set a goal, they say, make a plan, work the plan, and track progress until the goal is achieved. This approach works well in many situations. So, naturally, they apply it to creating something new and useful. They set targets, make detailed plans, and assign responsibilities.

Unfortunately, this approach rarely produces anything truly innovative because, by definition, no one can define the solution in advance and even the path to an answer often won't be clear. That's why innovation so often requires a recursive process of trial and error with false starts, mistakes, and missteps along the way. Through a series of experiments, innovative groups act rather than plan their way forward, and solutions emerge that are usually different from anything anyone anticipated.

Consequently, innovation requires a large investment of time, energy, and other resources, and leaders need patience and the willingness to learn and change course along the way. Rather than following some

linear planning process, the real path to innovation is far messier and more unpredictable. Some leaders we studied called it "a numbers game" in which the challenge was to produce multiple ideas and avenues of inquiry and then test those options as quickly as possible.

Still, even though innovation may require time and follow an unpredictable path, organizations require performance. The goal is always a solution, and no leader or group gets credit for effort alone. From the tension between the learning by doing that innovation requires and the results that organizations rightly demand springs the next two paradoxes. The leader's ability to navigate these paradoxes will determine her organization's ability to experiment, collect feedback, and modify.

Foster experimentation, learning,* and *performance

Without losing sight of the necessary outcomes, the leaders we studied were willing to let their organizations experiment, iterate, debrief, learn, and then start the process over again if necessary. At Pixar, people who worked on a film were encouraged constantly to try new approaches, but behind all those efforts stood one huge constant: the film's release date that had to be met. The director carried overall responsibility for the movie and its timely delivery and success, but at his or her side throughout the process was the film producer whose main job was to make sure the film was done on time and on budget.

The tale of *Toy Story 2* is a good example of balancing a willingness to try new approaches with the need for performance. After the great success of the original *Toy Story*, Pixar focused throughout 1997 and 1998 on the next feature film, *A Bug's Life*. At the same time, it put together a small group to work on a *Toy Story* sequel. This sequel, however, would be something different, an experiment. Instead of a feature film shown in movie theaters, it would be released direct to DVD for playing at home. Consequently, it was expected to cost less and require less time, and those assumptions drove the decision to assemble only a small team, which was housed in a separate building away from the main Pixar studio.

For some time, as the studio focused on the current feature film in production, *A Bug's Life*, the *Toy Story* sequel remained almost an afterthought.

But at a certain point, key people took a good look at *Toy Story 2* and decided it was an experiment that wasn't working. First, the story was good but not great because it was too predictable. Second, as Catmull said afterward, it was "bad for our souls" to make, on purpose, a cheap, second-rate movie. In its current form, this was not a film Pixar wanted to put its name on.

The studio quickly decided to take a drastically different course: *Toy Story 2* would be a full-fledged feature film released to theaters. Production on the first version halted, and the story was reworked to make it into a movie that would meet the studio's highest creative and technical standards.

The problem was the original release date, which couldn't be moved because too much had already been planned around it. So Pixar sent its people home for the holidays at the end of 1998 with one piece of advice: rest up because we're about to make a Pixar-quality movie in nine months.

The studio met that goal, and *Toy Story 2* was a great success. But it was a success that came at great cost to everyone involved. The stress and pain, physical and emotional, were enormous. Many suffered repetitive stress injuries from working hundred-hour weeks. Many burned out. All said they never wanted to do that again.

When the movie was done, the studio went to great lengths to articulate and digest the lessons that would help it avoid such pain and suffering in the future. The combination of experiential learning constrained by the need for performance made these lessons painfully clear and helped the studio improve the way it made great movies.

The difficulty of the learning-versus-performance paradox is only heightened by the unavoidable fact that most ideas, options, and experiments fail—like the effort to produce a cut-rate Pixar movie—and it's not possible to foresee which will succeed. Time will appear to be wasted on pursuits that after the fact may seem to have been misguided. Economies of scale and efficiency are likely to suffer in the short or even medium run. All involved must be comfortable with the reality that missteps, mistakes, and failures will happen. The leaders we studied always treated them as sources of learning and not occasions for censure and punishment. They did insist that people work quickly and nimbly. Speed based on a real sense of urgency was a key way they matched the need for experimentation with the need for

performance. Like Pixar with *Toy Story 2*, they learned from experience and experiments, while still meeting the demands for performance.

Accepting the need for experimentation and learning, with inevitable missteps along the way, doesn't mean leaders should throw up their hands and accept complete chaos.[3] Experiments must be relevant, designed properly, and run rigorously so that they produce real learning. There need to be boundary conditions—guardrails—so that failure isn't catastrophic. And trial efforts need to generate good data that can be analyzed objectively to make reality-based decisions. Pixar, for example, recorded and tracked far more hard data throughout the process of making a film than an outsider might imagine, including shots per week for every department, hours per frame, and run time of the film. And frequent review meetings, like the dailies at Pixar, kept people connected to what others were doing and such ultimate realities as deadlines and budgets.

Promote improvisation and structure

That innovation tends to emerge from trial and error makes it highly improvisational. A group or organization trying to innovate will improve its chances of success if it acts more like a jazz ensemble than a marching band. Yet the highly structured marching band is the approach many organizations prefer—a preplanned set of notes to play, rather than a theme to explore; clear, rigid, predetermined roles for each player; and everyone marching in tight formation to some preestablished destination.

In contrast, the leaders we studied created settings where people had great latitude and autonomy, though no leaders granted complete, unlimited freedom. There were always limits and conditions. Even a jazz band doesn't improvise from nothing. Nor do improv actors simply say whatever they want; they're bound by an initial idea of a situation or setting and the expansions of that idea already expressed by fellow actors. There will always be limits of some kind, and they're not necessarily bad.

People at Pixar believed that a firm release date and a budget play key roles in pushing people to greater creativity. In chapter 1, we showed a diagram of the messy, complex process for making a CG movie, with its seemingly endless iterations, feedback loops, and improvisations (figure 1-2). That apparent chaos was reality, but we also showed, before that, the process in

its neater, more conceptual form (figure 1-1). The point of the two diagrams was not to say that the second was real and the first merely wishful thinking. Both were real. The second, messy diagram showed what the process *looked* and *felt* like, while the first showed the core structure that kept it from being complete chaos. The second, messy diagram showed what the work of making an animated film actually *looked* and *felt* like; the first provided only a simplification of the core activities associated with the process. Everyone understood the underlying structure in filmmaking, so as they worked together they were not overwhelmed. Similarly, Pixar's open communication practices, in which anyone could offer a comment about a movie in production, did not create a sense of ambiguity or confusion because decision-making rights were clear and understood by everyone.

Postmortems following every major project were another form of structure used by most companies we studied. Pixar was no exception. Almost from its beginning, the studio had conducted reviews after every film wrapped. Over the years, the way it did them had evolved, but the purpose was always to learn how the process might work better next time. After experimenting with various approaches, Pixar adopted the tactic of asking the people involved to identify five ways the process of making the just completed film had worked well and five ways it hadn't (and how to change them).[4]

However necessary and beneficial they can be, constraints, goals, boundaries, and conditions—all forms of structure—will always live in tension with the desire to explore as many ideas and variations as possible, for as long as possible. Not every possibility can be pursued. Nor are all possibilities equally worthwhile.

