



Leading a *Digical*SM transformation

The big change taking place in business today is the combination of digital and physical elements to create wholly new sources of value.

By Darrell K. Rigby and Suzanne Tager

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The digital revolutions we have experienced in the last few decades are nothing short of miraculous. In fact, the changes have been so dramatic that some have predicted the demise of physical commerce entirely. “The retail guys are going to go out of business, and e-commerce will become the place everyone buys,” declared Netscape cofounder and venture capitalist Marc Andreessen. Author Brett King argues that branch banks are headed the way of book and record stores: “By 2016, the average user of banking services will be using digital services 300 times for every physical interaction with their bank.” One can imagine similar arguments about entertainment (who needs movie theaters or concerts?), about routine medical services (the doctor diagnoses your condition through remote sensing and sends the prescription to your e-pharmacy), and even about the production and distribution of goods (“dark” factories and warehouses, staffed entirely by robots).

And yet, straight-line extrapolations of digital dominance miss some important insights. We humans are physical and social beings. We *like* to go out, to interact in person with other people, to touch and handle and make things. Besides, any straight-line extrapolation assumes that changes in the business ecosystem will continue predictably in the direction of the current curve, when in fact rapid evolution creates unexpected opportunities and new competitive dynamics. Look at movie theaters: People have been predicting their demise for nearly 70 years. In principle, we could easily watch all of our movies at home, streamed digitally to a big-screen TV. In practice, theater owners and others in the business have devised a variety of attractions—better seating, innovative projection and sound technologies, full-service theater-restaurants—to lure us off our couches. US theater attendance has declined a little over the last decade, but it is still nearly three times as large as attendance at all theme parks and major sporting events combined. Profitable theaters will almost certainly coexist with more home viewing in the foreseeable future. You can’t watch an IMAX in your living room or on your mobile device (yet).

The truth is that both the digital world and the physical one are indispensable parts of life and of business. The real transformation taking place today isn’t the replacement of the one by the other, it’s the marriage of the two into combinations that create wholly new sources of value. This is a phenomenon we at Bain call *Digical*SM, and it is likely to reshape not only the way people live, but the way companies operate.

The Digical world

Digital-physical innovations are already changing virtually every part of the business world. The effects are dramatic in some industries and modest in others, but they are hard to miss. Think for a moment about just a few of the combinations that are now reality:

- Travelers still rely on airplanes to visit a distant city. But the reservation, ticketing and payment system for the trip are all digital. So is the plane’s control system. Face- and iris-scanners may soon supplement human security personnel at airport checkpoints. Such technology may eventually allow airlines to “eliminate the boarding pass completely,” according to the chief information officer of London’s Gatwick Airport.
- Most healthcare today relies on physical interactions combined with growing use of digital diagnostic equipment and records management. But medicine is expanding its Digical innovations. Intuitive Surgical’s da Vinci machines enable a mentoring surgeon in New York or London to monitor everything a less experienced surgeon in Johannesburg is doing and draw guiding incision lines on the surgical image from a remote interface. Local mentors with dual digital consoles can even take over robotic control at especially critical points.
- 3-D printing, a digitally controlled process currently used mainly for rapid prototyping, is finding a variety of new applications. General Electric plans

to use an advanced 3-D technique known as direct metal laser melting to produce fuel nozzles for its next-generation aircraft engine. Richard Van As, a South African carpenter, worked with partners to develop a mechanical “robohand” made from digitally printed parts. One beneficiary of Van As’s design is a young man in Massachusetts who was born without fingers on his left hand. His new prosthetic cost about \$150. The next-generation robohand, refined through crowdsourcing via social media, snaps together like LEGO bricks; the materials cost about \$5.

- “Smart” homes learn user preferences and automatically adjust utilities settings. Smart grocery carts detect nearby items and show videos of meal and recipe ideas in real time. Smart cars can detect obstacles in the road and can help you park. Driverless cars are very much in the works. Audi’s robotic car has journeyed to the top of Pike’s Peak in Colorado; Volkswagen’s has traveled down Berlin streets. Google has many prototypes that as a group have gone more than 600,000 miles without a serious accident.

This trend toward a Digical world will only intensify. The much-heralded “Internet of Things”—sensors attached to everything from electrical turbines to railroad cars—will digitally monitor performance and environmental conditions in the physical world, boosting efficiency and minimizing unplanned downtime. Live entertainment from rock concerts to theme parks will incorporate more digital effects. Disney World’s new MyMagic+ system, for example, provides visitors with a smartphone app and a radio-frequency-enabled wristband that acts as ticket, room key and credit card, allowing them to book rides in advance and charge meals with a flick of the wrist. Even companies built strictly on e-commerce are coming to see the value of the physical dimension. The e-retailer Bonobos, one among the many that are rethinking their priorities, has begun to open “Guideshops” where people can try on the company’s clothing, and in

late 2013 its products were available in 80 Nordstrom stores. Says Bonobos CEO Andy Dunn: “What we’ve learned recently is that the offline experience of touching and feeling ... isn’t going away.”

