EDGE

VALUE-DRIVEN DIGITAL TRANSFORMATION

JIM **HIGHSMITH**
LINDA **LUU**
DAVID **ROBINSON**

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Praise for
EDGE: Value-Driven Digital Transformation

"This impressive book offers a holistic set of principles and practices that will help enterprises to upgrade their innovative capabilities. With a laser focus on outcomes and value, and relying on a product mindset, lightweight governance, and adaptive leadership, the authors explain how a company can survive and thrive with an agile product portfolio in an increasingly complex environment. This book should be cherished and devoured."

—Jurgen Appelo, author of Management 3.0 *and* Managing for Happiness

"As an entrepreneur who since 2008 has been growing a bootstrapped SaaS company that transforms industrial manufacturers into digital commerce powerhouses, I am living on the edge.

"But thanks to *EDGE: Value-Driven Digital Transformation*, I now have a framework and vocabulary that I can use to reflect on my journey and visualize my organizational future. More importantly, knowing that the authors' decades of experience and wisdom, encapsulated in EDGE, resonates with mine, I can confidently make this required reading by everyone at Corevist and recommend it to all of our clients who are struggling with their own digital transformations."

—Sam Bayer, CEO, Corevist

"It's refreshing to read a book that goes beyond the 'base camp' of agility. So often we get to Scrum or some framework and then stop. True digital transformation is much more, and this book by Highsmith, Luu, and Robinson captures what every manager needs to know if we want to scale these challenging heights. Highly recommended!"

—Martyn Jones, Managing Director, SoftEd Group, New Zealand

"*EDGE: Value-Driven Digital Transformation* is a valuable book and an indispensable guide to successfully navigating a digital transformation. It's packed with powerfully simple and practical guidance, asking us the questions we need to address. I've found the practical operating-model framework focuses our attention on what really matters (i.e., adopting rapidly enough, developing differentiating capabilities to address emerging opportunities, and creating a sustainable advantage). Equally important are insights of traps that most organizations fall into—and straightforward suggestions of how to prepare.

"Other highlights of value are recognizing paradoxes and practical tips on how to manage conflicting polarities with 'both/and' thinking; how to more effectively and rapidly make decisions informed by empirical data and grounded by well-designed value models; and aligning adaptive strategy to execution.

"Lastly, *EDGE* stresses investing in frequent, effective feedback loops that ensure today's competitive differentiators don't become tomorrow's competitive anchors.

"I believe *EDGE* offers us an indispensable toolkit to navigate life on the 'edge' of uncertainty—and also to create our own, uniquely competitive capability to seize opportunities that are hidden in the emerging chaos: investing for change, working together, and adapting quickly and continuously.

"A 'must' read."

—Pat Reed, former executive roles at Disney, Universal Studios, Gap Inc.;
academic roles at University of Denver, UC Berkeley, and Woodbury University;
entrepreneur and cofounder of iHoriz, Inc.

"With the publication of *EDGE: Value-Driven Digital Transformation*, Jim Highsmith, Linda Luu, and David Robinson have written the book that is precisely what we need to help organizations be successful in the emerging world of the digital future. Agility and adaptiveness are qualities that should be part of all areas of business, but organizations are struggling with the details of how to make the transition. If they invest in the right digital technology, will all their problems be solved, or are there deeper and more pervasive changes that should be made to all of the management systems?

"*EDGE* answers the technology question brilliantly through the concept of tech at the core. It was so well articulated that I sat there slapping my forehead because even ten years at Gartner hadn't made this concept as clear to me as this chapter did. I understood it intuitively before, but I didn't have the right words to explain it, and now I do. This chapter alone would make the whole book worth reading.

"On the management side of the equation, I appreciated the concept of the Lean Value Tree. Organizations struggle with how to clearly define the value of any business decision, especially ones that do NOT lend themselves to a hard ROI. The Lean Value Tree provides a simple and direct approach to determining value, which in turn will help organizations make better investment decisions much more quickly.

"I've been looking for a book to recommend to the company managers I work with, and *EDGE* is exactly the book I had in mind. Thank you."

—Donna Fitzgerald, Executive Director, NimblePM, Inc.,
and former Research VP at Gartner

"*EDGE* is an outstanding read for business and technology leaders in search of higher performance, better cultures and a solid set of strategies to ensure your organization succeeds.

"Packed full of clear and concise models and methods to help focus your innovation activities on outcomes and options to get there, *EDGE: Value-Driven Digital Transformation* is the go-to guide for leaders looking to link strategy to how an organization executes on delivery of value, delighting customers, and business results."

—Barry O'Reilly, business advisor and author of Unlearn *and* Lean Enterprise

"Agile as a broad business concept has now, finally, gone mainstream. Jim Highsmith was there at the beginning, in the 1990s—one of very few players who created the powerful ideas behind agile. In this new book, these powerful ideas, significantly evolved, are unleashed on the challenge of digital transformation. It's a good fit, and yields potent insights."

—Robert D. Austin, Professor, Ivey Business School,
and author of Adventures of an IT Leader

"With our clients, and with our internal initiatives, we need to figure out how to let teams be autonomous, yet focus on common goals. The EDGE framework, and this book that describes it, distills our current best understanding of how to balance that difficult puzzle."

—Martin Fowler, Chief Scientist, ThoughtWorks

“Connecting strategy to implementation and modifying an organization’s planning process to take advantage of the flexibility software provides is a huge challenge. EDGE provides a framework for addressing that problem. This book is a must-read for anyone working to transform their company to be able to compete in a digital world.”

—Gary Gruver, President of Gruver Consulting, previously R&D director
Hewlett-Packard, and VP of QA, Release, and Operations at Macy’s.com

EDGE

Value-Driven Digital Transformation

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EDGE

Value-Driven Digital Transformation

Jim Highsmith
Linda Luu
David Robinson

Addison-Wesley

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To Wendie, who has supported me through the ups and downs of the writing process for the last 25 years. —J.H.

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To my mentor and friend Jerry Weinberg, who helped me become a better consultant and human being. —D.R.

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Foreword

To thrive in a world of digital disruption and continuous change, we must become agile. How are you becoming agile? I've spent the majority of my career leading and advising businesses on designing new operating and engagement models to drive digital transformation and achieve enterprise Agility through the adoption of fundamentally different ways of working, thinking, and being.

