THE TECHNOLOGY TAKERS

Leading Change in the Digital Era

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Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2019

British Library Cataloguing in Publication Data
A catalog record for this book is available from the British Library

ISBN: 978-1-78769-464-4 (Print)
ISBN: 978-1-78769-463-7 (Online)
ISBN: 978-1-78769-465-1 (Epub)

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Certificate Number 1985
ISO 14001

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PREFACE

WHY READ THIS BOOK

If you are standing on the sidelines wondering how to jump into the digital game, this book is for you. If you have seen others pour endless sums of money into failed technology experiments and want to avoid a similar fate, this book is for you. If you are concerned that your organization may be wedded to outdated technologies, this book is for you.

We offer a proven approach for capturing the benefits of new technologies while limiting your business risk. We offer a simple strategy for winning at the technology game, by taking the best of what is available, rather than trying to invent everything yourself. By recognizing that taking on new technologies requires willingness to learn and continually change. We invite you to enjoy the journey.

IDEA IN BRIEF

Digital-era technologies lead organizations to become technology takers, the equivalent of economic "price takers." To be a technology taker is to assent to the behavior-transforming benefits of modern technologies. This playbook offers technology takers' tactics to manage change, create value, and exploit the digital era's strategic opportunities.

SUMMARY OF THE MAIN ARGUMENT

Users of twenty-first-century digital-era technologies are "technology takers," accepting of and adjusting to whatever the market offers them.

Similar to small firms that lack the market power to set prices and are economic "price takers," managers today are increasingly unable to customize the digital-era technologies their organizations use. Technology takers have little influence over the capabilities of the technologies they adopt; they cannot expect to improve on or customize for themselves the features of Facebook, Google, the iPhone, the blockchain, cloud-based enterprise resource planning systems, or other game-changing technologies.

The inability to modify available information technologies is a shock to leaders and managers alike. Cloud-based technologies arrive with set processes developed by others, and users must learn new ways of working each time the technologies themselves evolve. But refusing to adopt and adapt to digital-era technologies is increasingly not an option. Change in the digital era is constant and behavior-transforming. Leaders must respond to these changes, or they will get left behind by those who do. The constancy of change also means that organizations have to do more than launch typical, one-off change management or transformation projects to succeed.

To adopt efficiently and adapt effectively to behavior-changing technologies, astute leaders should employ change leadership techniques as a strategy for the digital era. This book offers technology takers a playbook to manage change, create value, and exploit the digital era's opportunities. The book draws on research and recent case studies to explain what it means to be a technology taker. Organizations and their managers are offered change leadership plays, which emphasize the iterative nature of change management in the digital era. The book also describes how technology-taking can create value through data stream analytics and be used to respond proactively to the challenges of the digital era.

ACKNOWLEDGMENTS

We sincerely thank our series Editorial Director and Head of Business, Finance and Economics Books, Emerald Group Publishing, Pete Baker. We are grateful to three anonymous peer reviewers of our proposal whose comments helped improve and clarify the purpose and scope of the book. Katy Mathers, Editorial Assistant for Business, Management, Economics, and Finance at Emerald Publishing, is earnestly thanked for her tireless support, as is the cover designer, Mike Hill.

Great thanks are owed to our research assistant, Kathleen Guan, for her copy editing, footnoting, and investigation skills, without which this book could not have been completed. We also appreciate the Latin expertise of classics scholar, Jonas Howard: *scientia est maior aetate*.

Our gratitude is to Claire Messina, Miguel Panadero, Mads Svendsen, Sabine Bannot, Paulo Lyra, and Daphne Moench for support and insights. Joseph Ippolito is also thanked for comments on the initial book proposal, including early foresight into artificial intelligence and related operational strategies. We are grateful to Gerald C. Anderson for sharing his leadership ideas and insights on both strategic and tactical change management tools and techniques.

Further, we are grateful to our families, who have assumed a disproportionate share of domestic duties while we were busy writing. Without the unending emotional support of our spouses, this book would not have been possible.