The key questions for today’s executives are how to anticipate developments in this ongoing revolution and how to lead the inevitable transformation. We recently reviewed the experience of some 300 companies engaged in Digical initiatives. Our sample covered a full range of industries, from those that won’t soon see much digital-physical transformation, such as construction, to those that have already been dramatically (and traumatically) transformed, such as media. We examined companies at every stage of evolution within these industries, and we carried out longitudinal studies of their transitions over time to understand the changes and conditions that led to positive and negative results. We also reviewed the relevant literature and conducted interviews with executives in leading organizations.

The findings point in one clear direction. Every industry will undergo some degree of Digical transformation. Virtually every company will have to respond. The threat is great, but so is the opportunity: A strategy that fuses the best of both digital and physical worlds is likely to generate the greatest value for the foreseeable future. Yet creating Digical products and developing Digical capabilities requires sustained focus and the right investments. You can’t just add sensors to a product or tweak your e-commerce capabilities. And in most cases you can’t simply “switch sides,” throwing away core advantages while pouring resources into high-risk, purely digital ventures with no clear competitive edge.

Let’s look at how to begin.

Diagnosing your industry

Though Digical innovations will affect every industry, they’ll hit some businesses much harder and faster than others. So a key first step is assessing your company’s

environment. How much has the ongoing transformation already changed your industry’s offerings and competitive dynamics? How much is it likely to do so in the next several years? Figure 1 captures Bain’s assessment of Digital transformation for 20 different industries. You can see at a glance some of our key findings:

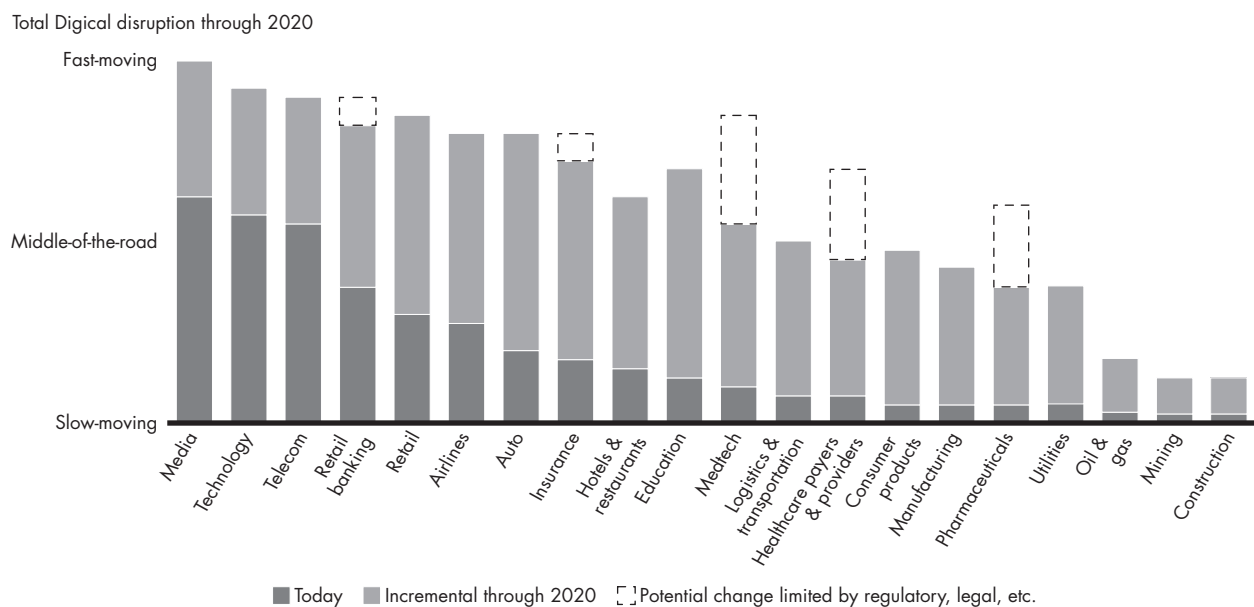
- **The impact ranges widely.** Industries occupy remarkably different points on the transformation curve. Change has been more than three times as extensive in media, technology and telecom industries as in oil and gas, mining and construction. Other industries are spread out across the curve.
- **The biggest change is yet to come.** The next several years will bring far more innovation to most industries than they have seen in the past. Automotive, insurance and many other businesses are poised on the verge of far-reaching Digital transformations.