How are you responding to and managing change in your environment? In my most recent executive role in corporate America, I served as a CIO and chief agilist for a *Fortune* 50 company in the financial services industry. The adoption of agile's core values in the software delivery processes at this $35 billion financial services company led to enormous improvements in speed, quality, and productivity—faster, better, cheaper! Yet, several years into this transformation, we reached the edges of scalability and sustainability. It was only then that we began to ask questions: "What else must we transform to better deliver the capabilities our customers need when they need them? Is it possible that agile matters because it enables enterprise agility?"

Are you in the midst of a *transformation* or are you *transforming*? I have discovered that scale is ultimately about creating a lean governance framework that can support networks of empowered teams, relevant measures, and new operating and engagement models. It's a bit more complicated than just standing up more agile teams or adopting the agile mindset.

Enterprise agility is a measure of the ability of the entire organization to respond rapidly to change. As each new opportunity or threat appears, the agile enterprise fluidly remolds itself by deploying its resources to seize the advantage, thereby remaining responsive to the current environment and relevant to the future environment. The agile enterprise recognizes that every aspect of the business has to embrace change. Every aspect of the business has to become agile—from how the CEO sets objectives to how the janitor cleans the floors.

EDGE: Value-Driven Digital Transformation will help you unleash the promise of agile. It will help you build the capabilities to transform. And it will demand that you develop the capacity to embrace and lead change.

Like the "Courageous Executives," the authors of this book are boundless in their thinking, bold in their actions, and passionate about technology. This passion for technology allows them to recognize that for most enterprises in the 21st century, technology is THE business. This is what really separates the EDGE approach. It is a comprehensive operating model with technology at its core, while holistically embracing the four dimensions that make a difference today—speed, adaptability, iterative, and driven by customer value.

Enterprise sustainability demands that organizations are designed for business agility and responsiveness. As the authors astutely point out, the question isn't "Are you able to move fast?" Instead, the question is "Are you able to move fast enough?" Having a clear approach to building the link between strategy and execution—that is, connecting vision to value delivery—will help you transform your organization to adapt fast enough. It will lead you to internal agility—the ability to make significant internal changes fast—which is the defining characteristic of the agile enterprise. To achieve this level of agility, every last corporate internal reflex has to change.

Regardless of where you are on your journey of transforming, know that your digital transformation is ambitious and fraught with great risks and challenges. Also, be comforted in the knowledge that if you embrace change and are willing to ask for help, you can lead your organization to operate in fundamentally different ways.

—Heidi Musser,
Executive Vice President and Principal Consultant,
Leading Agile; retired, Vice President and CIO, USAA

Preface

Digital transformation. Transforming to a digital enterprise appeals to senior executives in wide range of industries. They are attempting to stave off the next wave of disruptions that will put their organizations in jeopardy—becoming the latest Blockbuster or Kodak. Research indicates that a significant majority of CEOs aspire to be digital, but a very low percentage think they have been successful. A vast gap lies between strategy and execution—that middle ground that seems so difficult to traverse.

EDGE is not an acronym, but rather an expression that reminds us of the challenges, messiness, and excitement of transforming into a digital enterprise. The title "EDGE" comes from the concept of the "edge of chaos" in complex adaptive systems theory and provides the missing link between digital strategy and value delivery. Transformations require continuous innovation, which in turn requires an edgy culture that challenges the status quo.

EDGE is an operating model that addresses the following issues:

- How people work together when major, fast-paced responses are necessary
- How organizations allocate and monitor investment funds for initiatives based on an organization's vision and goals
- How organizations learn to adapt fast enough to thrive in highly competitive markets

You have seen jokes that begin with an older adult trying to learn some aspect of technology and being referred to a 12-year-old for help. In today's world, you can't afford to be that adult. Executing a digital transformation requires that you view technology from a perspective that we call Tech@Core, in which everyone, not just the technologists, understands how technology offers both new opportunities that demand new capabilities.

Unfortunately, you can't escape from the status quo using the same measures of success that were used to achieve that status quo. Transformation demands that you change those measures as well. Indeed, one of the most uncomfortable changes for leaders is this change in performance measures. The most profound of these is the change in focus from internal return on investment (ROI) to external customer value, which is fundamentally a change in perspective and your gut-level basis of decision making. Concurrently, the technology measures of success change from cost and efficiency to speed and adaptability.

One of the questions you might ask is "Who is the target audience for EDGE?" The traditional answer might be a CEO, or CIO, or chief digital officer, or CMO, or chief strategy officer. We have a different answer.

> *Since 1993, ThoughtWorks has partnered with enterprise organizations and leaders around the world to transform their businesses through technology. With thousands of executive relationships and hundreds of transformational journeys, we've identified a unique segment of leaders we call Courageous Executives. Some are breathing new vitality into legacy enterprises, while others are shaking up stale industries with new platforms and business models. They are boundless in their thinking, bold in their actions, and passionate about technology. This is why we believe Courageous Executives are the next major disruptive force in business, creating a powerful competitive advantage through their leadership style.*[1]

Whether your job title is CEO, CIO, program manager, or individual contributor, we think the key personal trait for transforming to a digital enterprise is the courage to move forward in the face of uncertainty. Courageous Executives challenge the status quo again and again. Transformation isn't for the faint of heart, and neither is EDGE.

> *As companies across all industries embrace the changes of our increasingly digital world, we're seeing leaders at the helm of these companies dive deeper into how technology is implemented and how it works. Executives around the globe are learning that a strong grasp of technology matters, and they're finding ways to adapt. A tenacious commitment to embrace technology is what sets apart truly Courageous Executives.*[2]

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1. Guo, Xiao. "The Next Big Disruption: Courageous Executives." ThoughtWorks, July 20, 2017. https://www.thoughtworks.com/insights/blog/next-big-disruption-courageous-executives.
2. Guo, Xiao. "The Next Big Disruption: Courageous Executives." ThoughtWorks, July 20, 2017. https://www.thoughtworks.com/insights/blog/next-big-disruption-courageous-executives.

Each EDGE chapter focuses, primarily, on either determining which opportunities to invest in or building the capabilities to execute on those investments. Chapters 4–7 address opportunities, whereas Chapters 2 and 8–10 address capabilities.

Moving from a pre-digital technology fitness function of cost/efficiency to a digital one of speed/adaptability requires that enterprises embrace technology in much different ways than in the past. We call this perspective Tech@Core as technology moves from a support capability to a core capability that everyone—from CEO to clerk—embraces. Chapter 2, Tech@Core, outlines the components you need to think about as part of your digital transformation—from utilizing a technology radar to creating a technology platform.