We are thankful to the support for this book from past and present colleagues. Importantly, the views and opinions expressed in this book are those of the authors' alone and do not necessarily reflect or represent the views of the authors' past or present

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THE TECHNOLOGY TAKERS OF THE DIGITAL ERA

Digital-era information technologies induce organizations to become technology takers, the behavioral equivalent of economic "price takers."[1] In a perfectly competitive market, buyers cannot establish the price they desire for the goods they want; these price takers must accept the price offered.[2] Twenty-first-century technologies are beyond the influence of any one organization to customize to meet specific requirements.[3] Organizational leaders become "technology takers," changing their own work behavior to adapt to whatever the modern information technology market has to offer.[4]

Digital-era technologies are ever-changing, frequently updated via cloud computing, and not proprietary or unique to any one organization. This contemporary technology requires two reactions from its users: first, that they adopt the technologies by conducting their work through the technology's processes; and second, that they adapt by modifying their actions in order to use these ever-evolving technologies more efficiently.[5] Users exchange their autonomy for efficiency, in that the digital-era technologies determine how users must modify their behavior. Most cannot resist using the technological systems that enable modern life; neither can they refuse the almost daily changes foisted upon them by continuously updating systems.[6] Users must take digital-era technology as it comes and must react in novel ways relevant to the modern age.

THE DIGITAL ERA DEFINED

The fundamental characteristic of current, digital-era technology is that it obligates users' acceptance of its processes and systems. The dominance of cloud-based products gives today's organizational leaders little influence over the functioning of technologies used in the workplace. Failing to change the tech, the users themselves must change.[7] In contrast, twentieth-century technologies were, in most cases, electronic enablers of existing processes, obligating no true, fundamental change of user behavior.

Consider the different behaviors adopted by mobile and smartphone users. The twentieth-century mobile phone enabled conversations via portable, rather than landline, phones. But how things were said and how information was accessed did not change. In contrast, smartphones are twenty-first-century digital-era technologies that modify users' behavior due to constant, built-in, system changes. Smartphones access voice, Internet, text, and global positioning data. They revolutionize where, how, and with what information and data streams people work. Smartphone users are technology takers of the options provided by their phones' operating systems, by Apple or Alphabet. Users cannot specify their phones' operating systems. They accept their phones as they come, for smartphone use has come to dominate every aspect of modern life, from the time the user awakes to the minute they dim the screen and close their eyes at night.

At the organizational level, customized enterprise resource planning (ERP) systems enabled organizations to convert existing business procedures into specified electronic processes. But now, in the digital era, organizations adopting software as a service (SaaS) cannot affect the specifications of available cloud-based processes.[8] Instead, SaaS defines and constantly redefines the shared, globally applicable processes to which users must adapt. Certain SaaS systems, such as Office 365, Dropbox, GoToMeeting, SAP Concur, SalesForce, Workday, and WebEx, have become virtually ubiquitous. From their users, these require constant adoption of their latest process changes. These systems also demand that the user change her behavior as she adapts to using these processes. Collaborative technologies also require each user to change his

behavior. The failure of one user to adapt will frustrate the progress of the entire group. For, as he fumbles to mute his microphone or share his screen, a less-than-fluent user can prevent all others from having a productive or understandable meeting on WebEx or GoToMeeting.

Like SaaS, data as a service (DaaS) and blockchain as a service (BaaS) too are technology services. Users must apply these services' conventions and the way they display and analyze data; these cannot be modified.

Digital-era technology platforms also require user adherence and conformity. Blockchain is such a platform, a distributed digital ledger where transactions are recorded sequentially and publicly. Software firms have developed application software and programmers have developed open source applications using blockchain. Companies can also write their own applications using blockchain (including BaaS). From a process perspective, blockchain is a service. Users can apply the blockchain differently but cannot change the way the distributed ledger works.

The digital era is also characterized by the use of and research about artificial intelligence (AI). Python is an AI language that is a technology tool. Using Python does not require adherence to defined business processes. However, the average user cannot change the AI software embedded in hardware devices or the AI algorithms in application software. These must be taken as they come. Further, robots are controlled by AI-enabled hardware and software. Robotics is a mechanical engineering application of information technology and is the very embodiment of the digital era. The individual user does not control the robot; the AI software does.