Constraints can take several forms. Detailed plans, tangible goals, even a broad overall purpose are certainly necessary as targets and boundaries, but at some point they can go beyond useful guidance and stifle the freedom to learn and innovate. People obviously need to know what they're responsible for, but task assignments and role descriptions can be so specific that they put boxes around people that constrain imagination and thinking. Preconceived models and expectations about the right outcome can be helpful, but they can also limit unnecessarily the search for a solution. And rigid processes, rules, and ways of working may make a group more efficient and rapid, but can also limit or predetermine the outcomes if taken too far.

Of course, hierarchy can also impede the free flow of information and generation of diverse ideas. We've already seen how Pixar was careful to distinguish its hierarchy for decision making from people's freedom to communicate. Structure is meant to simplify and focus effort, but it's always a means to an end. Too often we've seen it assume a life and rationale of its own, in the same way that plans and rules often persist even after the conditions that spawned them have disappeared.

Finally, expertise or experience itself can become a limiting structure. Most of us have seen someone join a group and suggest a better way of doing something, only to be told, "Oh, we already tried that, and it didn't work," whereupon the newcomer drops the idea. But a little digging might have uncovered the fact that what they had tried wasn't really what the person was currently suggesting. Or it was, but the world had changed and the idea may now be more likely to succeed.

Many leaders, of course, like structure because it provides the comfort of control. Left to their natural tendencies, organizations, even successful ones, ironically, will proliferate the number of control structures they use—specific goals, detailed plans, progress reports, hierarchy, processes, policies, and the like—even in the search for innovation. They neither understand nor feel comfortable with the improvisation and autonomy that innovation requires.

The effective leaders of innovation we studied understood all these dangers. They recognized they could not plan for innovation, but they could organize in ways that encouraged it. They limited team and group sizes to foster connection and mutual impact among members. They created forums where diverse groups could interact in both formal and spontaneous ways. They consciously created space for experimentation. They required just enough goal setting, planning, and performance metrics that the group could tell if it was making progress, but no more. They defined people's work broadly, often assigning roles that overlapped, but were specific enough to provide clarity about what people could expect from each other. Effective leaders involved people in each other's work, encouraged cross-specialty collaboration, and even gave people at-work time to pursue their particular passions and ideas. They constantly wove together reviewing, planning, and doing, with a heavy emphasis on learning from doing. They knew they could not eliminate

hierarchy, but they worked hard to overcome the limits that hierarchy and expertise or experience could impose on open communication. They encouraged peer feedback. And they resisted unnecessary structures and systems.[5]

In short, innovation leaders viewed structure in all its forms as a tool for facilitating the process of collaboration and discovery-driven learning. They used it sparingly. How much did they use? Just enough.

The Paradoxes of Integrative Decision Making

Much of creating something novel and useful arises from combining existing ideas, including ideas that once seemed mutually exclusive. To do this requires moving from either-or thinking to both-and thinking. Finding solutions that exploit the diverse ideas of a community in this way calls for an integrative decision-making process.

As straightforward as it sounds, integrating diverse ideas requires the leader to grapple with two paradoxes.

Show patience and *urgency*

The leaders of innovation we studied understood that creativity followed its own schedule. It could not be rushed or commanded. To combine existing ideas in new ways, they and their people needed time to absorb and digest the ideas. Integration rarely happened overnight.

Integrative decision making needs patience. But in a competitive world, there's urgency, too. At Pixar, there was that unyielding film release date with hundreds of millions of dollars riding on it, and a budget that, though generous, was finite. The tension and pressure were enormous.

We can see the need to balance urgency and patience in the way systems people at Pixar solved the problem of fur in the feature *Monsters, Inc.*, where one of whose characters, Sully, was a furry beast. That was a problem because of the difficulty of portraying fur realistically in a CG film. In a way, fur was the holy grail of the CG industry. It had been done before but not on the scale of *Monsters, Inc.* It presented multiple challenges, from how to make the shadows on hair look right, to keeping strands of hair from seeming to move through each other, to designing software that freed animators from animating each hair (impossible, given the more than 2 million hairs in Sully's coat).

Many people—at one point, up to twenty from different parts of the studio—spent months of trial and error trying to figure out how to animate fur and hair realistically. The movie depended on it, and they, artists and systems people who were determined to find the ultimate solution, grew more and more desperate as time ran out. Finally, said one of the group's leaders, "We stopped looking for the perfect solution that would work in all cases and converged on a solution that worked in the specific instances we needed." It was a jerry-rigged simulation program that made the fur move and shade more or less realistically by, in effect, adding springs to individual strands randomly. It was improvised, makeshift, and even crude. It wouldn't work for long hair, but it worked for Sully in this movie.

Tight budgets and drop-dead release dates are hard enough, but other forces also take their toll. What integration requires is inherently discomforting, both emotionally and intellectually. Leaders often don't know what to do with opposing and seemingly incompatible possibilities. Only human, they crave the certainty of simplifying and choosing quickly, especially when the situation feels urgent. Suppose options A, B, and C appear mutually exclusive. Most leaders will make an early choice of one and eliminate the others. At the least, they will identify and eliminate the most unlikely options, just to simplify things. In some organizations, such rapid and decisive decision making is considered a hallmark of leadership.

The pressure on leaders for quick resolution can be acute. The longer opposing ideas remain in play, the more frustrated and uncertain people are likely to become. They won't know where to focus or what to do. Hating uncertainty, they're likely to think, "We need some leadership around here! Someone who knows what they're doing and is willing to make decisions!" In the face of such reactions, leaders need courage to persist in looking for the best possible solution, especially when they desperately want to see themselves as decisive. This is another way that leading for innovation can go against the grain of conventional notions about leadership.

Finally, in addition to making arbitrary, premature choices, many leaders accept or pursue other methods of early closure, such as compromising

or taking a vote. Unfortunately, these methods rarely produce the best possible outcome and seldom please anyone. They're used when a group and its leader lack the patience and fortitude to press through to something better. In the end, they sacrifice all the value that might have been realized, with patience and deeper consideration, by finding clues to a superior model in the tension among ideas.

As we saw in a previous paradox, however, urgency is not necessarily a bad thing. Many of the leaders in our research considered necessity the mother of invention. They felt strongly that constraints could spur innovation. Part of the leader's job, they felt, was to confront the group with critical deadlines or budget realities, which could foster creative thinking by forcing the evaluation of key assumptions and the reframing of opportunities. As one leader said, "Our creative process will go on forever unless there's a hard stop. Constraints seem to sharpen thinking because they force the team to find ways to get around them."

To make integrative decisions possible, leaders must know when to allow debate and discovery and when to move on to decision making and execution. Leaders must provide the support and resources—time, in particular, as well as shelter from external pressure—to develop and integrate ideas. They know ideas need to marinate and simmer, but they also know when it's time to move forward.