One of the reasons the agile movement has been vibrant for nearly 20 years has been the influence of the values and principles contained in the Agile Manifesto, which was published in 2001. While there have been efforts to revise these principles, they have remained core to agile's expansion. New agile practices and processes have blossomed over the years, but the core values have endured.

The Manifesto for Agile Software Development

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan[3]

The EDGE principles are extensions of the core agile ones, oriented to the digital transformation of enterprises. They encompass individuals and teams, collaboration, adapting over time, customer value, and concrete results. Chapter 3, EDGE Principles, describes how these principles impact work and working together.

Chapter 4, Building a Value-Driven Portfolio, answers the fundamental question "How should we invest?" We start this process by articulating a clearly understood business vision and then express the strategy to achieve that vision as a Lean Value Tree (LVT) populated with goals, bets, and initiatives. We then describe the necessary processes for attaining this value-oriented expression of business strategy and how it fundamentally changes the allocation of investments based on customer value rather than internal business benefits.

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[3] "Manifesto for Agile Software Development." The Agile Manifesto, 2001. http://agilemanifesto.org/.

Although your LVT describes strategy in outcome-oriented terms, you have to determine how to measure those outcomes. That is the subject of Chapter 5, Measuring and Prioritizing Value. Without definitive Measures of Success (MoS), you're left with un-actionable statements for which success or failure is arbitrary. Measures that are defined and articulated correctly become a powerful way to shape work to achieve the desired outcome.

Chapter 6, Building a Product Mindset, covers an important aspect of aligning the whole organization to the delivery of value. The product mindset connects the organizational strategy (LVT) to the teams responsible for delivering the value for the customer. An important part of building this product mindset is applying an experimental approach to the discovery of value and the product skills needed in the organization to connect and align the portfolio teams to delivery teams.

Optimizing for maximum value necessitates combining several different types of work into an integrated backlog for delivery teams so that they can manage the work effectively. Chapter 7, Integrating Strategic and Business as Usual Portfolios, describes how to build that integrated backlog and prioritize different work items using a common measurement—value. One type of work is Business as Usual (BAU), which is often left out when discussing business agility, as the focus of agile development is strategic initiatives and innovation. Based on our experience with clients, typically 80 percent of large enterprises' budgets are spent on BAU, so we see this as an opportunity to maximize value. We describe how to apply EDGE principles to this portion of your portfolio.

Both agile and lean principles guide us to think about value and removing built-up organizational overhead. Techniques like value stream mapping are used to optimize processes and documentation that have ossified and slowed progress. Governance is absolutely necessary—executives and leaders have fiduciary responsibilities—but senseless overhead is unnecessary, as it reduces both speed and adaptability. Chapter 8, Lightweight Governance, describes ways to balance the competing needs of governance and value delivery.

Chapter 9, Autonomous Teams and Collaborative Decision Making, tackles a core EDGE question: "How should we work together?" Working together in a fast-paced, innovative manner requires a special approach to organizing teams and making effective, quick decisions. This chapter delves into the concepts of autonomous teams, collaborative decision making, and aligning organizations to deliver outcome-oriented results. Traditional functional teams suffer in a transformational environment, and even newer "empowered" teams don't go far enough (although "empowered" has been so overused that it's nearly lost its meaning).

Chapter 10, Adaptive Leadership, helps answer two of EDGE's key questions: "How should we work together?" and "How should we adapt fast enough?" Autonomous teams have a great deal of decision-making power, but they still need direction and leadership. But what type of leadership? While traditional management has carried the label "command and control," more recent models have a variety of names—we use "adaptive leadership" to describe this concept. This chapter delves into the leadership behaviors that are necessary for today's Courageous Executives.

Chapter 11, Exploring Your Transformative Future, is the final chapter in this book. It summarizes the key points of the book and looks ahead to what the future may hold.

These principles, practices, and tools have been curated from our work with many global clients, tried and tested, and evolved into a body of knowledge we are excited to share.

Jim Highsmith, Lafayette, Colorado
Linda Luu, San Francisco, California
David Robinson, Evergreen, Colorado
August 2019

Register your copy of *EDGE: Value-Driven Digital Transformation* on the InformIT site for convenient access to updates and/or corrections as they become available. To start the registration process, go to informit.com/register and log in or create an account. Enter the product ISBN (9780135263075) and click Submit. Look on the Registered Products tab for an Access Bonus Content link next to this product, and follow that link to access any available bonus materials. If you would like to be notified of exclusive offers on new editions and updates, please check the box to receive email from us.

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About the Authors

Jim Highsmith is an Executive Consultant at ThoughtWorks, Inc. He has 50-plus years' experience as an IT manager, product manager, project manager, consultant, software developer, and storyteller. Jim has been a leader in the agile software development community for the past two decades.

Jim is the author of *Adaptive Leadership: Accelerating Enterprise Agility* (Addison-Wesley, 2014); *Agile Project Management: Creating Innovative Products* (Addison-Wesley, 2009); *Adaptive Software Development: A Collaborative Approach to Managing Complex Systems* (Dorset House, 2000), which won the prestigious Jolt Award; and *Agile Software Development Ecosystems* (Addison-Wesley, 2002). Jim is the recipient of the 2005 international Stevens Award for outstanding contributions to systems development.

Jim is a coauthor of the Agile Manifesto, a founding member of The Agile Alliance, coauthor of the Declaration of Interdependence for project leaders, and cofounder and first president of the Agile Leadership Network. Jim has consulted with IT, product development organizations, and software companies in the United States, Europe, Canada, South Africa, Australia, Brazil, China, Japan, India, and New Zealand.

Linda Luu is a Consultant and Head of Digital Transformation for ThoughtWorks, Inc. North America. She has 20 years' experience building new capabilities in organizations seeking to respond faster to the shifting needs of customers, in the areas of design thinking, big data and analytics, portfolio management, and agile delivery.

In 2010, frustrated by the pace of product development and organizational change at a large bank, Linda left Aussie shores and headed to the United States to learn better ways of working. During this journey, she was fortunate to have the opportunity to work with amazing individuals who pushed the boundaries of how organizations could function both at a macro and team level. This experience made her excited to share the learnings, stories, and many challenges of building organizational responsiveness in today's environment fueled by technological change. Her journey includes working with clients from Australia, North America, Canada, South Africa, and Brazil.

