

In New Book, TM Professor Aims to Help Companies Thrive in the Digital Era

The digital revolution is here, and it's here to stay, which causes some people to fear that they will need to master exotic new skills to survive. In a new book, *The Digital Mindset: What It Really Takes to Thrive in the Age of Data, Algorithms, and AI*, **Paul Leonardi**, a professor in the Department of Technology Management, and his co-author, Tsedal Neeley, a business administration professor at the Harvard Business School, argue that, to succeed in the digital era, people must learn to see, think, and act in new ways. The authors provide three approaches to enable senior leaders and their employees to develop the necessary digital skills.

For nearly twenty years, Leonardi has focused his research on how organizations can innovate and create the change that will improve the work of management and team members. He has published more than sixty articles in top academic journals and is an elected fellow of the International Communication Association.



Paul Leonardi offers guidance for prospering in the digital age.

Convergence: *Let's start with the title — what is a digital mindset, and why is it so important for people to develop?*

PL: When we talk about the digital transformation of companies, many people think that they need to develop lots of complex new skills, such as learning to code in the Python language, or multinomial regression. What we have found by working with companies over the past two decades is that, sure, success in the digital age requires some new skills, but more importantly, it requires new ways of thinking and acting to take advantage of the new possibilities that are available. That's what a digital mindset really is, and we have identified three approaches to help people meet the challenge of the digital age.

C: *What are those approaches and actions?*

PL: We argue that a digital mindset consists of approaches to collaboration, computation, and change. Most people already have in their minds an approach toward collaboration. They know what it means to work with others, and they have a sense, even when working remotely, of what good collaboration looks like. A huge part of collaboration in the digital era is knowing how to work effectively not just with other people, but also with machines. How do you know whether you can trust the predictions the machine is giving you, or how do you give commands to get machines to do what you want them to do?

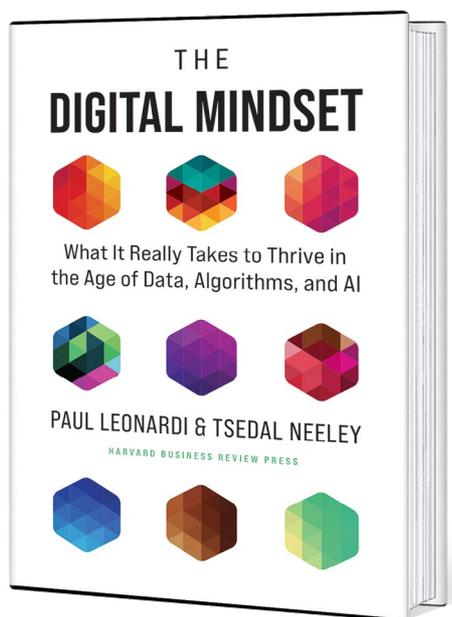
Most people wouldn't say that they have an approach to computation. But in the digital age, they need one. Computation is about working with data. One of our big points in the book is that data aren't collected, they are *produced*. All data are social constructs; they are neither natural nor neutral. We're in a world where decisions are based increasingly on data. All you have to do is think about the ads you get served when you're searching on Google, which are happening because of really fine-grained machine learning algorithms. That data is constantly being turned into predictions about what it is we're likely to buy at any moment. To understand whether a business can act on a prediction or a prediction is going to be useful, we need to have some rudimentary statistical knowledge. Interpreting statistics and asking the right questions related to them have to be part of your approach to computation.

The final approach needed to develop a digital mindset is what we call an *approach to change*. Most people think of change as episodic, that we go through long periods of stasis that are punctuated by short episodes of change. But in the digital world, we don't have periods of stasis anymore. We're in a constant process of change which, in the book, we call the process of *transitioning*. We're always transitioning from one set of practices or business models to the next, and that's in

large part because of all the new data that are being collected and produced and analyzed through digital technologies. And because we're in this constant process of change, it's extremely important to develop an ethos of experimentation and to get feedback on what's working and what's not. We also need to be sure that leaders of an organization are constantly helping employees develop the skills they need to embrace all of this change, and that those leaders are creating a culture that's receptive to change and not looking forward to a time when things calm down — because they won't.

C: Your book discusses the thirty-percent rule. Can you tell us about that?

PL: To many of us, the idea of being a competent digital person is kind of scary, because we think we don't have the necessary skillset. But we have found that to be a competent citizen in the digital world requires really only about thirty percent fluency in a number of areas that we outline. I like the analogy of learning a foreign language. Research shows that to communicate at a fluent level in a workplace, you'll need about twelve thousand words. But if you just want to be competent enough to work with people who speak a different language than you do, you need only about four thousand words, about thirty percent of the total. I see that analogy as helpful for thinking about where we are in the digital economy. The book is designed to help give people that thirty percent.



The Digital Mindset will be released May 10 and will be available at bookstores and online retailers.

C: How do you make these technical fields, which can be intimidating, less daunting and more understandable to the reader?

PL: One key is to use very basic language to help people grasp things. There are some technical terms for sure, but the writing is really aimed at teaching you what you need to know about a topic to make sense of the data that will be thrown at you all the time in decision-making situations.

C: How did you and Tsedal Neeley connect and start collaborating on this book?

PL: She and I are long-time collaborators; we joke that we are academic siblings. We never planned to write this book, but in our teaching, consulting, and speaking gigs, we both kept hearing the same thing over and over again, which is, "If I'm going to make a digital change happen in my organization, then all of my employees are going to need to be digitally competent, and I'm not sure how to do that." That's what really compelled us to write the book that no one else was writing.

C: Can you tell me a little about what was involved in researching the book?

PL: We've interviewed more than three thousand people, we've surveyed upwards of five thousand people, and we've spent hundreds of hours observing people using digital technologies in the workplace. A big part of our strategy was to try to look at people having a wide variety of digital skills and competencies across a number of different industries at various career stages, and identify people in all of these different areas who have developed a digital mindset. From there, we were able to extract the thirty percent necessary to have a digital mindset.

C: You have published academic books and many journal papers. Can you talk about how this book is different?

PL: The goal of this book is to translate that academic research for a wider audience so they can develop a set of practical skills. It's the first book I've written for a wider audience. My big fear is that an expert can look at each chapter and say that we barely scratched the surface, because in the academic books and articles I've written, I go all the way to the bottom every time. But in trying to create a helpful guide for a broader audience, my goal is different: It's about getting the reader to that thirty percent and explaining things in ways that they are going to understand.

C: What do you hope your readers get out of this book?

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PL: Three things. The first is confidence. I hope that after reading the book, they'll be able to say "I can do this." They will know they are prepared to be a key player in helping their company move into the digital age. The second thing is an awareness that they have developed new knowledge and an understanding of where they need to gain more knowledge and training to be effective in their role today and in where they want to go in their careers tomorrow. The third thing is for them to see more possibilities and more avenues for themselves and their companies.

C: This book exemplifies the relevance and importance of UCSB's Technology Management. What do you think it says about the department and its faculty and research?

PL: Recently, we officially became the Department of Technology Management and are now the sixth department in the College of Engineering. What we do in technology management is to provide a bridge between engineering and the world of work. If you don't have the right mindset, you're not going to be able to see how we can take those technologies that are being developed in the college's other five departments and make the right kind of organizational changes to make those technologies effective. That's really what a digital mindset is all about. It's about understanding opportunities for change by having an ability to appreciate the underlying engineering and science. As a department, Technology Management helps people understand how to make the organizational changes that allow them to effectively utilize and implement emerging technologies, while also identifying the kinds of organizations that are able to develop and apply the technologies that are being developed at great research universities like USC.