Encourage bottom-up initiative and intervene top down

Most innovation is the result of grassroots efforts. Thus, the final paradox reflects the need for a delicate balance between bottom-up initiatives and top-down interventions. The leaders in our study understood that unless they encouraged ideas to bubble up from the bottom levels of the organization, there would be fewer ideas and less innovation.

These leaders encouraged peer-driven processes of self-organizing and self-governing. Much as we see in Web 2.0 practices, online multiplayer games, and social networking sites, innovative organizations are places where natural hierarchies often replace more formal ones as groups advance in the innovation process. Influence and status are determined more by contribution than by title.

Yet to create the conditions necessary for those efforts, selective and timely direction from the leader is often required. Even in most highly innovative organizations, hierarchy is alive and well. But it's used as needed and very selectively.

We've noted more than once how open the moviemaking process at Pixar was—how virtually everyone involved could contribute their ideas through the way they did their piece of the work, through comments at the dailies, or through notes they sent to the producer and director. Yet, in the end, making a movie wasn't a democratic process; no votes were taken and there was no effort to reach consensus. A film's director was the ultimate arbiter of what the audience would see and hear on the screen. The best directors, however, were those open to a wide diversity of ideas, willing to let people try different approaches, and able to keep possibilities open in their minds. Remember the story in chapter 1 about the animator who added an ironic twist to a character's personality. At first, the director rejected that subtle but significant shift, but he later came back and incorporated it. While a movie director at Pixar was ultimately responsible for the film and so had final say, there were limits on his or her authority. Studio leadership at times did replace directors midway in a production when they failed to move the film forward on schedule. On those occasions, the problem was often the director's inability or unwillingness to enlist people's help in solving a story problem.

Consider this important distinction about how anyone leading innovation uses authority. The leaders we studied created a place that fostered bottom-up innovation, but they knew that place needed constraints and boundaries as well. They did not hesitate to exert strong direction, however, they did it not to set direction or impose a vision but *in support of creating a place where innovation could occur*. For example, they reminded people of deadlines, budgets, and other overall constraints. They made sure people had the information and other resources they needed. They kept the group focused on its fundamental purpose and the organization's overall needs. They pointed out when someone was violating the rules of engagement—the way people were expected to treat each other—especially when conflict was becoming personal rather than focused on ideas.

They provided valuable new data or insights. They created bridges with outside sources of support or important information. They constantly asked leading, probing questions—What about ... ?, What if ... ?, When ... ?, Why ... ?—that encouraged the group to test its ideas, reflect on what it was learning, be more rigorous in its analysis, or collect more data. And they never hesitated to press for better solutions or to refuse compromises or trade-offs.

In figure 2-1, we summarize the six paradoxes we've just described as they relate to the fundamental paradox—unleash *and* harness—behind them all.

The leader's challenge is to help an organization move appropriately between "unleash" and "harness" on each of the six scales in a process of continuous recalibration. The right position at any moment will depend on specific current circumstances. But the goal will always be to take whatever positions enable the collaboration, experimentation, and integration necessary for innovation. Leaders who live on the harness side will never unleash the full slices of genius in their people. And those who always stay on the unleash side will have constant chaos and never solve any problems for the collective good.

The leaders we studied understood how to adapt their behaviors according to the situation at hand. Conventional notions of leadership, discomfort with conflict or loss of control, or personal preferences could limit

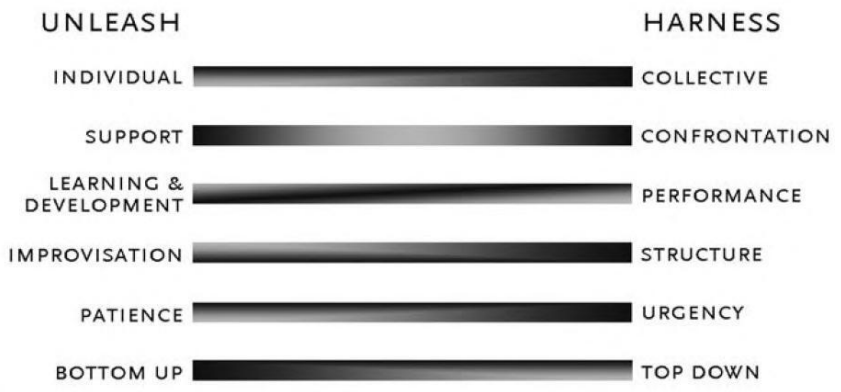


Figure 2-1 Six Paradoxes

a leader's willingness to shift strategically across the scales. Many found it hard not to favor one extreme of the scales over the other. The versatility required to continually recalibrate the needs of their organizations and modify their behavior accordingly required superb judgment, courage, and persistence.

The Implications of the Paradoxes

Think about what the paradoxes are telling us about leading innovation.

First, they help explain why innovation is so difficult. It's difficult, of course, because finding solutions that are truly new and useful is not easy. But it's also difficult because the process of innovation is so messy and full of the tensions embodied in each of the paradoxes. Everyone involved must wrestle constantly with those tensions and the stress they induce. And the tensions never go away because the paradoxes are always there, requiring constant attention. That's why innovation is *inherently* difficult, and the difficulties can only be managed, never resolved for good. Knowing about them and why they exist can help, but it doesn't make them easy to navigate.

Thus, the paradoxes explain why organizational innovation requires both organizational *willingness* and *ability*. Clearly, any group that wishes to innovate must be able to collaborate, experiment, and integrate possible solutions. That is, it must possess the skill to undertake those activities productively. But, given all the barriers to innovation revealed in the paradoxes, leaders and their people must also be *willing* to do the hard work of innovation and endure the tensions and stress that work entails. This important idea is a critical aspect of leading for innovation that we will explore in coming chapters: first, *willingness*, of course, because without desire or inclination nothing else will happen, and then *ability*.

Finally, the paradoxes help explain why leading for innovation requires not only leadership but also a different approach to leadership, a different way of thinking about the role of the leader. As Andrew Stanton, the Academy Award–winning director of *Finding Nemo*, learned from his mentor, John Lasseter:

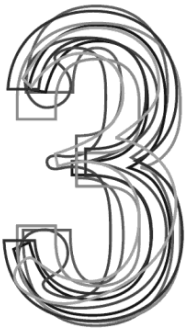
> *What I realized ... is, "Fine, I'm not an auteur. I need to write with other people, I need people to work against. It's not about self-exploration—it's not about me—it's about making the best movie possible." And as*

*soon as I admitted that, it was amazing how the crew morale pivoted and suddenly everyone had my back. If you own the fact that you don't know what you're doing, then you're still taking charge, you're still being a director ... I learned that from John [Lasseter] on "*Toy Story*"—every time he got confessional and said, "Guys, I think I'm just spinning my wheels," we'd rise up and solve the problem for him.*[6]

The paradoxes explain why many leaders may need to rethink what they must do if they want a more innovative organization. That is the subject we will explore in the next chapter.