Linda is on the board of Rutgers Big Data Certificate Program. She holds a double degree in commerce (finance) and science (applied math) as well as an MBA from the Australian Graduate School of Management. She is married and a proud mother.

David Robinson is a Principal Consultant at ThoughtWorks, Inc. where he focuses on helping clients drive digital transformation. He is the global leader of the Responsive Organizations offering at ThoughtWorks. David has consulted with large enterprises driving digital transformation in the financial services, transportation, logistics, retail, and entertainment industries across the globe.

David has 30-plus years' experience in information technology as a CIO and other leadership positions. He has grown three start-ups (two wins, one loss), and also spent a few years outside of technology, leading business units. As a recovering executive, David has been focused on building more human organizations by innovating new ways of working that unlock the talent and passion of creative people.

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Chapter 1

The Big Picture

Happy the [person] who still can hope
To swim safely in this sea of error
What we need we don't really know
And what we know fulfills no need at all

(Johann Wolfgang von Goethe, Faust Part 1)

Digital enterprise, the Fourth Industrial Revolution, lean enterprise—today's literature teems with exhortations to transform from the old to something new. How are you responding? Do you have your digital strategy in place? How do you plan to "realize" that strategy? Is your enterprise getting incremental outcomes in a world of exponential opportunities? Whether your goals are for your organization to become a digital enterprise, foster widespread innovation, or implement a digital strategy, is your transformation vision thwarted by poor execution?

Klaus Schwab, executive chairman of the World Economic Forum, spared little hyperbole when he said, "We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before."[1] You could think of a digital enterprise (or business) as having made the transformation from the Industrial Age to the Digital Age. An Internet search for "digital enterprise" yields phrases such as "leveraging technology for competitive gain" and "creating

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1. Schwab, Klaus. "The Fourth Industrial Revolution: What it means, how to respond." World Economic Forum, January 14, 2016. https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/.

new business models.” But these definitions are lacking. Leveraging technology and creating new business models are important, but the most critical component is transforming your culture so that it can evolve and adapt quickly. This culture change spans the entire organization, not just your technology divisions. And, this book concentrates on transforming (a verb) rather than transformation (a noun). Most organizations aren’t “there”; instead, they are becoming.

Definition

Digital enterprise An enterprise that is transforming itself to meet the challenges of our postindustrial Digital Age, by embracing an adaptive culture, employing technology at its core, and creating new business models.

Enterprises face an ever-growing gap between opportunities and the capability to exploit them. Technological advances generates opportunities, yet enterprises’ capabilities—from developing a digital strategy, to portfolio management, to software delivery—often struggle to keep pace. Change, brought about by technology—or indeed other major forces such as globalization or climate change—challenge our ability to adapt rapidly enough. Many organizations suffer from outdated management models, which block their desired strategy from becoming reality. For example, when enterprises have agile teams that deliver features every two weeks but operate within an annual funding cycle, something doesn’t jive.

The Time Is Now

Indeed, in a 2017 survey conducted by the MIT Center for Information Systems Research (CISR) of senior leadership from across the globe, 413 senior executives reported that over the next five years their companies may be at risk of losing an average of 28 percent of their revenues because of digital disruption.[2]

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[2] Weill, Peter, and Stephanie Woerner. “Why Companies Need a New Playbook to Succeed in the Digital Age.” *MIT Sloan Management Review* [Blog], June 28, 2018. https://sloanreview.mit.edu/article/why-companies-need-a-new-playbook-to-succeed-in-the-digital-age/.

In complexity theory, there is a concept called the *edge of chaos*.[3] This "edge," lodged between randomness and structure, is where innovation and maximum learning happen. Balancing on this edge requires everyone to work in a messy, exciting realm, where uncertainty is embraced and solutions may be ephemeral. It's not a safe or comfortable place, but it's the place where organizations will invent the future. The big question isn't how to adapt to the rapidly changing environment, but rather how to adapt fast enough. Furthermore, the missing link between digital strategy and execution entails much more than traditional portfolio management. We call this missing link EDGE, because transforming (or becoming) requires continuous innovation and innovation requires an edgy culture that challenges the status quo.

EDGE

EDGE is not an acronym, but an expression that reminds us of the challenges, messiness, and excitement of transforming into a digital enterprise.

Building the capability to evolve and continuously adapt is critical to transforming your organization. Today, the accelerating rate of change is overwhelming most organizations' ability to absorb and respond to changes. You may be fast, but are you fast enough? Can you sustain your ability to adapt over time? Effective digital transformations are not for the timid, but rather for the bold and gritty, hanging out on the edge of chaos. Organizations that think a mobile app or a data lake is enough don't understand that transforming is more about culture, mindset, and embodied principles. This is the hard part. Agile software development has been around for nearly 20 years, yet some organizations still think that implementing a practice or two—iterations, pair programming, daily stand-up meetings—is enough. By clinging to this narrow definition, they fail to embrace the cultural values that are the core of real agility.

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[3] Wheatley, Margaret J. *Leadership and the New Science: Learning about Organizations from an Orderly Universe.* Berrett-Koehler, 1992.

In our work with enterprises in retail, financial, transportation, and other industries, the authors have seen organizations striving to become more responsive, especially to their customers. Organizations are finding that having agile software delivery capabilities is not enough. We worked with a large multinational financial firm recently that was interested in DevOps as a way to increase speed and agility. Our assessment pointed out that the firm was spending an inordinate amount of time planning (not surprising in a big enterprise) and DevOps was not its solution. Rather than focusing on DevOps as a means to an end, the organization needed to rethink its entire value stream to become more agile.

Similarly, organizations transforming themselves into more innovative digital enterprises may find they suffer from strategic misalignment between their business and technology functions. In either case—business agility or strategic alignment—the existing operating model for moving from strategy to execution is flawed. These approaches may be purported to be agile or adaptive, when they are actually merely dressed-up traditional processes that are both heavyweight and bureaucratic. They delude traditional managers into thinking they are making progress—but they don't encourage innovation or risk taking. Figure 1-1 depicts the context of EDGE, an operating model that sits between vision and delivery—the critical link that is often missing.

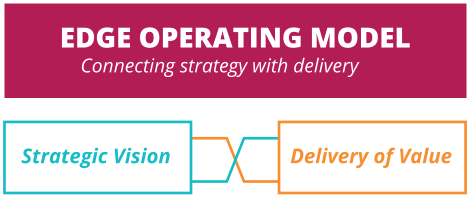

Figure 1-1
EDGE: an operating model.

