IBM Institute for Business Value

Digital transformation

Creating new business models where digital meets physical

IBM Institute for Business Value

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By Saul J. Berman and Ragna Bell

Individuals and businesses alike are embracing the digital revolution. Social networks and digital devices are being used to engage government, businesses and civil society, as well as friends and family. People are using mobile, interactive tools to determine who to trust, where to go and what to buy. At the same time, businesses are undertaking their own digital transformations, rethinking what customers value most and creating operating models that take advantage of what's newly possible for competitive differentiation. The challenge for business is how fast and how far to go on the path to digital transformation.

The new digital age

In every industry, business leaders realize customer expectations have created tremendous pressure to change the way they set their strategies and run their organizations. Yet, because they have to manage existing, often traditional, offerings and operations, new requirements to incorporate information and interactivity quickly drive up costs and complexity.

The IBM 2010 Global CEO Study found complexity, in fact, to be the biggest challenge facing CEOs today. However, in that same study, the ability for technology to mitigate complexity was also clear: technology was second only to market factors as a force for change.[1] This digital transformation study explores the opportunities and challenges arising when business and operating models that leverage information, customer and partner interactivity need to be integrated into existing organizational capabilities.

Business leaders have long used information technology to improve productivity and efficiency, reach new markets and optimize supply chains. What's new is that customer expectations have also changed. People everywhere are using social networks to find jobs and restaurants, lost friends and new partners – and, as citizens, to achieve common political goals. They are using the Internet for entertainment, shopping, socializing and household management.

How can businesses best respond to this shift? How can they take advantage of the opportunity to innovate, differentiate and grow? And how can they do all this cost efficiently, leveraging and optimizing the newest information technologies as part of their overall physical operations? In our analysis of leading companies and our work with clients, we have found that companies with a cohesive strategy for integrating digital and physical elements can successfully transform their business models – and set new directions for entire industries.

These companies focus on two complementary activities: reshaping customer value propositions and transforming operating models using digital technologies for greater customer interaction and collaboration. To do so, they are building a new set of capabilities that allows them to progress along both dimensions.

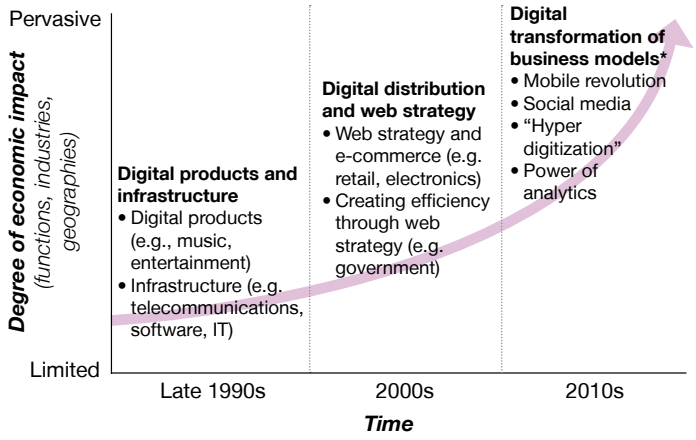
Forces for business change

Chief among forces for transformation are the surge in devices for mobile connectivity, such as smart phones and tablets, and the creation of social networks, such as Facebook and Twitter. Both of these developments are creating an exponential explosion in data, which, in turn, requires business analytics to make sense of the information and take full advantage of it.

Shifting global connectivity and customer empowerment drive digital transformation

The focus and impact of the Internet and global connectivity have shifted (see Figure 1). In the 1990s, only organizations in select industries – such as music, entertainment and electronics – were exploring digital products and services. Infrastructure providers took the lead in building out the information backbone to improve efficiency and productivity across specific functions – finance, supply chain, human resources. The Internet hype of the late 1990s ended with a crash in 2000. Yet consumer demand for digital products and services continued to evolve. As customers became increasingly empowered based on pervasive access to online information, along with a multiplicity of choices and channels, their expectations ratcheted skyward. As a result, customers have now become the primary force behind digital transformation in all industries.

Evolution of digital transformation



*Note: Digital transformation of business models impacts both public and private sector organizations.
Source: IBM Institute for Business Value.