I believe that if the CEO always thinks he is the owner and the doer, he will not accomplish things. It doesn't matter if the goal is flying a rocket to the moon, digging oil holes, or getting the British out of India. I go back to my three heroes [Mahatma Gandhi, Nelson Mandela, Martin Luther King]. I don't think they did anything. Instead, they enabled people to do what these people thought, in their hearts, was the right thing to do. That is the future of leadership.

—**Vineet Nayar**, then CEO, HCL Technologies



RECASTING THE ROLE OF THE LEADER

Leaders of innovation create organizations where people are willing and able to do the work of innovation, where everyone has the opportunity to contribute his or her slice of genius to the collective genius of the whole.

That may seem obvious, but most of those in positions of authority have been taught a concept of leadership that actually stifles innovation. They think their job is to come up with the big ideas and mobilize people to execute them. Somehow they see themselves as the ones who make innovation happen. But this approach makes no sense when the goal is the creation of something original. In that setting, no one can know in advance, by definition, what the outcome will be, not even the leader.[1]

Consequently, many leaders who truly seek to foster innovation must start by abandoning the "Follow me! I know the way!" approach that many consider the core role of leadership. They need to replace it with a different mindset about how leaders foster innovation from everyone in their organization.

In this chapter, we will look at Vineet Nayar. As president and then CEO of HCL Technologies (HCL)—with tens of thousands of employees, a much larger company than Pixar—he led the transformation of a faltering Indian computer company into a dynamic global provider of innovative IT services. In him we will see a leader who used his authority to take actions far different from those of a conventional CEO. He exemplified the kind of leadership needed to create an organization where people are willing and able to innovate.[2]

A New Leader for HCL

"We don't need a Band-Aid; what we need is a tourniquet!" Nayar was sitting at his desk in the Delhi headquarters of HCL. On a dusty street outside, hoards of cattle, motorbikes, chauffeured town cars, trucks, and pedestrians battled for right of way. The air was thick and wavy with heat and the nonstop honking and bleating of horns.

To Nayar, the bedlam outside mirrored the chaos inside his company. It was April 5, 2005, his first day as HCL's president. As far as first days go, this was a bad one. It was early afternoon when he learned that two customers wanted to cancel engagements. Unfortunately, this was not a surprise.

A pioneer of the Indian computer industry, HCL, part of the HCL Enterprise, had grown into a company with $764 million in revenues, a market cap of $2.3 billion, and twenty-four thousand employees. Once one of India's most innovative companies, it had slipped in recent years to number five in revenue among its Indian counterparts. Still growing at a cumulative rate of 35 percent, though more slowly than most competitors, it was living off its past reputation and customer base. More ominous, employee turnover was high, the company no longer attracted the best talent, and the market was growing even more competitive each year.

A classic start-up founded in 1976 in an Indian garage by Shiv Nadar, HCL Enterprise flourished in the 1980s—"a golden period" for the company, said an employee. But the seeds of change were also being planted in that decade. The personal computer appeared. Open source systems began to replace proprietary systems. Most important, focus in the industry was moving to software from hardware, which was increasingly a commodity.

This was the period when Indian software companies rose to prominence, including such firms as Wipro, Tata Consultancy Services (TCS), and Infosys.

In spite of these changes, HCL Enterprise entered the 1990s determined to retain its focus on hardware. But by the end of the century, founder Shiv Nadar realized the need to expand HCL Enterprise's strategic focus to include software. In 1998, he split HCL into two companies: HCL Infosystems, an Indian-facing firm focused on hardware and on software integration; and HCL Technologies, a global IT services company that provided software-led IT solutions, remote infrastructure management services, and business process outsourcing.

By 2004, the Indian IT industry had estimated annual revenues of $36 billion and was growing rapidly. HCL struggled to keep up. Services were "the new game," said an HCL employee, "and we entered late." Building a brand as a services company was not easy, given HCL Enterprise's legacy as the number-one producer of hardware in India. Customers wanted experienced outsourcers that could provide real business value, not just hardware and low-cost commodity work.

Nayar's upbringing helped prepare him for his demanding new role. Because his father died when he was young, "the traditional command-and-control structure did not exist in our household," he said. As a result, he grew up less imbued than most in his culture with a reverence for hierarchy and formal authority.

Nayar joined HCL Enterprise in 1985 as a twenty-three-year-old engineer with an MBA and soon established a strong reputation as a top talent. As he made his way up through various managerial positions, he clearly saw what was happening to the company, and his beliefs about leadership evolved. "I was often asked lots of questions by my employees," he said.

> *At first, I loved it. I enjoyed being looked up to. It made me feel important and successful. But very slowly, I began to see this style of management had its limitations. I could never know enough about everything happening in our company. Sometimes I gave answers that proved to be wrong and caused people trouble. Sometimes I gave answers and the people who had asked the questions ignored what I said ... I had a*

sense that there must be a better way to manage a company. I decided in order to find out what it was, that I would have to leave HCL and start my own enterprise and make it a very different kind of company. It would have little hierarchy, be highly creative, and fast moving.

When Shiv Nadar heard of Nayar's plans, he proposed an alternative: become an entrepreneur within HCL Enterprise. The Indian government at the time wanted to create a new stock exchange. Nayar realized that developing a more reliable and transparent electronic exchange using satellite-based technology was an attractive opportunity. He accepted the challenge, hired a few colleagues, and in 1993 founded Comnet, an IT infrastructure and networking business wholly owned by HCL Enterprise.

Nayar and his fellow Comnetians spent two years developing a proposal for using satellite technology to modernize the stock exchange, something never done before. "We were battling the best in the world," said an early Comnetian, "and the stakes were so high we had to be innovative." Comnet won the deal and navigated huge logistical challenges to open the National Stock Exchange in November 1994.

By the late 1990s, Nayar had earned a reputation as an exceptional leader who had made Comnet one of HCL Enterprise's most agile, innovative, and successful businesses. With close to a thousand employees, Comnet had won many high-profile deals. "At heart we were all entrepreneurs," said Anant Gupta, then Comnet's chief operating officer, "and we were constantly transforming our business to adapt to market dynamics."

Regular transformation was a core part of Comnet's culture. As Nayar said, "We believed that if we did not innovate every eighteen months or so, if we did not bring a new product or service to the market, we would not remain competitive and would lose our position as market leader." In 2002, the company successfully went global and opened offices in eleven countries.

Comnet's growth surged through the 1990s and early 2000s, while HCL continued to lose ground to competitors. Shiv Nadar began looking for new leadership for HCL and offered the presidency to the young leader of Comnet. Nayar hesitated. He knew the difference between building a successful start-up and turning around a large, declining firm. He finally accepted with one condition: "that I could do things my way. I wanted to

make drastic changes that had never been made before. It was risky but Shiv said okay."

Nayar spent the following weeks visiting dozens of customers and HCL offices in India, the United States, China, and Europe. Immersing himself in the company revealed the true gravity of its problems. Customers continued to be unhappy and threatened to cancel; new business was coming in at a trickle; attrition had risen to more than 20 percent. "I had been running my own little shop inside HCL," he said, "and didn't realize how much the company had slipped in the past few years. Within a few weeks, I stopped being polite."