TECHNOLOGY'S PRICE TAKERS

The relationship between technology takers and digital-era technologies is similar to the relationship between small firms and a globalizing marketplace. The transactions of small companies and individual consumers are too inconsequential to affect the market price of a good. The good's price is set by the greater forces of

supply and demand. Businesses must accept the prevailing prices in the market for the sale of their products, and they must distinguish their products in some other way than price. Small firms are price takers and obtain profitability through decreasing production costs, increasing the volume of sales, or through some other internal effort.

The economic model of perfect competition, which leads to price taking, makes several assumptions that can be analogized to the behavioral model of technology-taking.[9] In a perfectly competitive market, goods are identical and cannot be distinguished from one another. The market has a large number of buyers and sellers; so many, in fact, that none can affect the market price. Although the perfect market already has many competing firms, more businesses may enter or exit the market at any time. Finally, the perfect competition model assumes that each player in the market has complete information about the market's prices and operations and that information costs little to obtain.

Technology-taking in the digital era is similar to the ideal market underlying the microeconomics of price taking. In the perfect competition market model, there are many buyers and sellers, and the products offered tend to be quite homogenous. In our digital-era analogy, homogeneous smartphones, whoever their maker and regardless of whether based on systems by Apple or Alphabet, have flooded the market and tend to be very similar in product scope. Demonstrating low costs of entry, digital-era applications are globally applicable processes available at zero cost for the general public (Facebook, Instagram, Snapchat, Google, etc.). Low general or relative cost makes consuming digital-era technologies exceedingly easy to do. For example, SaaS-based ERPs are comparatively cheaper than their alternative, customizable ERP options; whereas cloud-based ERPs will update automatically, the buyer of customizable systems has ever increasing costs to update and maintain her systems manually.

In a perfectly competitive market, there is low cost of entry and exit for price takers. In the absence of regulatory restriction, anyone can set up shop selling vegetables or cooked food or widgets, and if the business is not profitable, it can be closed. Analogously, twenty-first-century technologies that drive technology-taking are rarely

proprietary or restricted to one user or organization at the point of adoption. These are free to flood the market. And some digital-era technology is offered at no cost at the point of consumption: think of Amazon, Google, and Facebook. Virtually every modern consumer technology is based on the Internet itself with very low costs of entry.

Small firms cannot opt out of the marketplace, for the market is the ecology in which the firms operate and find their customers. There is no alternative. Users of smartphones and SaaS cannot decide to use only some of their technology's operating systems. To accept a part is to accept the whole ecosystem of an iPhone or a cloud-based ERP; both require the full adoption of the product offered. Sure, a user could never open, say, the mapping application on her smartphone, but it is always there in the background, its global position system enabled, and its data stream uploading to the cloud. The minute the user accesses Facebook or Google via her smartphone, these systems obtain the user's geolocation data from her smartphone to create a bespoke Facebook or Google experience. The user cannot hide from the digital-era technology around her.

Arguably, the digital era also includes the free flow of information to those who require it. The information about the price and functioning of digital-era technology is offered at low cost to all interested users.[10] Applications on smartphones are free or cost pennies and have made widely available smartphones' almost endless capabilities. Information is amply available about modern tech, often through the very cloud-based systems on which these technologies rely.

RELUCTANT TECHNOLOGY TAKERS

The technology taker concept works in different types of markets with different levels of competition. For some digital-era technologies, the taker is forced into that position by monopolies or oligopolies of the technology. In the market, prices are set either because there is much choice or because there is too little choice to meet demand. Where there is lots of demand and few options, the

price is set artificially high: For technology-takers, this means a singular technology option is restricted to those able to access and afford it. The marginal effect of one more user demanding a technology is nil. In monopolies, the tech maker would determine the functioning of the market because the users' demand would not matter at all.[11]

Google is a near-monopolist of Internet search, but one that has decided on a price point of zero. So too is Facebook a monopolist of social networking with no price. The user of these technologies takes them as they come and has little influence on their offerings. Users may not have contemplated the true costs of using the "free" services of Google or Facebook or Amazon marketplace. The cost extracted by digital-era technologies, where the perfect competition model of tech meets reality, is that these technologies require users to change their behaviors.