Even today’s early movers, such as telecom and retail banking, are in for a lot more change in the future.

- **Wild cards can affect the pace of change.** Some industries—but only some—will be held back by external factors. Healthcare, in particular, won’t evolve as quickly as it otherwise might; regulations, reimbursement practices and liability issues all impede innovation.

The aggregate numbers, while telling, are only a starting point. The challenge for any company is to analyze each part of its industry’s value chain and determine which points are best suited to Digital innovation. In construction, one such point may be site preparation. (Caterpillar already produces earth-moving machinery equipped with GPS and laser technology, allowing operators to excavate to precise depths and slopes.) In healthcare, opportunities for innovation may lie in the

Figure 1: Projected Digital transformation by industry through 2020



The rankings are based on examination of more than 300 companies engaged in Digital projects, plus additional industry interviews. We calculated relative levels of disruption based on our review of value chain impact and importance both today and in the future—that is, which segments of the value chain are most important to success in that industry and how much disruption has occurred and will occur in those segments.

delivery of chronic-care services. (Remote sensors and monitors can help keep patients with chronic illnesses at home and out of the hospital.) Look at the music business, which many people believe has somehow died. Recorded music is still a profitable business—but mostly for Apple, which transformed how music is sold. Licensing is still profitable. Live concerts, augmented by digital technologies, are more profitable than ever. The vulnerable part of the value chain was the conventional method of producing and selling records.

The retail industry illustrates the scale of change that lies ahead and the corresponding areas of opportunity. Virtually every retailer has faced severe disruption from pure-play online competitors, and many have already spent hundreds of millions on building up their digital marketing and e-commerce capabilities. But a long list of other potential investments awaits: digitally enhanced customer service, interactive displays in stores, advanced website improvements, supply-chain efficiencies, rapid fulfillment, radio frequency identification (RFID) tagging in stores and warehouses, mobile apps, new point-of-sale systems, employee training and development tools, mobile payment systems, advanced customer relationship management analytics, IT systems integration and security, and so on. Most retailers have barely scratched the surface in these areas. Moreover, the industry's disruptors have not played their last hand. Amazon CEO Jeff Bezos, for example, has expressed an interest in building physical stores. Should the company figure out ways to reinvent the store along Digical lines, that would represent one of the biggest threats yet to traditional retailers.

What matters most to every company, of course, is how fast it is moving relative to others in its industry. The research firm L2, which calls itself A Think Tank for Digital Innovation, calculates a “digital IQ” for companies in a variety of industries based on assessments of hundreds of different variables. Some companies find that their scores actually drop over time, even though

they are making big investments in innovations. The reason? Competitors are moving faster. Particularly in industries that are changing quickly, many companies run as fast as they think they can, only to find that they are falling further behind.

Responding to Digical innovation

Most companies find it hard to respond successfully to innovations of all sorts. Our study of 300 companies found that not a single one was completely surprised by the advent of Digical innovations, yet nearly 80% of those companies are still in the early stages of response. This probably shouldn't be surprising. Digital expertise is still scarce in the senior ranks of many traditional companies, so executives often fail to understand both the threats and the opportunities. Confronted by unfamiliar new technologies and competitive moves, some do their best to ignore the threat; they convince themselves (and seek reassurance from the rest of their team) that it won't last or doesn't really mean much. Everything will be OK as long as they keep doing a good job in their traditional business. Others take the opposite tack, nervously overreacting to the hype that greets the innovation and then placing outsized bets on strategies based on hunches. In both cases the companies involved are likely to wind up in trouble.

The most successful companies understand the need to respond but recognize that the response will evolve along with their experience and capabilities (see the sidebar “NIKE embarks on a Digical future”). They acquire and nurture the necessary expertise, often going where the talent is (Silicon Valley, for example) rather than expecting innovators to come to them. They keep innovation units separate from the core business for a while, so that those units can experiment and grow without the constraints of a large organization. But they also work at improving the core itself, understanding that the core holds potential competitive advantages. Eventually they bring the core and the innovators to-

NIKE embarks on a Digital future

What could be more firmly rooted in the physical dimension than the leading sports apparel company in the world? Yet NIKE has begun to create a broad-based Digital business, to the point where *Fast Company* named it the “No. 1 Most Innovative Company of 2013.”