According to a McKinsey study, "IT organizations are asked to innovate at breakneck speed in support of their companies' ambitious digital aspirations (85 percent of respondents want their operating models to be mostly or fully digital, which only 18 percent currently have)."[4] So the vast percentage of organizations have digital aspirations, yet only 18 percent consider themselves successful. Why the disparity? Because there is a big difference between the ambition and knowing how to achieve it. EDGE focuses on building an enterprise that can respond quickly to customers' needs and emerging technology by defining an operating model that bridges this strategy–delivery gap.

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[4] "Can IT Rise to the Digital Challenge?" McKinsey & Company, October 2018.

Building the Next-Generation Operating Model

"They have developed next-generation operating models that provide the speed, precision, and flexibility to quickly unlock new sources of value and radically reduce costs. The operating model of the future combines digital technologies and process-improvement capabilities in an integrated, sequenced way to drastically improve customer journeys and internal processes."

—João Dias, David Hamilton, Christopher Paquette, and Rohit Sood, "How to Start Building Your Next-Generation Operating Model," *McKinsey Insights*, March 2017

Exploring EDGE

EDGE's operating model consists of a set of principles and practices that enables your organization to achieve organizational responsiveness.[5] EDGE answers three fundamental questions about your transformation: (1) *How should we work together?*; (2) *How should we invest?*; and (3) *How can we adapt fast enough?* EDGE is designed to sparkle when faced with an enterprise strategy of innovation and transformation. From an operating model perspective, the enterprise needs to embrace EDGE concepts, principles, and practices. From a portfolio management perspective, as discussed in Chapters 5, Measuring and Prioritizing Value, and 7, Integrating Strategic and Business as Usual Portfolios, you can manage an entire IT portfolio while focusing on 10 to 20 percent of the portfolio that is strategic and transformative and, at the same time, integrate Business as Usual (BAU) investments. EDGE is fast, iterative, adaptive, lightweight, and value-driven.

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[5] Although "responsiveness" and "agility" can have slightly different connotations, the authors will use these terms interchangeably.

When you ask the question “How should we work together?”, you learn how teams evolve to respond to an environment characterized by an accelerated pace of change. When you ask the question “How should we invest?”, you learn to allocate investments and monitor decisions to move faster into our future. When you ask “How can we adapt fast enough?”, you learn how to build organizational grit to outpace the competition through continuous learning and adapting fast enough to thrive.

Transforming isn’t just about where you invest money and time; equally, or even more, important is how you work together. Agile software delivery teams have learned to plan and deliver in short cycles, measure successful outcomes, experiment with spikes, gather feedback every cycle, and collaborate in autonomous teams. Agile teams “work” differently than traditional software teams do.

EDGE is designed to work in the face of market uncertainty by stressing the importance of adaptability. It helps create the links from your vision to the detailed initiatives you need to undertake. And it’s based on making incremental investments, rather than big, upfront funding. EDGE provides support for managing change and transforming your organization to a digital enterprise by changing the mix of investment funds to reflect your new strategy—and by reducing your risk when doing so.

In large enterprises, an annual planning cycle has become customary. Typically, some form of strategic planning process will identify a list of key programs and projects. An estimate of each program and project is then fed into a lengthy budgeting process. In a value-centered world, you replace upfront program funding with incremental funding of the business outcomes to be achieved. You can articulate your business outcomes using Measures of Success (MoS), which describe the value you’re willing to pay for. As you demonstrate value to your enterprise and outline the cost to achieve it, you can budget accordingly.

EDGE focuses on the decisions made in an organization. Information—data, spreadsheets, analysis, documentation, surveys and the like—is vital in helping you plot a path to success. But ultimately, information is not enough. To succeed, your decision making has to be informed by experience, judgment, courage, and instinct.

Note that this formula isn't "either/or" but "both/and." It's not analytics or instinct, but a blend of both. Thousands of new opportunities are available to companies every day, and hundreds of possible responses can be made to those opportunities. The great entrepreneurial leaders have the instinct to look at the available, incomplete data and make the correct judgment calls more often than not.

Agility Is Key to Fast Enough

Whether you call it agile, responsive, or adaptive, your entire organization, from executives to delivery staff, needs to embrace a culture of sensing the marketplace and responding to change in an effective way. Scaling agility is more about changing organizational culture than about building bigger things. A number of agile/lean scaling frameworks focus on planning for and building "bigger" things. Unfortunately, they tend to take on the trappings of traditional heavyweight methodologies, including an over-emphasis on documentation and process. What's really needed are frameworks that focus on "better," not "bigger." Scaling agility (as in undertaking large projects) may be a problem, but it's just not as important as the challenges of learning and adapting fast enough. Implementing a digital strategy, or becoming a digital enterprise, must be driven by innovation—in products, in strategy, in technology, in portfolio management, in measures of success, in organization, and more. Transforming to a digital enterprise needs to focus first and foremost on devising better ways of aligning strategy and delivery. Once you are better, then you can focus on bigger. Most (but not all) innovation initiatives aren't huge undertakings, but rather uncertain undertakings.

> Scaling agility may be a problem, but it's not as important as the challenges of learning and adapting fast enough.

The authors have been evolving EDGE in our work at ThoughtWorks over a decade. The authors have worked with clients in the telecommunications, financial services, insurance, and retail industries—sectors facing significant disruption in today's Digital Age.

Unleashing the Promise of Agile

"What am I doing wrong?" laments the CEO of a client in the entertainment industry. This concern is echoed by many executives who thought they were implementing agile practices well. They've gone from taking many months, sometimes years, to deliver products, to daily continuous delivery, but are still delivering on the wrong portfolio of products. As we began working with this CEO, we realized that his fundamental problem was a poor linkage between strategy and delivery. He had a reasonable digital strategy, and his agile delivery teams were able to adapt to changes well, but their portfolio investment decisions were haphazard at best. Legacy systems were eating up his entire budget, and few funds were being allocated to the future. Competition was aggressively taking market share, forcing the firm to adopt a "catch-up" strategy and constant prioritization of efforts to chase the competition.

We found that scaling an agile approach to software delivery to his many teams was far different from determining the right blend of initiatives to meet their tactical and strategic goals. By thinking through outcome-oriented goals, they were able to refocus their investment decisions on these goals and reduce investments in other categories.