Nayar Understood the Market Had Shifted

When he took over the leadership at HCL, Nayar knew that the role of IT in most major companies was changing. Not only was it central to their operational success, it had become transformational, capable of changing their businesses in strategic ways. However, he saw greater opportunity than merely joining the throng offering software and services in response to this shift. He wanted HCL to become a full partner with clients in harnessing the transformative potential of IT.

Nayar thought about this in terms of where value for the customer was created. In the old HCL—in fact, in all traditional companies that sold actual products—it resided mostly in those who created products. The "value zone," as he called the place where value was created for the customer, had essentially been *inside* the company and that had been where innovation was most needed.

Becoming a services company, especially one that aspired to transform clients with innovative IT solutions, shifted the value zone. In the new HCL, it would reside at the outer edge of the company where HCL people worked with the customer to solve the customer's problems and ultimately to transform its business. In short, the new value zone would be the *relationship* between HCL people and the customer. That was where the new HCL would most need innovation, not inside but on the edge, at the interface with customers.

Nayar saw the possibilities that this new way of thinking offered. He saw that HCL's competitors were far ahead in offering basic IT services

beyond hardware, but none was yet working with customers to apply the full potential of IT. He saw here an opportunity to leapfrog competitors by moving even further up the value chain and focusing on larger, more complex, and transformative engagements. That market space would still be uncontested, especially if HCL could combine its new approach with its traditional Indian focus on low cost and value.

The Real Problem

Seizing the opportunity would be difficult. To become a transformative partner for its customers, HCL would have to undergo its own transformation. Nayar needed an organization focused on this new value zone, and, he would have to create one not from scratch, as he had at Comnet, but from a traditional organization designed to support a traditional value zone inside the company. The new value zone would require creation of value in a long-term partnership with the customer. And that would require an organization in which innovation came not from management and a few product designers, but bottom up from people in the "zone," to use Nayar's term for it, who were willing and able to innovate continuously.

His challenge was that these employees and the organization supporting them had never been asked to do any of this before. During those intense early weeks when he traveled to company offices around the world, he discovered that too many employees were complacent and reactive. They didn't share their ideas, let alone debate them with one another, and they weren't taking responsibility for company performance. Above all, they weren't willing to innovate to meet customers' increasingly complex and strategic needs. They expected management to set direction and come up with new ideas.

However, Nayar knew he couldn't blame the employees for these attitudes and behaviors. At HCL, as in many companies, managers often focused on setting direction and making sure no one deviated from it, so traditionally people tended to look upward for instructions, which hampered self-driven innovative problem solving. The HCL organization, he realized, was "shackling people and keeping them from contributing all they could and in the ways they longed to."

The fundamental obstacle in the way of his hopes and plans for the new HCL was how people were being led. It was the employees themselves that HCL was offering to customers. "The value zone was between the employees and the customers, not me and the customers," said Nayar. "Without that employee value zone, and the value created there by innovative employees, HCL was nothing but a shell—layers and layers of management."

"It's laughable," he added. "Can you imagine a company with only senior managers? Management would not be able to deliver innovative solutions to customers. We had to find a way to put the value zone at the center of the company."

Early Steps

Nayar knew he had to act quickly, and so one of his first steps was to halt people's ability to keep doing things the old way. He realized that small engagements with limited scope and duration could not serve as vehicles for the kind of value he wanted HCL to create for customers. In early July, three months after joining HCL, he convened a three-day meeting—called the Blueprint meeting—of the company's top one hundred managers. There he announced a new operational strategy. HCL would stop going after the small, project-based work that constituted much of what it was currently doing, and, instead, it would pursue big deals. To do that, he told the group, they needed to differentiate HCL by offering "multiservice, unique propositions that transform customers' businesses." They were going to start competing against global majors like Accenture and IBM, "so it was critical that we get our house in order."

To make this new direction real, he set out a tangible challenge. By chance, a major European electronics retailer, DSGi, had just emerged as an opportunity. It was seeking a vendor to which it could outsource its internal IT support. Putting together a proposal would take months, Nayar said, but it, "could turn around everything for HCL. It could be a rallying point and I thought we should go after it."

To support this new direction, he took a number of other steps. He restructured the company around lines of business, rather than geographic areas. He pushed to automate consistent systems and processes across all lines of business and worldwide, so all employees would receive timely and consistent information. He fostered the development of an extensive talent

development program that linked business goals to the individual learning needs of each employee.

He paid particular attention to reviving the Sales and Delivery groups because, when he arrived, he'd inherited a demoralized sales team that was accustomed to losing. The new head of Sales, a transplant from Comnet, reorganized the group around vertical markets and installed new sales tools, incentives, and programs to encourage and support megadeal wins.

He created a Business Finance group that worked with Sales and Delivery to make sure every deal was a financial win for both HCL and the customer. To make sure HCL could start delivering right away on big deals, he created the Multi-Service Delivery Unit and staffed it with two hundred technical people, all selected through a rigorous process that considered not only technical but business and social skills as well. This elite group focused exclusively on winning and then helping deliver large, exclusive deals like the one HCL wanted with DSGi.

Nayar pushed through these and other changes. Operating with a real sense of urgency, he put in place the organizational structures and tools that would foster the innovation HCL needed to win and deliver on big deals.

Though important and necessary, however, such steps by themselves would not create the kind of organization Nayar wanted. He could not take it by fiat where it needed to go. He could use the power of the CEO's office to reorganize and mandate new systems and processes, but he could not direct employees to innovate. Nor could he tell HCL managers simply to change the way they managed. That would require a different approach.

As Nayar pondered this challenge, a radical idea occurred to him. "What if," he said, "we turned everything upside down? What if management were accountable to the value zone and the people in it? What if we could put employees first?" As he thought of it, HCL would have only three components: the value zone where HCL people interacted with customers, enabling functions that supported the zone and those in it, and, last, management.

Changing How People Think

In July 2005, three months after he became president, Nayar set up a team of about thirty young employees to work on this idea. He called them "Young Sparks" and installed them in offices on the same floor as the executive suite

at HCL headquarters in a Delhi suburb. He met with the group frequently as it planned the launch of an internal campaign aimed at fostering employee engagement around the value zone. "I wanted to change how employees experienced HCL," he said, "and I knew it needed a brand."

The Young Sparks' mandate was to develop a tagline and an intranet portal on the theme "Employees First." After much deliberation, and tests of various logos and phrases that tried to capture the spirit of the new HCL, "We came up with 'Employees First, Customers Second,'" said a member of the group, "because it had shock value and showed we were doing something radical."

The group also sought an icon that would symbolize the importance of the individual and the power of the collective. It settled on *Thambi*, which meant "brother" in Tamil, the major language in southern India. Symbolizing an extraordinary individual with pride, passion, and a focus on results, *Thambi* was meant to remind people that they were all members of the same community and that behind *Thambi* stood the entire organization, an idea captured in an HCL slogan: "The Force of One." Every employee could bring the full resources of the company to bear on a customer's problems.