An early initiative was the company’s NIKEiD customization program, launched in 1999. Buyers would visit nike.com and customize certain NIKE shoes, choosing their own base and accent colors and then adding a “personal I.D.” to the product. NIKE then began introducing Digital innovations at other points in the value chain, creating links between company and consumers that went well beyond the sale of a sweatshirt or a pair of shoes. In 2006, for instance, NIKE CEO Mark Parker and Apple’s Steve Jobs unveiled the NIKE+ app, a product connecting the NIKE+ Air Zoom Moire, a shoe with a built-in sensor and receiver, to an iPod Nano. Runners could see data about their time, distance, calories burned and pace on the device’s screen or hear it reported orally over their headphones. After the workout, they could sync the iPod with their computers and chart their progress.

Today, more than 20 million members spanning the globe use the NIKE+ platform, tracking and sharing runs, workouts and fitness goals—and providing the company with invaluable data about who their customers are and what they value most. NIKE’s NIKE+ FuelBand and NIKE+ FuelBand SE, two models of an electronic bracelet, take the post-sale involvement one step further. The FuelBands measure all the user’s movements throughout the day, recording indicators such as steps taken and calories burned. As with the shoe sensors and NIKE+ Running app, users can capture this data, track and record their level of activity, and share the information through social media.

The company has found creative ways to integrate the digital and the physical not only in its products but also in its go-to-market system. Preparing to launch its new NIKE Free Run+ 3 shoe in 2012, for instance, NIKE first offered it online to NIKEiD customizers, who responded by creating more than a million designs in just two weeks. The resulting buzz created “enormous momentum and high sell-through ... when the NIKE Free Run+ 3 hit retail shelves,” said company executive Christiana Shi. Another example: the company’s “women’s training club,” a special section of NIKE’s stores that brings together products for women, services such as bra fitting and shoe trying-out, and training classes—“all to make it easier for her to find, shop and buy the right product in a seamless way across NIKE channels,” according to Shi.

An important step has been NIKE’s reorganization to foster these innovations, including establishing a Digital Sport division in 2010 and creating a state-of-the-art e-commerce platform. The payoffs include increased market share in key areas, a 32% growth in e-commerce sales from FY 2012 to FY 2013 and a rising stock price, from below \$40 in 2009 to nearly \$80 in late 2013. “NIKE has broken out of apparel and into tech, data and services, which is so hard for any company to do,” one analyst told *Fast Company*.

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gether, transforming the company and capitalizing on those competitive advantages to create Digical innovations of their own.

The timing and balance are delicate. Get the process right—as companies such as Disney, Audi and Commonwealth Bank of Australia seem to have done—and the revitalized core continues to generate growth and profits. Get it wrong and the organization stifles the innovations. Of course, some of the steps along the way will be way stations; history will view them as transition points, like the videocassette recorder. But from a company's perspective, it hardly matters. Even if a new product, organizational structure or mobile strategy turns out to be transitional, it helps the company extend its core business, generates cash to fund further transition and builds capabilities that will be essential for future success.

So the response typically plays out over a period of years. During that time, we have found, Digical innovators in virtually every industry pass through three quite different stages of development. Knowing which stage you are in today can help you figure out the best relationship between your traditional business and your new one. It can also help guide the right moves from your current stage to the next.

Beginners. Most companies are just getting started. They are still novices. But not all of these Beginners are the same. Some are pioneers—they may be in a slow-moving industry, but they're hoping to lead their peers into the Digical future. Others are laggards, late to the party and now well behind the competition.

Despite their different situations, the two groups often have a similar look and feel. Beginners are still figuring out how to experiment with new Digical fusions while maintaining their core business. They are still trying to identify their customers' needs and frustrations. They may be slow to innovate, and they are likely to have a lot of money invested in older technologies. Their organization is probably siloed and their culture conservative.

Executives at Beginner companies, we have found, are often most concerned with developing new growth options even as they exude complete confidence in their traditional core businesses.

Danone is one company that may qualify as a pioneer Beginner. Its industry—consumer packaged goods—has generally been slow to create Digical products or embrace online channels, and in 2012 Danone's director of communications acknowledged that the company “was not really an early adopter” of digital innovations. At this writing, Danone has made initial moves into digital marketing and social media, and it has announced (but not yet released) a Wi-Fi-equipped refrigerator magnet that lets users set their preferences for bottled-water delivery and then transmits the information wirelessly to the deliverer. Danone has also created the position of vice president of connection, media and innovation, responsible for integrating its online and offline marketing efforts.