Building Organizational Responsiveness

For the past decade, organizations with software delivery teams have invested heavily in learning agile delivery practices—practices that promise to help the organization eliminate wasted efforts, make better decisions through collaboration and higher-quality output, and move faster. Ultimately, this way of working enables leaders to steer the organization toward delivering more customer value. However, as the previous CEO story shows, organizations scaling agile software delivery practices still lament their inability to realize the promised value of adopting the agile philosophy.

To effectively build organizational responsiveness, your strategy must be broken down into a portfolio of small pieces of value that can be prioritized. Big things take a long time. Small things take a short time. To be responsive and adaptive, you need to work on smaller things, deliver rapidly, and learn quickly from feedback. These small initiatives provide a clearer sense of whether the investments are allocated to the right areas or whether adjustments need to be made. You will need lightweight governance and adaptive leadership to respond to external pressures, improve agility, and focus on value. Moreover, teams must be set up to deliver in an incremental, adaptive way to release often, enabling faster feedback loops with customers and leaders.

Figure 1-2 is a model of how organizations can better pursue new and existing market opportunities and deliver higher value for the investment made. The first component of a responsive enterprise is an executive vision that expresses how the organization intends to prosper in the future.

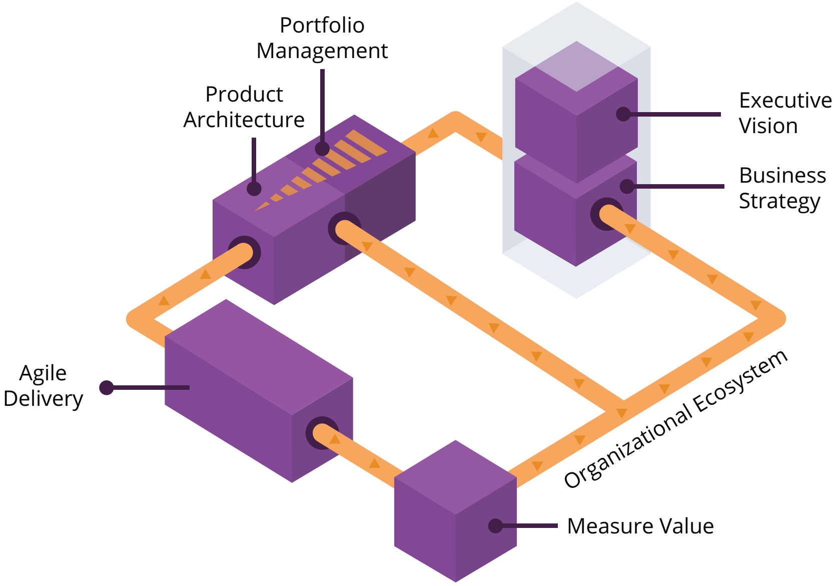
Portfolio Management
Product Architecture
Executive Vision
Business Strategy
Agile Delivery
Organizational Ecosystem
Measure Value

Figure 1-2
Building a responsive organization.

The business strategy states how the business organization intends to achieve the vision expressed as customer outcome goals. Focusing on external customer outcomes and value rather than internal business benefits such as return on investment (ROI) is central to the EDGE message.

The next component and a major focus of EDGE is portfolio management. The investment portfolio is broken down into small pieces. Funding is allocated based on highest value and incrementally allocated until the probability of success is high. This portfolio breakdown enables low-value work to be stopped, with the organization directing its efforts toward the highest-value and limiting work in progress so that teams are focused on one thing at a time. Product architecture translates goals into actionable thin slices of work that agile teams can deliver and measure as incremental successes. Agile delivery builds effective solutions rapidly using practices such as short iterations, design thinking, refactoring, continuous delivery, and evolutionary architecture.

Finally, measurement of value directs teams at all levels to be evaluated on outcomes delivered, rather than what the costs were or whether they met a predetermined delivery date. While costs and schedules are important, they are constraints, not objectives. Measures are broken down to guide teams toward the creation of value.

Toward a Customer-Value Fitness Function

One of the most uncomfortable changes for leaders, especially executives and managers, undergoing digital transformation is the change in performance measures. The most profound of these is the switch from internal ROI to external customer value. While this is a measurement change, it is more fundamentally a change in perspective, a change in your gut-level basis of decision making. It means the first and foremost question an executive leader asks is not “How will this impact our bottom line?” but “How will this impact the value we deliver to our customers?” This change means believing that improving customer value is the key driver that will lead to improved ROI. But ROI isn't the objective; instead, it is a constraint. You need to make a profit to continue delivering customer value. As explained further in Chapter 5, ROI is a business benefit (internal) but not a measure of customer value (external).

The year 2007 was an epic inflection point that has caused turmoil in both the economy and specific enterprises. In his book *Thank You for Being Late*,[6] Thomas Friedman anointed 2007 as the year when multiple technologies came to fruition and kicked "digital" acceleration into high gear. Apple introduced the iPhone, Hadoop ushered in the big data era, GitHub multiplied software development capabilities, Facebook and Twitter expanded the reach and influence of social media, Airbnb showed what small companies could do with these new technologies, the Kindle changed book reading and the publishing business, and Google launched the Android operating system for phones. The confluence of all these technologies enabled new companies, such as Airbnb (which doesn't own a single bed), to become much bigger (more beds than all the major hotel chains—combined). Thus 2007 was the inflection point that separated the pre-digital and digital worlds.

Complexity theory[7] includes a concept called a fitness function.[8] A fitness function summarizes a specific measure to evaluate how close a solution is to achieving a stated goal. In other words, it drives an organism (biology) or an organization (economics) to achieve its purpose—survival and procreation for an organism, thriving and continuation for an organization. As opportunities expand exponentially, you need a process, and a fitness function, to focus investments now and in the future. You need to build capabilities, modern technology platforms, and learning and adaptive practices—all driven by a set of values and principles. As you will see in subsequent chapters, EDGE addresses the challenges of both opportunity and capability. The challenges for enterprises moving from a pre-digital to a digital world are two-fold. First, you must change your fitness function. Second, you must leverage resources to make that change quickly. Both of these will challenge the best organizations.

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[6] Friedman, Thomas L. *Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations*. New York: Farrar, Straus and Giroux, 2016.

[7] For background in complexity theory, see Holland, John H. *Emergence: From Chaos to Order*. Reading, MA: Addison-Wesley, 1989.

