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LEADING DIGITAL

TURNING TECHNOLOGY INTO BUSINESS TRANSFORMATION

GEORGE WESTERMAN | DIDIER BONNET | ANDREW McAFEE

"Imagination, capability, and opportunity take on a new dimension in the digital age. *Leading Digital* provides a framework for creating sustainable business differentiators across the value chain. A must-read for all those who aspire to become Digital Masters."

—**Manish Choksi**, President of Home Improvement, Supply Chain and IT, Asian Paints

"Westerman, Bonnet, and McAfee have done a masterful job of describing the essential characteristics of Digital Masters and presenting a thoughtful and pragmatic leader's playbook for digital transformation. This book is an exceptional contribution to strategy and management practice."

—**John Glaser**, CEO, Health Services, Siemens

"The authors have lived on the cutting edge of how global organizations use digital technology to change and improve the way they do business. With this book, they bring us along on the transformation journey. If you want to prepare yourself to lead your organization through this profound change, *Leading Digital* is a must-read."

—**Jean-Christophe LaLanne**, Executive Vice President and Chief Information Officer, Air France–KLM Group

"Using powerful examples, this impactful, evidence-based book demonstrates that mastery of digital technologies drives significantly high levels of profit and productivity across almost all industries—and shows you how to become a Digital Master yourself."

—**F. Warren McFarlan**, professor, Harvard Business School

"We are living in a time where technology is impacting everything we do and touch like never before, where being connected is becoming a basic human right, and where the unshared certainties of all businesses are turning into shared uncertainties. *Leading Digital* offers a powerful and refreshing approach to what needs to be done during each stage of this journey."

—**Osman Sultan**, CEO, Du, United Arab Emirates

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Let us be grateful to the people who make us happy; they are the charming gardeners who make our souls blossom.

—Marcel Proust

From George

To Clare, Henry, and Marilyn, who transformed my life in ways I never could have envisioned.

From Didier

To my wife Kathryn, for her immeasurable love and support, and to my two own digital masters, Alexandra and William, for keeping me on the right side of the digital divide.

From Andy

To my coauthors, who have taught me much about scholarship, writing, professionalism, and good cheer.

INTRODUCTION

ARE YOU READY?

Technology is the biggest story in business today, plain and simple.

There are other big stories, of course. The Great Recession of 2007–2009 and subsequent sovereign debt crises were hugely important events; they affected the fortunes of countless people and companies, and their impact is far from over. Globalization and offshoring are also key forces shaping strategy and structure both now and for some time to come. Demographics are shifting in ways that will cause deep and lasting changes in markets.

These are big deals, but technology is bigger. It's bigger because recent progress in all things digital is removing constraints and creating exciting new possibilities that affect everyone's lives and enterprises. Do you want to finally hear the voice of your customers and escape the narrow lenses of surveys and focus groups? Social media let you. Do you want all of your people to be available and productive no matter where they are? Mobile computing makes that possible. Want significantly better forecasts, judgments, and decisions in key areas? That's the promise of big data. Want to roll out entirely new organizational structures, business processes, and customer offerings, and to quickly modify them over time as circumstances change? We all know these things are possible because we've seen companies doing all of them.

The tech wave has been building for a long time, but has accelerated in recent years. The past decade has witnessed a remarkable run of

progress in digital technologies. The phrase *Web 2.0* entered popular use in 2004 to signify a deep change under way on the World Wide Web: a great democratization of content creation. The rise of Facebook, Twitter, *Wikipedia*, and many other utilities full of user-generated content shows that there really is a new version of the Web. Moreover, a new generation of computing devices seems likely to challenge, if not completely overturn, the decades-long dominance of the personal computer as the device of choice for knowledge workers. Apple's twin breakthroughs—the iPhone in 2007 and the iPad in 2010—ushered in the era of the smartphone and the tablet and made real the long-standing promises of mobile computing. These technology advances are staggering, but the real impact is how they are changing the way we live and work. Companies, and people, can do things that would have been impossible a decade ago.

The data center has been disrupted as much as the desktop has in recent years, thanks to the rapid rise of cloud computing, which is calling into question the standard assumption that you have to own technologies like servers, operating systems, and applications if you want to use them. Enterprise applications, social networks, mobile devices, sensors, and just about every other element of modern digital infrastructure generate scads of data—so much that we really do need to use the modifier *big* now to distinguish the current era. These and many other innovations are being combined to bring us the sharing economy, supercomputers that win game shows, cars that drive themselves, and a host of other novelties that fundamentally challenge our thinking about business structure, labor costs, and the relationship between people and machines.

The last time there was this much technological innovation hitting the business world was the first time. It was the Industrial Revolution, when new machines bent the curve of commerce, capitalism, and, indeed, human history. Today, innovation in digital technologies is bringing our world into what one of us (Andy) and his coauthor Erik Brynjolfsson called "the second machine age" in their 2014 book of the same name.

Are you ready for the second machine age? With all due respect, you're probably not.

We say this because for the past three years, we've been conducting research on how firms around the world and in many industries work with digital technologies. We've collected data and interviewed people at hundreds of companies. We've talked with executives and examined the companies' performance. We've studied both how the companies approach all things digital and the results of their efforts.

Our most fundamental conclusion is that *Digital Masters*—companies that use digital technologies to drive significantly higher levels of profit, productivity, and performance—do exist, but they're rare. For reasons that we'll explain here, most firms fall short of digital mastery. That's the bad news, and it's why we believe you're probably not ready to survive and thrive in the second machine age.

Here's the good news: the reasons that companies fall short of digital mastery aren't mysterious or too numerous to list. In fact, the reasons are pretty easy to categorize. Companies that struggle with becoming truly digital fail to develop digital capabilities to work differently and the leadership capabilities required to set a vision and execute on it. The firms that excel at both digital and leadership capabilities are Digital Masters.

If you read the business press about technology, you might well surmise that most Digital Masters are American; that most American masters reside in Northern California, the Pacific Northwest, or New England; and that most of these companies are in the hardware and software businesses. And certainly, giants like Apple, Facebook, and Amazon.com, and start-ups from San Francisco to Boston are excellent users of technology. But these aren't the Digital Masters we're talking about.

In fact, we didn't even include them in our research. We wanted to understand how technology was being adopted and used *in the 90-plus percent of the economy that doesn't do technology for a living*. So we didn't look at Silicon Valley's stars. And we didn't look at start-ups and other small companies either, because their tech-related opportunities and challenges are quite different from those faced by large enterprises.