TECHNOLOGY-TAKING AND THE BEHAVIOR CHANGE DELTA

Technology-taking requires constant behavior change of users of digital-era technologies. Behavior change implies an explicit need to manage those required changes. As defined for the digital era, change management is the acquired organizational skill set of dealing with the entrenched inability of managers and their organizations to recognize the need to (1) adopt, rather than resist, the technologies that are now fundamentally changing entire industries and (2) adapt behaviors, rather than customize the technologies.

Those in denial of the digital era's demands put people, processes, and technology on equal footing when implementing change. In classic, project-level change efforts, people or processes would drive change. Technology was at the bottom of the Behavior Change Delta, not at its apex, because there was no harm to a process or people-first approach. Technology building blocks were seldom sufficient for business transformation, certainly did not cause business transformation, and their lack seldom held a business back.

In the digital era, technology takers must recognize that technology is now at the apex of the Behavior Change Delta. Because of constant, technology-driven changes, the processes workers must use are increasingly becoming subsumed by technology. Now, the intersection among technology, people, and processes is the focus when managing behavior change (Fig. 1).

As faculty and advisors to managers across industries, we have conducted an exercise to explain the Behavior Change Delta. We created three triangles out of string to show process, people, and technology. We then asked the students to step into a particular triangle to indicate answers to two questions.[12] First, we asked them to step into the triangle showing where their past and present organizational change projects had taken place. Most stepped into the process triangle; a few lurched, almost apologetically, into the technology triangle.

Then, students were asked to step into the triangle they considered most important for an organization undertaking a change project to support the organization's mission. Answering this question is challenging from a change management perspective. The answer indicates an organization's ability to deliver on its mission while remaining successful in the digital era. Usually with a sense of relief, most students stepped from process to people. A few stayed in the process delta triangle, but rarely did anyone stay or move into the technology triangle.

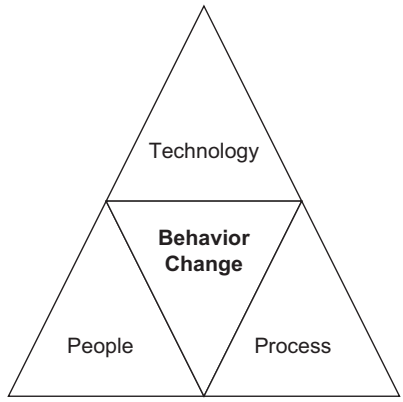

Fig. 1. The Behavior Change Delta.

This exercise shows that the idea of technology-taking has not fully caught on. Prior to the digital era, strategy, as well as change management, was focused on people and process. Many change management projects tried to ensure the hiring of people with skill sets that matched those demanded by customers. Or change was planned around either strategic or tactical actions driven by a marketing or a production method or a new set of strategic goals. Or internal processes were the starting point for customizing an ERP. In these examples, people and process changes would be enabled by technology in support of the expected or resulting behavior changes, which were calibrated to support the organization's mission or strategic intent.

Now, technology has ascended to the top of the Behavior Change Delta. Twenty-first-century technologies are not merely replicating or enabling existing processes or ways of doing things; they are forcing changes in standard or grandfathered practices. It would be hard to find a chief information officer from the 1990s who would have predicted the death of formal, validated business requirements and the rise of a technology-first adoption process.[13] Organizations and their leaders must adopt digital-era technologies that are interrupting entire industries – from retail (Amazon) to political campaigning (Facebook).

Further, people and organizations must adapt their workplace behaviors to these technologies, and adaptation to digital-era technologies is constant and never-ending. Technology takers are in an iterative game because the technologies they use are constantly being updated and revised. Change management, including leaders' sponsorship of change, too must be continuous and geared to the long term.

Digital-era technologies are beyond the influence of any one organization. Instead of accepting and managing the inevitable changes of the digital era, many organizations are still vigorously trying to fight them. These organizations insist on redefining, reengineering, or rejiggering internal processes. These efforts do not work. Consider that no one user has control over the algorithm of Google Search and would be somewhat silly to try unilaterally to improve it. It is the dominant search technology for its ease of use and comprehensiveness. Yet some libraries still argue that their