Intermediates. Typically, companies in the Intermediate stage have already launched some Digical initiatives. Instead of merely responding to threats from rivals, they are out to beat the competition. If that requires making big investments in new technologies or seeking out new customers, so be it. The future may be scary, but in an Intermediate's view, it can't be avoided. Though many Intermediates still have only average infrastructure capabilities, they are testing and learning aggressively. Organizationally and culturally, they view Digical goals with enthusiasm, though individual units may be protective of their unique skills in this area. Executives of Intermediate organizations often create new performance metrics (such as loyalty or market share of the most attractive Digical customers) to focus the organization's efforts and build confidence in the new direction.

Macy's provides a good example of an Intermediate. As early as 2005 the retailing chain was investing heavily in website and infrastructure capacity, and in 2010 it

mapped out an “omnichannel” strategy designed to create a seamless experience for customers both online and in stores. Recently, it has been pursuing a host of Digical initiatives. It has integrated most of its online shopping with its physical facilities, turning virtually all of its stores into multichannel fulfillment centers; customers can order online and then pick up their items at a local store. Its iconic Herald Square store in New York City—one of the largest department stores in the world—is undergoing a \$400 million remodeling; the renovated store will feature Digical innovations such as interactive directories, digital product information, widespread use of RFID tagging and a new mobile app to guide customers as they shop.

Experts. Companies that have reached the Expert stage have usually been at it awhile. They perceive the possibilities of the Digical revolution, and they have moved from competitor benchmarking to customer pathbreaking. They have the integrated systems and tools required to enable change, and they invent new capabilities as they go. Organizationally, they are one team, with a unified culture and few skill gaps. Typically, experts don’t rest on their laurels—they realize that their own innovations face constant threats from newer ones. As a result, they constantly test new approaches and push the limits of what’s possible. Digical is no longer an add-on; it is part of the way they do business.

Consider Disney, whose Imagineering unit has been redefining theme-park entertainment for several decades. Imagineering began combining digital and physical experiences back when digital technology was clunky and expensive—a computer-controlled thrill ride (Space Mountain, introduced in 1975), Audio-Animatronics attractions (talking robotic figures) and so on. Over the years it introduced everything from new virtual reality technology to figures capable of interacting with an audience (“Turtle Talk with Crush,” the laid-back dude from *Finding Nemo*). Imagineering’s 1,500 employees typically work in teams that bring together architects, engineers, software designers, artists and every other

discipline required by a project. As they work, the teams might rely on innovations such as the company’s Digital Immersive Showroom, or DISH, which uses high-definition display walls and high-precision motion capture to simulate a ride or other attraction.

Figure 2 offers some guidelines for each of the six elements that indicate whether a company is a Beginner, Intermediate or Expert. Reading through the elements labeled on the left-hand side can help you determine which of the three category descriptions across the top best fits your organization. If you put more than three elements in one category, that’s probably your best starting point for choosing the right course of action.

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Determining where you want to go—and how fast you need to get there

Most companies naturally aim to move into a more advanced stage of Digical development (*see Figure 2*). They hope to outstrip competitors and eventually become Expert. But the right moves for one company may be wrong for another. Determining your Digical objectives and mapping out an appropriate pace of change depend greatly on your industry and situation (*see Figure 3*). Consider how the very different experiences of Sears and Macy’s reflect the way that some moves succeed while others backfire.

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Figure 2: Companies occupy different stages of Digical development

	Beginner	Intermediate	Expert
Ambitions	<ul style="list-style-type: none"> • 1- to 2-year time horizons • Cautious approach to test viability with minimal investments • Heavy reliance on competitor benchmarking 	<ul style="list-style-type: none"> • 3-year time horizons • Accelerating market share gains and profit improvements • Reducing pain points and improving integration in current customer pathways 	<ul style="list-style-type: none"> • 5+ year time horizons • Real expectations to redefine the game • Innovation centered on customer pathbreaking
Operating strategies	<ul style="list-style-type: none"> • Low-risk, proven approaches with more fanfare than action • Narrow focus on a few steps of the value chain (often marketing, sales or operating costs) 	<ul style="list-style-type: none"> • Bolder testing and learning initiatives • Broader integration and innovation of cross-functional interactions 	<ul style="list-style-type: none"> • Constant testing with greater secrecy; highly anticipated breakthroughs • Encompass full customer journeys
Infrastructure	<ul style="list-style-type: none"> • Commitments to sunk costs and old technologies impede progress • Focus on efficiency 	<ul style="list-style-type: none"> • Growing networks of pipes and people enable greater change • Complicated accountabilities 	<ul style="list-style-type: none"> • State-of-the-art assets • Integrated systems and tools improve quality, speed, efficiency and yield of decisions
Organization	<ul style="list-style-type: none"> • Autonomous silos with separate metrics • Building uncomfortable new capabilities; frequent outsourcing 	<ul style="list-style-type: none"> • Increasing coordination and more matrixed relationships • Traditional core managers seek greater control over Digical initiatives 	<ul style="list-style-type: none"> • Digical skills distributed throughout the company • One team with unified culture and world-class centers of excellence; insourcing of core capabilities
Transformation management	<ul style="list-style-type: none"> • Delegated to mavericks • Periodic inquiries with senior management 	<ul style="list-style-type: none"> • Major strategy projects viewed as add-ons to day jobs • Changes focused on integration 	<ul style="list-style-type: none"> • Continuous strategy processes • A balanced portfolio of incremental and breakthrough innovations
Results	<ul style="list-style-type: none"> • Customer frustrations • Innovation laggard; frequent unexpected potholes • Encouraging sales growth, challenging profits 	<ul style="list-style-type: none"> • Fewer customer complaints • Occasional innovation breakthroughs • Digical innovation increases both top- and bottom-line momentum 	<ul style="list-style-type: none"> • A loyal base of passionate advocates • Widely admired performance • Digical redefines the company's source of value creation