Nayar loved what the Young Sparks had conceived. *Thambi* symbolized the HCL employee who could innovate in the value zone. By the end of July 2005, the group had launched a campaign that introduced "HCLites," as they decided to call HCL employees, to "Employees First, Customers Second" (EFCS).

Some Indian and non-Indian employees were skeptical at first. "Most of us took a wait-and-see approach," said one. Another noted, "At the Blueprint [meeting], it had been made clear to us how broken HCL was. Having something called 'Employees First, Customers Second' to fix us seemed inadequate."

Nayar kept stressing, though, that EFCS was in truth "hard not soft." Because the customer-employee interface was where value was created, he said, "I want value-focused employees who are willing and able to drive an innovative, sophisticated experience for our customers." EFCS was about "investing in employees' development, unleashing their potential to produce significant bottom-line results. The ultimate goal was to radically change the business model," said Nayar.

EFCS was how Nayar talked about making the organization serve those employees who, directly or indirectly, created value for customers through innovation in the value zone. Though it attracted much attention inside and outside the company, it was only one of several ways he sought to undertake what he called "inverting the organizational pyramid" (see figure 3-1).

Inverting the pyramid was about flipping the organization—customers at the top, management at the bottom—and putting in place structures for change so that the focus was clearly on serving the value zone and those in it.

For employees to take responsibility, Nayar believed, the company had to demonstrate its trust in them in a variety of ways. He called these efforts "Trust through transparency—creating the culture for change." He knew mutual trust was important because it would enable a level of candor and honest two-way dialogue that let people feel free to speak their minds without fear. Trust would enable people to accept his interventions without feeling unduly or unfairly controlled, while candor would let people push back if they felt the interventions were becoming intrusive.

One notable effort was something HCL called "trust pay," which applied to the 85 percent of employees, mostly junior engineers, who weren't senior managers or salespeople. "In the industry, it was typical for engineers to get 70 percent of their pay fixed, and then have 30 percent variable," said the head of HR. "But many companies set internal targets so high that only a small portion of that 30 percent was ever attained. So rather than telling

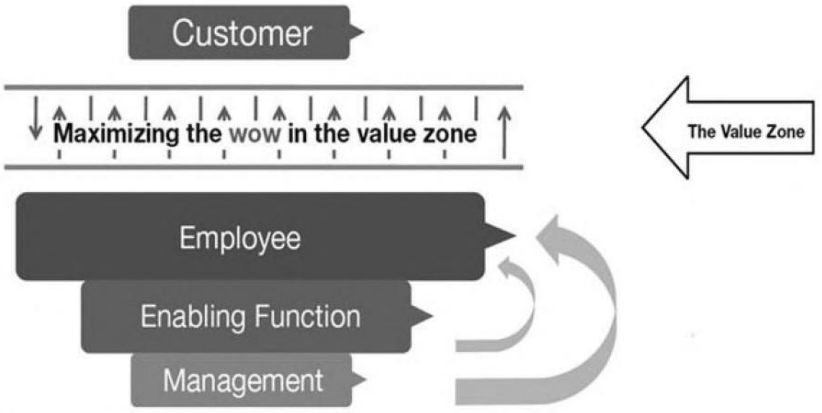


Figure 3-1 Inverting the Organizational Pyramid

our employees their fixed pay was Rs. 14,000 per month and variable could be up to Rs. 6,000 per month, we just gave them the full Rs. 20,000." It did increase the company's cost base, Nayar said, "but the idea was, we'd pay you fully, but we trusted that you would deliver. It reenergized the company, as suddenly people from the competition were joining us."

Above all, Nayar believed that the biggest driver of trust was transparency, and many of his actions were aimed at making the company and its management more open. HCL began using its intranet much more extensively as a lively, personalized place where employees could get almost all the information and processes they needed to do their jobs. The intranet made that information more timely, consistent, and transparent. It was a key way to communicate with people about EFCS. And, with weekly polls, it was a useful way to gather data from employees.

Transparency meant more candor about the condition of the company. Through an initiative he called "Mirror, Mirror," Nayar held up a metaphorical mirror when he interacted with employees that revealed HCL had been "pretty for twenty-five years" but hadn't been for the past five. He wanted people to abandon their "it's okay to lose" mind-set, set their sights higher, and then take responsibility for change. "There was no soft landing for anyone," he said. "I was holding up a mirror to the entire company. We had to transform from the inside out, and I was hoping that the employees really wanted to do the same—they just needed to know how!"

The Smart Service Desk (SSD) was an online system brought over from Comnet. Similar to a help desk, it allowed employees to log in and raise issues or questions about almost anything related to work—HR, finance, IT, training, and so on. The system issued a ticket, and the employee could then track the process of resolving the issue. What made SSD different was that only the employee could declare a ticket closed and the issue resolved. Its purpose was to give employees a sense of empowerment through their ability to raise a problem and follow it to resolution. An issue was an issue so long as the employee felt it was unresolved.

"U & I" was an online channel Nayar created where employees could ask him any question they wanted. He answered a hundred questions each week, and all questions and answers were posted and open to all employees. Employees asked so many questions that HCL had to dedicate a staff member

to opening, uploading, and categorizing them. Nayar spent hours answering them himself. "I threw open the door and invited criticism," he said. "We were becoming honest, and that was the sign of a healthy company."

"Directions" meetings were annual events where Nayar and senior managers traveled to all HCL locations and held face-to-face town hall discussions. Nayar spent over half his time traveling to the company's global locations. "Directions created a common language across the company," he said, "so that everyone knew and could articulate what HCL stood for, what were its key strategies and how they fit into the big picture."

One employee commented that communications at HCL were once "handed down from on high," but Nayar replaced that with much more direct contact through video conferencing, online tools, and face-to-face talks. "In the UK," said this employee, "we frequently gathered in a room to watch Nayar speaking somewhere in the world. We had a sense of clarity about where we were headed."

Trust-building transparency also meant greater openness about performance. Nayar had the company install a balanced scorecard system using automated project portals to keep track of work on specific customer projects. Project performance and customer profitability on every project were completely visible to *all* project managers.

Another of Nayar's actions that provoked much attention was 360-degree reviews. In August, four months after he became president, he announced that by September all managers would receive 360-degree feedback. Nayar stressed that this process was for development, not evaluation. He explained that Comnet had used the approach successfully for the previous five years. He also announced that he would post his own feedback on the intranet for all HCL employees to see and even promised to resign if his 360-degree review dipped below a certain level. One of his early reviews said he was a "tough taskmaster." He said he wouldn't require his senior managers to post their reviews, but he asked for volunteers, and more followed his example than he had anticipated.

Nayar was pleased with the process: "When the thirty-seven thousand employees all over the world had the chance to view their top management transparently, I think the message really got across for the first time that we were truly a different company. The transformation process was becoming

less dictatorial and more consultative." As an executive noted, "With the 360's, there was a tipping point. For a while there were few believers, and then suddenly there were few nonbelievers."