[8] A related concept in complexity theory is that of a fitness landscape—think of a mountain range—that describes all the various possibilities for entities (agents) that are trying to move up to a higher value of their fitness function.

> *"It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change."*
>
> —Charles Darwin, English naturalist

The fitness functions or business goals (Table 1-1) from pre-digital to digital times have changed from focusing on ROI to focusing on customer value. In a world characterized by greater certainty, ROI goals made sense. In today's world filled with growing uncertainty, they don't. In a post-2007 world, customer value works better. The switch from an ROI goal to a customer value goal is profound, and experience has shown the transition to be very difficult. Furthermore, trying to change the technology fitness function without changing the business fitness function is a lost cause, as many organizations have discovered to their great chagrin.

Table 1-1
Changing Fitness Functions

Fitness Function	Pre-Digital	Digital
Business	Return on investment	Customer value
Technology	Cost/efficiency	Speed/adaptability

Critics may say that customer value is too intangible, that ROI is a tangible measure and therefore better. In the book *How Leaders Build Value*,[9] the authors suggest that 85 percent of a company's market capitalization can be attributed to intangible factors such as leadership, culture, and patents. Investors look at the stream of earnings volatility over time to determine a price they will buy at (which drives market capitalization), and intangibles drive that stream—you just have to look at an intangible like Steve Jobs's leadership at Apple to prove the point. Look at the market capitalization of high-tech firms today versus that of traditional firms—how much of their capitalization is due to intangible factors?

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[9] lrich, Dave, and Norm Smallwood. *How Leaders Build Value: Using People, Organization, and Other Intangibles to Get Bottom-Line Results.* Hoboken, NJ: Wiley, 2006.

Changing Competitive Environments

One thing we have learned from clients is that often processes, practices, or software systems that have been competitive differentiators become competitive anchors. A large financial company based its success on a core software application that agents used when working with clients and prospects. The application was so complex that the company couldn't expect customers to use it as they contemplated moving to a customer interactive system. Making the switch from an internal agent–oriented system to an Internet-based self-service system meant a fundamental change in the firm's business model. What had been its key differentiator in the market became an anchor to change.

Given the turbulence and uncertainty of today's business environment, picking the right measures of customer value and other intangible factors can be daunting. Nevertheless, one of the key capabilities required is the ability to discover and capitalize on the opportunities that this turbulence creates. A company's ability to take advantage of opportunities requires a number of intangible factors critical to sustaining a flow of earnings. Customer value has both tangible (financial) and intangible components, intangibles are critical to long-term success, and the ability to deliver customer value is a critical capability for most companies.

Table 1-1 outlines the pre-digital and digital fitness functions. Industrial-era competitive advantage came from efficiency, optimization, and economies of scale. In the digital era, success comes from capabilities such as innovation, adaptability, personalization, customization, and quick response. In Table 1-1, business and technology are functional areas, not organizations. Business and technology organizations don't have separate fitness functions; instead, both have customer value as a primary fitness function. If you are in the technology "organization," your primary fitness function is customer value and your secondary fitness function is speed/adaptability.

Looking at the table, you should not conclude that ROI and cost/efficiency are now unimportant—in fact, they are very important. They are not the primary drivers, but they are secondary, but still critical measures. You might think of customer value and speed/adaptability as the primary objectives and ROI and cost/efficiency as guardrails (constraints).

At the same time the business fitness functions have been transitioning, the technology transition has been moving from cost and efficiency to speed and adaptability (of course, customer value is everyone's primary fitness function). This transition is illustrated by an article and a book published 10 years apart. In 2003, Nicholas Carr wrote a controversial article in the *Harvard Business Review* titled "IT Doesn't Matter,"[10] which argued that IT had become a commodity and, therefore, could not contribute to sustainable competitive advantage. This article emphasized the focus on cost reduction, as it is the path to success for a commodity product. IT organizations were constantly admonished to reduce costs, a focal point that caused ballooning technical debt further impeding their digital transformation.

Ten years later, Rita McGrath,[11] professor at Columbia Business School, wrote that in today's fast-paced, uncertain world, sustainable competitive advantage itself was no more, being replaced by transient competitive advantage in which learning and adapting quickly was the ticket to success. In Carr's world, IT should be governed by cost considerations. In McGrath's world, responsiveness and customer value should drive IT.

The 2007 technological inflection point has exacerbated the difference between the rate of opportunity growth and the building of capabilities to take advantage of those opportunities. Opportunities are expanding so fast that you need ways to accelerate your ability to identify which opportunities to invest in and whether your organization has capabilities necessary to deliver on those investments. In short, you need more leverage. Leverage amplifies the results from a given set of inputs. Many enterprises are facing an existential crisis. They see a world of opportunities, but lack the capability to take advantage. They're being outpaced and outfought by the competition. This growing opportunity–capability gap has become a critical issue for executive leadership (Figure 1-3). Overcoming this gap requires innovative thinking and putting tech at your business's core, from strategy to delivery.

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[10] Carr, Nicholas G. "IT Doesn't Matter." *Harvard Business Review*, May 1, 2003. https://hbr.org/2003/05/it-doesnt-matter.

[11] McGrath, Rita Gunther, and Alex Gourlay. *The End of Competitive Advantage: How to Keep Your Strategy Moving as Fast as Your Busines*s. Boston, MA: Harvard Business Review Press, 2013.

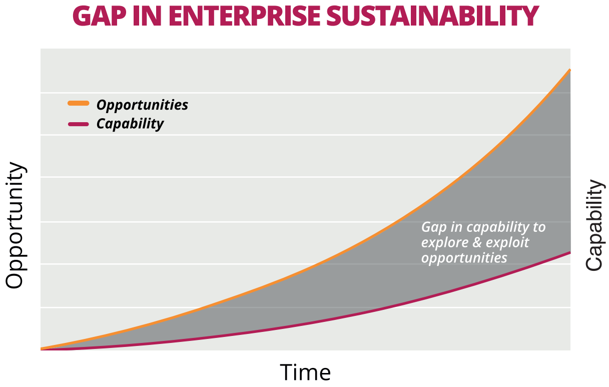

Figure 1-3
The widening gap between opportunities and the capability to explore or exploit these opportunities.