Sears jumped on the digital bandwagon early. In 1984—well before the World Wide Web—the retailer and two partners created the online service provider that would come to be known as Prodigy. As a company with a once-thriving catalog business, Sears seemed well positioned to migrate catalog orders online. But the next several years brought disappointment: Neither Prodigy nor a subsequent partnership with AOL lived up to expectations. As the e-commerce marketplace evolved, Sears began losing market share to online sellers such as Amazon.com.

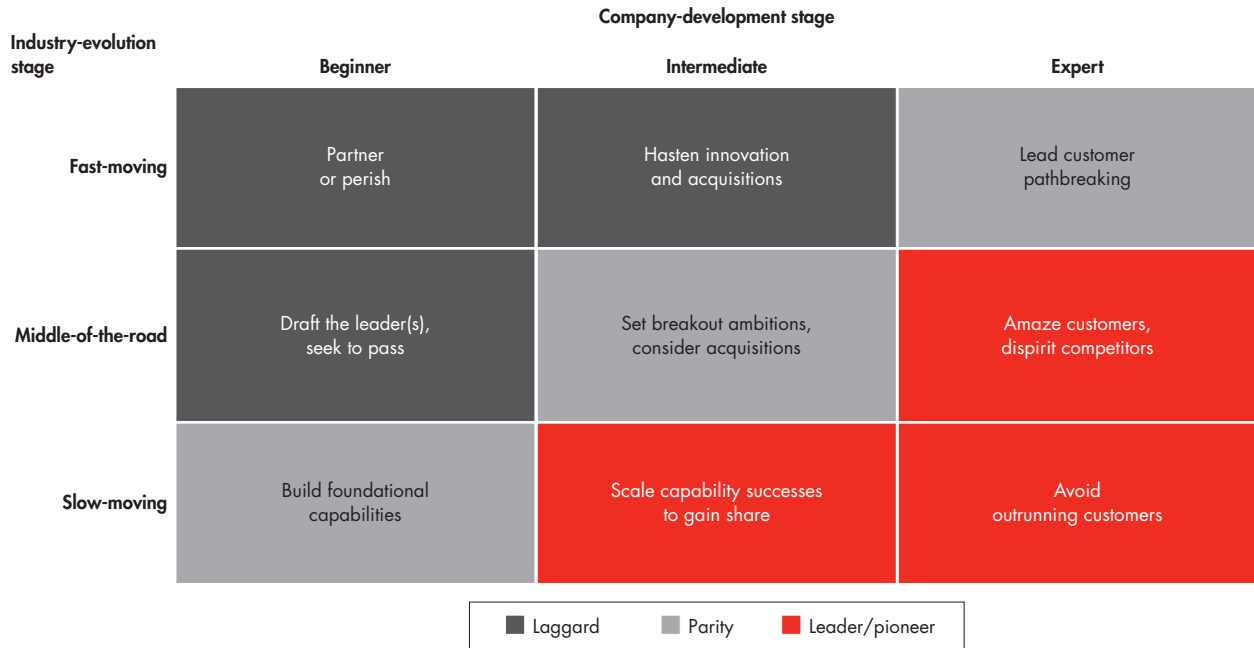
Sears tried again under the leadership of Edward S. (Eddie) Lampert, who bought a controlling interest in the company in 2005. Lampert divided the company into more than 30 independent business units, each with its own functional heads, board of directors, financial statements and strategy. He also invested heavily in Sears's e-commerce business, creating what a Credit Suisse analyst called a better website than “just about any other retailer I cover.” In 2012 Lampert created a vice president of customer experience and integrated retail position in hopes of integrating its digital and physical businesses.