Clearly, as Nayar promised, EFCS and "inverting the pyramid" were not about free lunches. They placed heavy expectations on employees. It was actually a reworking of the psychological contract—the set of expectations, most unwritten, between leadership and employees—that shifted the power dynamic in the company and responsibility for change toward employees. The message was clear. Leaders at HCL were accountable to employees. Some managers, scared off by transparency and loss of control, left the company.

By September 2006, when Nayar and his top managers hosted Directions meetings for the second time, they were hearing different questions from people. "During the first year," he said, "the questions were more transactional. Employees from all levels were asking about the future, about strategy, and how to add value. You could tell this was an organization undergoing transformation."

Recasting the Role of the Leader

Yet, even after Nayar installed all these changes, HCL essentially remained a centralized organization. Nayar had been named CEO in 2007, a position, he realized, that was still the sun of the organizational solar system:

> *Everywhere I went I got questions—all good and useful questions about important topics, but it bothered me that I was expected to have all the answers. It was just that they'd gotten into the habit so common in traditional Indian companies—and corporations around the world: ask the executive. What bothered me was that I knew I didn't have the answers to their questions—but they probably did.*

He wanted employees to accept much more responsibility. To do that, he decided he had to reframe the role of the CEO in people's minds, so they would stop thinking of it as the key driver of change. "Only in that way," he said, "could we continue to focus on the value zone, put employees first as our company continued to gain size and scope, and make the change truly sustainable."

He modified the "U & I" online portal he had set up where any employee could ask him questions. The portal, he realized, did make senior management more transparent, but it also reinforced the notion of the all-knowing CEO—the one with the answers—which was exactly what he wanted to change.

Why shouldn't the question asking go both ways? He had many problems he was struggling to solve. Why not ask employees? He created within "U & I" a section called "My Problems." There he asked employees strategic questions he couldn't solve. "I got incredible answers," he said. "Everybody was willing to help their poor, benighted CEO!" He wanted to shift ownership of HCL away from him to the employees. In effect, he was telling employees, in his words, "I have no idea how to run this company. That's your job."

In July 2006, all employees went through a new, automated 360-degree review process. This time, fifteen hundred managers posted their reviews. While the experience was once again generally positive, some managers still declined to share their feedback. Later, Nayar began requiring that all managers post their reviews.

Employees First Councils were voluntary, online employee communities that formed around different areas of common interest. Subjects ranged from art and music to corporate social responsibility, but most were focused on ways to delight customers. They were "if only we could" projects that would truly differentiate HCL's offerings in the marketplace. The councils, each with an elected representative in each office, caught on like wildfire. Eventually, there were twenty-five hundred council leaders around the world.

Impressed with the councils' popularity, HCL added some that focused specifically on business-related passions, such as a particular technology or line of business. These new communities quickly began to generate a variety of ideas and helped HCL develop plans and proposals for new business. One initiative that grew out of these communities was business-aligned IT, or BAIT. The goal of BAIT was to align HCL's services much more closely and quickly with customers' specific business processes. After a pilot, the company rolled out the full program over the course of a few months.

"When some of these ideas began to produce new revenue," Nayar said, "we realized we had stumbled on another unanticipated benefit: cre-

ating new business ideas through unstructured innovation." These were "communities of passion," he said, "built around personal interests and business issues." They helped transfer responsibility for innovation from leadership to "communities of people collaborating and creating alternatives outside the boundaries of hierarchy."

In 2009, Nayar added an element of crowdsourcing to the way HCL did business planning. Until then, his top three hundred managers had presented their business plans to the senior team, but he began to wonder if he should be the one reviewing all those plans. What did he know about the businesses of these three hundred managers? He wasn't in the value zone; they were. It would be better, he thought, if the managers shared their plans and experiences with each other, perhaps triggering new ideas or solutions for their respective business areas. Nayar hoped to transform the planning process from one dominated by top-down judgments to one characterized by peer-to-peer review.

In spite of some resistance by his senior managers, Nayar created a portal called "My Blueprint," where HCL managers posted their plans for open review by eight thousand other managers above and below them in the company. The effect, he recalled, was astonishing. First, he was surprised to find that the managers' plans sounded very different from the face-to-face presentations he had been hearing. The depth of analysis and quality of strategic thinking improved because, he suspected, the managers knew their own teams and their peers would be reviewing them. The managers were also more honest in their assessment of current challenges and opportunities, and they talked less about what they hoped to accomplish and more about the actions they intended to take to achieve specific results.

The HCL intranet started buzzing about the plans on My Blueprint. Knowledge sharing increased well beyond Nayar's initial hopes. People helped each other refine their plans. Many managers found the postings far more relevant and actionable than the information they'd previously received in briefings from their superiors. Managers found they had far more buy-in from their teams. "In the end," Nayar said, "the leadership team and I participated in the process, giving comments and feedback, but our voices were just a few among eight thousand."

Nayar launched "iGen," a limited-time online platform that followed the annual face-to-face Directions meetings. Employees could propose solutions there to problems HCL faced. Far more than another electronic suggestion box, iGen required a well-thought-out idea with supporting information and suggestions for execution, along with predictions for cost savings or impact on the company. The iGen application guided an employee through the process with ten questions. "The exact ideas employees proposed," Nayar said, "were not as important, usually, as the fact that they were thinking creatively. iGen was about the culture of creating ideas."

HCLites Become Innovative Problem Solvers

Because of all those changes, something fundamental began to happen at HCL, something on which the big, long-term deals would depend for ultimate success. HCL employees were beginning to innovate bottom up in the value zone. The following example is one of hundreds and, ultimately, thousands.

An HCL employee working with a global pharma customer noticed while reading some of its business reports that the pharmaceutical company had developed a vaccine for cervical cancer. On his own, the employee decided to start organizing communications events for women at HCL where they could learn about the disease and the vaccine and, if they chose, be vaccinated. It was not necessarily easy to set up. The HR department, among others, had many reasonable questions. Why should we do this? Is it safe? Has it been tested? He pushed through the barriers, created with his work team of programmers an outreach system for organizing and holding an event, and eventually was able to run an event where HCL subsidized vaccinations for fifteen hundred women employees.

Around this time, the CIO of the pharma customer was in India and by chance saw a poster in an HCL cafeteria publicizing the event. He brought up the program with the business side of HCL, which realized this outreach program, already designed, could readily be taken to market as a service. The program turned into one of the early components of HCL's emerging Business Process Outsourcing (BPO) business. The outreach program expanded to serve not only women concerned about cervical cancer but also patients with diabetes. It also became both a way for the pharma

customer to expand sales and a BPO service that HCL could offer pharma companies for use in emerging markets.

As one HCL manager, who worked extensively with this pharma customer, said, "This was one little innovation, but when you imagine tens of thousands of people doing this every day, it can add up."