Switching fitness functions, either business or technology, has proved much more difficult than expected. When all of your processes, practices, accounting methods, and performance measures are ROI-driven, and have been for many years, switching to a customer value focus requires courageous business leaders. Similarly, switching IT from a cost/efficiency driver to one of speed/adaptability requires courageous technology leaders.

Making it to, and over, the next horizon requires that you be faster than the competition, adaptable enough, iterative, and driven by customer value. Being faster than the competition requires knowing the competition, which you often don't until late in the game. Being adaptable enough includes understanding the rate of change in your market segments and what new market segments might impact yours. Being iterative means getting quick feedback to steer toward your ultimate vision. Having a customer-value focus means looking from the outside in, rather than the other way around.

A product (or service) is what you deliver to a customer to capitalize on an opportunity. A capability is how you build the what. You need specific strategies and plans for both product and capabilities to narrow the opportunity–capability gap. Your capability development plans should answer the question, "Can we make what we want to sell—*in the future*?" In this book the authors will address these two aspects: capitalizing on opportunities in the form of delivering customer value by investing wisely and increasing the speed of building the capabilities (especially technological capability) necessary to achieve that.

The core question is how you make this fitness function transition fast enough to close the gap between opportunities and capabilities. How do you gain leverage, multiplying your capabilities? How do you combine components, both technological and intellectual, in a way that significantly increases your capabilities?

Customer value is key to the present. Adaptability is key to the future. When ROI and efficiency dominated the fitness function, adaptability suffered. In the technology realm, for example, IT software assets accumulated technical debt that severely impacted future development. Time and time again, when priority decisions were made the emphasis was on schedule and cost, not value and adaptability. Over time, software assets degraded to the point that many organizations' abilities to become digital enterprises were severely compromised.

It's Not Easy, Just Imperative

> *"In a new McKinsey Global Survey on digital transformations, more than eight in ten respondents say their organizations have undertaken such efforts in the last five years."*
>
> *"Only 16 percent of respondents say their organizations' digital transformations have successfully improved performance and also equipped them to sustain change in the long term."*
>
> —McKinsey & Company, "Unlocking Success in Digital Transformations," October 2018

As noted in the 2018 McKinsey article, even digitally savvy industries have only a 26 percent success rate, versus a success rate of 4 to 11 percent for traditional industries. We will never say such a transition is easy; the McKinsey data and our personal experience agree that it's not. The changes outlined in this book cover the gamut from measuring success, to leadership style, to capability building, to investment strategies. You will find different practices or ideas to plug into your organization's approach to transforming.

But in some way or another, your efforts need to cover all the bases we've mentioned—from how teams work to make collaborative decisions to embracing technology. So it's hard. What other choice do you have?

There is a telling phrase in the second quote from the McKinsey article: "and also equipped them to sustain change in the long term." Only 16 percent of the respondents to McKinsey's survey reported success at improving performance and sustaining it. Another 7 percent improved performance, but could not sustain it. One key question addressed in this book is "How can we adapt fast enough?"—a question that is related to sustainability. Fast enough isn't a one-time goal, but one that continues into the future. Transformation is not a one-shot deal as many organizational changes are—it will be a continuing process of evolution. Sustainability makes the transformation process even harder.

From the very outset, the agile movement was about mindset much more than practices. The same is true for EDGE. For example, Chapter 4, Building a Value-Driven Portfolio, is about building a Lean Value Tree and developing Measures of Success. Similar practices to these have been used by managers for many years. However, building these artifacts using a particular mindset—one that thinks of customer value first, that values short iterations and quick feedback, that is more comfortable with evolving rather than planning solutions, that revels in being part of an autonomous team—makes a huge difference in how these practices are implemented. In turn, a key goal of this book is to provide you with a contextual framework to not only adopt for yourself but also to use to help change the mindset of your colleagues. If you don't change your mindset, none of these practices will help achieve the digital transformation you seek.

Final Thoughts

The concepts and models introduced in this chapter are intended to help you navigate and put into context the specific practices introduced throughout the book. As you progress in your reading, keep the following points in mind:

- EDGE is an operating model that connects strategy to delivery. It does not cover how to *do* either strategy or delivery.

- The relentless focus is on delivering customer value. Customer value is an outcome rather than an output. For example, the number of features that a delivery team produces is an output, whereas the value that they deliver is an outcome.
- Today's world is awash with opportunities. You must first determine which opportunities you wish to pursue. Then, you must build the capabilities necessary to capitalize on those opportunities. Opportunities and capabilities are both driven by outcomes, but they are different types of outcomes.
- If you want your enterprise to be responsive (agile, adaptive), then you have to change your measures of success at the highest level—you must modify your fitness functions to encourage the responsiveness you desire.
- Fundamental change must be driven by courageous executives who are supported by courageous leaders at all levels.
- EDGE is not prescriptive, but adaptive. Every implementation of EDGE will be different, including yours. The core that will hold your version of EDGE together is the principles.
- Building capabilities for the future, from technical ones to portfolio prioritization, is critical for determining what you want to accomplish and how you intend to get there.
- The products that emerge from delivery teams should be driven by the Lean Value Tree: Goals, Bets, and Initiatives. The product blueprints ensure that the teams are looking ahead to understand the product evolution. The technology component ensures that the technology strategy and platform support the Lean Value Tree and the product blueprint.

Whether you are setting high-level goals or building capabilities or delivering a small increment of a product, the fundamental approach you need can be summarized in two simple words: **Envision–Explore**. These two words contrast with traditional approaches that can be characterized by two other words: **Plan–Do**. You can't plan your way into the future—you need to explore. Planning raises the specter of determinism: Just plan well enough, and then just do what you planned. In times of uncertainty and with an accelerated pace of change, our traditional reliance on planning won't work. It's not that we don't plan—we do. In fact, much of this book is about planning. We just don't believe our plans will survive reality. We don't waste time doing detailed plans that change constantly. We spend more time trying to envision the future, whether of our organization or of our detailed initiatives. You can't plan away uncertainty; instead, you have to learn it away. You have to try five things in parallel, in short experiments, to find the one that seems to work and is worth carrying forward. This Envision–Explore mindset needs to permeate your organization if it is to be successful at digital transformation.

As you move into the Fourth Industrial Revolution, where uncertainty reigns and the need for speed and innovation is the dominating force, portfolio and program management must be much more responsive than they have been in the past. Moreover, they must be incorporated into a broader operating model. The path to a digital enterprise lies in being innovative, fast, value centered, and adaptive—not in returning to the structure and process of earlier times.

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