In retrospect, however, the company appears to have made at least two miscalculations. Sears's radically decentralized structure has been an obstacle to collaboration. And the company chose to underinvest in one part of that integration equation: its stores. In 2012, for instance, it spent an average of \$1.46 per square foot on its stores, compared with an average of \$9.45 per square foot that four of its chief competitors spent on theirs, according to the *New York Times*. Reports in the mainstream media have referred to Sears's “neglected” stores. Profits fell, putting pressure on Web investments. “I'd like to go faster. I'd like to go bigger,” chairman Lampert told the *Times* in 2013. “We're just not making money, which makes it much, much harder to fund the transformation.”

Macy's followed a different path, albeit with some bumps of its own. The company launched Macys.com as part of its Macy's West division in 1996, and two years later established the unit as a standalone subsidiary in Silicon Valley. The goal was to “take full advantage of the Internet's continued emergence as a vehicle for consumers' shopping needs.” Still, Macy's was not an online pioneer; *Women's Wear Daily* referred to its strategy as “a relative ‘Johnny-come-lately.’” To accelerate its efforts, the company paid \$1.7 billion in 1999 for Fingerhut, a direct marketer with several catalogs and e-commerce ventures. Analysts applauded the move, which gave Macy's access to Fingerhut's extensive database marketing and fulfillment skills. But by 2002 Macy's was announcing the divestiture of Fingerhut, citing its lack of “strategic value.”

Macy's then doubled down on innovation. In 2006 it announced a \$130 million investment in Macys.com, followed by \$100 million more in 2007. In 2010 it announced a new omnichannel strategy. Finding that customers who shopped both online and in stores generated five times the profit of those who shopped only online, Macy's aimed for greater integration. It invested heavily in its physical outlets, not only the Herald Square flagship but hundreds of other stores as well. It piloted the use of stores as distribution centers, shipping items direct to online buyers and filling orders from stores when an item was out of stock in online warehouses. It also invested in new training and tools for sales associates as part of its “MAGIC Selling” campaign, a program designed to encourage associates to “sell from the heart and to take the extra step to make every customer feel special.” In January 2013, the company's executive vice president for omnichannel strategy assumed the newly created role of chief omnichannel officer, reporting to the CEO. The executive in the new position not only oversees the development of strategies to integrate the company's stores, online and mobile activities; he is also respon-

Figure 3: Your next steps depend upon your company's situation



sible for the company's systems and technology, logistics and related operating functions. Unlike that of Sears, the financial performance of Macy's has improved significantly, and it has gained market share. Its stock rose steadily between 2010 and 2013, increasing 43.1% in 2013 alone (compared with a gain in the S&P 500 of 28.5%).

How to account for the difference between the two retailers? Both companies started out as Beginners. But Sears's one-sided investments had the effect of prolonging its Beginner status, while the multifaceted approach of Macy's moved it into the Intermediate ranks. Neither company has yet moved into the Expert box, but Macy's currently has a better chance of arriving there sooner.

The two chains' experiences underscore a key point of our analysis. Your current position presents you with specific sets of challenges and opportunities, and you ignore those challenges and opportunities at your peril.

If you are a Beginner in a fast-moving industry, your best option may be finding a partner. If you are an Expert in a slow-moving industry, you are well positioned—but you have to be careful not to outrun your customers. Companies in middle-of-the-road industries face perhaps the most complex set of challenges and trade-offs (*see Figure 3*). For example:

- A Beginner in a middling industry has to stay within striking distance of the leaders even as it masters the basics. Like a trailing race car, it can try to draft those leaders, following their path while keeping a sharp eye out for opportunities to pass. Among the keys: bringing the right talent on board, investing to wow high-priority customer segments and partnering with expert third parties. Internally, the job is to raise the cultural speed limit—and to make sure that every executive is on board for the journey.

- An Expert in a middling industry faces a different set of options and choices. Like Amazon, it needs to develop and defend proprietary barriers, emphasizing long-term market share over short-term profits. It can build and exploit scale advantages, perhaps pursuing preemptive acquisitions. It should try to amaze its regular customers—and it should challenge itself by targeting those who are most valuable and hard to please. As for competitors, the best strategy is often to keep them guessing. Who can forget Jeff Bezos’s promise in late 2013 that Amazon would someday deliver its products with drones?