Progress

Six months after Nayar first announced the big deals strategy at the first Blueprint meeting, HCL won the $330 million DSGi deal that he had set as a goal. It surpassed the previous record for India's largest outsourcing deal, set by Tata Consultancy Services (TCS) with a $250 million contract in 2005.[3] Many employees had been skeptical that HCL could win something so big against the global majors, especially while it was undergoing its own transformation. Said Nayar, "We really chased this deal. In the past we'd let big deals get away, but we said, 'Not this one.'"

DSGi was only one of several big deals that started coming in. The first, a $50 million, multiyear contract with Autodesk, a California-based software and services company, came in before DSGi. Next came a strategic $100 million partnership with EXA Corporation, a Japanese system integrator that was a joint venture between IBM Japan and JFE Steel, Japan's second-largest steel manufacturer. These were "the type of work we wanted," said Nayar, "complex, long-term, and multimillion." More followed, with Teradyne, a leading supplier of automatic test equipment based in Boston; with Cisco, the networking equipment maker, that involved royalty-based revenue sharing; with Boeing for work on its breakthrough 787 Dreamliner; and with Celestica, the innovative Toronto-based world leader in electronics manufacturing services, a $100 million joint venture that launched HCL's "concept-to-manufacturing" service.

Many of these deals were won in stiff competition with global majors like IBM and Accenture and key Indian IT firms like Wipro and TCS. They were deals that, even a year earlier, HCL would probably not have pursued or won. Some, such as those with Cisco and Celestica, represented the next phase of HCL's transformation, which was about forming strategic partnerships that jointly created new and uncontested markets. "We were starting to win," said a senior HCL manager, "because Vineet had pulled all of the

ingredients to success—which we already had—together. 'Employees First' was a wonderful glue."

With these wins and other signs of change and progress, HCL began to attract the interest of investors, the business press, and prospective employees. *India Today* ranked HCL one of the top ten "most wanted Indian stocks." IDC, a technology information firm, called HCL a "disruptive force" and said it "may very well be one of the contenders to lead the IT services world of the very near future."[4] *The Economist* cited HCL as a company to watch, especially for its unique strategy. It said IBM and the other global majors were "becoming increasingly nervous" about HCL. "Largely unnoticed," it said, "HCL has won several contracts worth $300m-700m for infrastructure management and business transformation."[5]

HCL's performance metrics showed the results of Nayar's leadership. In the global recession of 2008–2009, all its Indian competitors watched their revenues drop while HCL posted an increase of over 23 percent. In the five years before he arrived, HCL's compound annual growth rate had been the lowest among Indian IT firms by eleven to fourteen percentage points; for 2008–2012, it was the highest by six to nine percentage points.

One driver of this growth was HCL's 2008 acquisition of AXON, a leading enterprise systems integrator, for over $800 million. Instead of integrating the acquired firm into HCL, the standard approach in a merger, Nayar created a separate business unit, HCL-AXON, and reverse-integrated HCL's own enterprise applications practice and staff into the AXON operation. This approach, he said, "had the intended effect of accelerating HCL's growth even as the recession deepened." It was the next step in his long-term plan to provide clients with innovative, integrated services that would have an impact on and even redefine their core businesses.

For all HCL's success, Nayar was quick to point out that the transformation of the company was always an ongoing story. Not everything worked as intended. The acquisition and reverse-integration of AXON, for example, was tumultuous at times. Not every customer engagement went well. We talked to many customers who saw great innovation in HCL's work, but some were disappointed. As HCL began to see some success, Nayar said, it was difficult to keep people dissatisfied and eager to change. Neither he

nor any of the leaders we studied believed that their organizations' past and current successes guaranteed anything about the future.

After three years as CEO, Nayar subsequently become its vice chairman in 2010. Then, in 2013, he relinquished his CEO position to focus on the activities of a foundation he had begun years earlier that was devoted to social and educational change in India.

During the time he led HCL, from 2005 to 2013, its operations expanded to thirty-two countries while revenues increased sixfold, from $764 million to $4.7 billion. Profits and market cap increased by the same factor. Under him, the company achieved, with eighty-five thousand employees, the highest revenue-per-employee of all India-based firms. This radical transformation led *Fortune* to recognize HCL as "the world's most modern management," while *Businessweek* named HCL "one of the world's most influential companies." In 2012, HCL was named one of the top-three global outsourcing leaders by the International Association of Outsourcing Providers. That same year, *Forbes* included it among its "Fab 50 Companies" in Asia. The company also received many prestigious citations, such as the "Most Democratic Workplace in the World," "Workforce Management Optimas Award for HR Innovation" in the United States, "Britain's Top Employers," "Best Employer in Asia," and many more. Nayar himself was chosen by *Fortune* for its first-ever global "Executive Dream Team" 2012, which was described as an "all-star leadership" that "could coalesce and dominate in any industry," in addition to his inclusion in the elite "Thinkers50 List" in 2011–2012, a definitive listing of the world's top fifty business thinkers.

Even in Nayar's absence, the leadership ideas he implanted continued to grow and develop. Employees First began paradoxically as a top-down effort to spur bottom-up initiative. Now, as we write this, employees themselves, excited by the Employees First philosophy, are pushing that initiative to its next stage. They're asking for, and in some cases demanding, corporate platforms to stimulate, celebrate, capture, and reward grassroots innovation. Some programs emerging from that effort include MAD Jam (Make a Difference Jamboree), an annual celebration of employee innovation, including a contest in which employees vote on innovations generated by different teams in the course of their regular work; Value Portal,

a clearinghouse for employee innovations developed for one client with the potential to benefit many; and MAD LTD (Make a Difference, Lead the Difference), a kind of hackathon for college engineering and business students, designed to bring students' ideas for societal and other kinds of change to the surface.

Lessons from a Different Kind of Leader

It's impossible to read the story of Vineet Nayar and HCL without concluding that the leadership he provided was not leadership as commonly seen or conceived. Yes, he was a visionary, but he understood that was not his primary role. He could be and was at times quite directive, especially when he needed to remove obstacles to innovation or put structures in place that fostered it. But we believe he succeeded not because of those aspects of his leadership but precisely because he had the courage to take the unconventional steps he did. Despite terrific pressure to perform, he embraced and practiced what to most leaders would have seemed a revolutionary mind-set and approach.[6]

Given what he discovered at HCL during his first weeks as president, Nayar felt he had little choice. He was taking over a once-great hardware company that was declining as it faced faster competitors in a changing market. Customer companies wanted more than the isolated software solutions HCL primarily offered, and they had grown beyond the basics of using IT to automate old ways of doing business. They wanted an IT services vendor whose people could innovate in using technology to transform their companies.

Nayar understood what this required of HCL's leaders, starting with him. *Above all, he thought differently about his role as leader.* As we said, he never saw himself as the great visionary of HCL who would lead it to a glorious future. Instead, he saw himself, in his own phrase, as a "social architect" creating an organizational setting that encouraged and enabled the innovation that would be the company's value-add in the future. He actively, publicly refused to play the role of the one with all the answers, and he encouraged his managers to reject that role as well. He understood that he didn't know enough and wasn't smart enough—no leader is—to know everything. We saw this in the many systems and forums he created at HCL