Knowing your industry’s rate of evolution and your company’s stage of development will also help you navigate some of the central challenges that face any organization as it confronts the Digital future.

Fast vs. slow. One of these challenges is the perennial question of how fast to move. Going too slow and going too fast are equally dangerous. Sears’s huge investment in Prodigy was premature. So was the acquisition of Fingerhut by Macy’s. Companies that move quickly and jump out ahead of the others may not leave adequate time for testing and learning. They may spend too heavily in areas that don’t materially increase sales and profitability; they may hurt their profit margins and thus their return on capital. If they miss their targets, they may erode investors’ confidence in the business and its managers. Few people now remember Amazon’s precarious situation in 2001, when its stock price had plunged from \$107 to \$7. Were it not for a new CFO, who raised \$672 million in convertible bonds overseas just a month before the stock market crashed, Amazon would likely have faced insolvency.

Yet waiting for others to break expensive new ground holds equal dangers. Companies can lose leadership and scale. Regaining market share usually costs more than holding onto it. Slow movers lose talented people, and they risk sacrificing much of their equity with customers, particularly with the younger buyers who

represent the company’s future. When you’re confronted with transformative innovations, it’s tough to be a “fast follower.” If the table-stakes investment to keep up with competitors is \$1 billion a year for three years but you try to get by with \$500 million a year, by the end of the three-year period you are \$1.5 billion behind—a hole so deep that you can’t climb out of it.

To prosper, a company needs to move fast enough to stay ahead of competitors and get into the next stage. Trying to jump a stage rarely works, but staying in the same stage too long will put you out of the running.

Separation vs. integration. A second challenge is managing the balance between separation and integration. Separation of an innovative unit in the early phases of development enables a more flexible and entrepreneurial culture, free to challenge the status quo and existing business models. It helps a company attract and retain top technology talent and develop deep expertise. A separate unit eliminates fears of cannibalization and permits the establishment of highly motivational goals and incentives. It increases a company’s operating speed and creativity, and it generates more breakthrough innovations.

But in a Digital marketplace no company can keep things separate forever. Customers expect a seamless integration of both digital and physical experiences—the best of both worlds—rather than the disjointed and frustrating interactions that often come from autonomous silos. And if the first set of changes is successful and the company moves into the next stage, then the independent units will either largely replace the traditional units or will use their successful experience to help transform the traditional business.

Integration brings a series of benefits, including efficiency and economies of scale, coordination and timely communication, and less conflict. It avoids redundancy and enables a company to use existing assets to address problem areas. But a company usually has to integrate slowly. First comes the “soft” integration—

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socializing, bringing executive teams together, appreciating what the other group can do. Then come the harder steps, with dotted-line accountabilities linking people in both units. Over time—once people are comfortable with one another and their respective roles—those lines can get stronger.


Looking ahead

The pace of change has been so rapid in recent decades that many executives already feel left behind. This is a mistake. The *Digical* transformation, like the computer revolution itself, is a long race, and we are scarcely past the starting line. Look at e-commerce. The Web has been available for commercial use for about 20 years. Many companies have built huge organizations around their e-commerce capabilities and do billions of dollars' worth of business. But e-commerce still accounts for less than 10% of retail sales.

Look, too, at all the companies now testing the waters of the *Digical* transformation. Not long ago the automobile industry appeared to be stodgy and unimaginative, the quintessential old-economy business. Today, companies such as Ford and Audi are developing several *Digical* technologies: self-parking cars, wireless networks linking cars to one another, electric cars with

solar panels on the roof and so on. Airlines are getting their toes wet as well. Delta, for example, offers a baggage tracker via Wi-Fi. It has equipped flight attendants with handheld devices, and it is in the process of equipping pilots with Surface 2 tablets as “electronic flight bags” to take the place of papers and charts in the cockpit. Delta also spent in the neighborhood of \$140 million to improve its website and mobile presence, leading to a new iPad app that works as a travel guide. Among the app's features is “Glass Bottom Jet,” which allows passengers in flight to see the city below them on their device's screen.

Even the US Postal Service is getting into the act. Though email has decimated first-class letters, e-commerce has led to a boom in package delivery, and private carriers lack capacity during peak periods. The USPS has developed its tracking and logistical capabilities to the point where it could partner with Amazon in the 2013 holiday season to facilitate Sunday deliveries.

Bottom line: It isn't too late. Companies everywhere are experimenting and innovating, but most are still Beginners. The *Digical* transformation is under way, but it is still young. A company that climbs on board now will have the strategies and the assets it needs to compete in a *Digical* future. 

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