Figure 1: **Digital transformation is becoming pervasive across functions, industries and geographies.**

Businesses have always looked at new information and digital technology in terms of what it can do for them, e.g., greater profitability and expanded customer reach through online shopping. Now, customers also have a range of new choices, many of which are beyond the purview of business. Decisions about what to focus on or buy are increasingly informed through social networks, where personal and business contacts, product selections, home video clips, favorite news items, even real-time location coordinates, are shared instantly and widely. People who reach out to their personal networks for advice on the latest generation of washing machines are also likely to use smart phones or other devices to check out their professional networks for views about business procurement choices. The habits of consumers – such as seeking independent information and advice before making a purchase – have become the habits of business buyers.

Mobility shifts time and location for customer engagement

By the end of 2011, smart phones and tablets will overtake PC shipments.[2] Downloads of mobile applications, or "apps," are expected to surge from 11 billion in 2010 to 77 billion in 2014.[3] These applications use location sensors and cameras, coupled with broadband connectivity, to enable activities ranging from videoconferencing to real-time coupon delivery for nearby stores. People want more than music, movies and books on the go; they want all information (including from businesses) that way.

Mobility has eliminated the boundaries of space and time. Customers are always connected, and companies can interact with them at any time. The implications cannot be overstated. With information about products becoming as important as the products themselves, almost every company is now in the business of creating and delivering "content" – information that is personal, relevant and timely when accessed by the customer.

Social networking is growing up

With 2 billion people connected to the Internet, social media is quickly becoming the primary means for communication and collaboration.[4] Young people may have spearheaded the changes, but people of all ages have joined the virtual revolution: 89 percent of the millennial generation uses social networking sites, but so do 72 percent of baby boomers. And the gap is closing.[5]

The scale of social media impact can be staggering; real-time information amplifies the network effect.[6] For example, when Michelle Obama makes a public appearance, her fashion choices are relayed instantaneously by fashion bloggers who compete to identify the sources of her shoes, dresses and accessories. These blogs include links to stores and designers that sell those items. The First Lady's economic impact on the fashion industry has been calculated at 2 percent per day in stock valuations of clothing companies associated with her. Over a year, stock appreciation came to $2.7 billion for the 29 companies tracked, or $14 million for each of her 189 public appearances.[7]

For today's digital native, waiting by a phone for a call is as puzzling a concept as a rotary dialer. Conversely, a time traveller from the 1970s would find it challenging to assimilate today's continuous flow of digital activity and data. As much information is now being generated every two days, according to former Google CEO Eric Schmidt, as existed between the dawn of civilization and 2003.[8] Demand for video, as well as constant connectivity, is expected to double the amount of mobile data traffic every year through 2014.[9]

In today's digital age, almost every company is in the business of creating "content."

A music lesson: media and entertainment

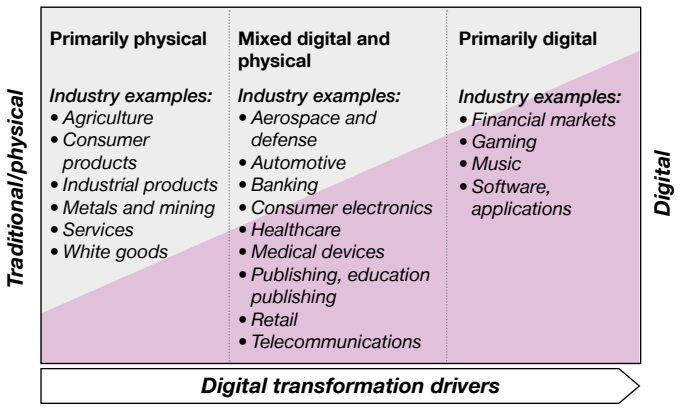
The music industry was one of the first to feel the brunt of the digital revolution. With the standardized mp3 format for digitized music and the availability of broadband connections for Internet distribution, the reality of industry disruption became apparent to all. Traditional music companies are expected to lose more than 35 percent of value between 2003 and 2012, with total revenues for the period expected to drop from US$12 billion to $8 billion. But at the same time, other parts of the music ecosystem – more closely attuned to the customer – experienced significant growth. This includes consumer electronics companies that make digital music players, concert promoters and producers of other live events.[10]

The lesson? Industry incumbents that avoid the hard decisions about digital transformation are likely to suffer a fate similar to that of traditional music companies. For companies that stay closer to their customers, digital transformation can create significant new opportunities.

Today's world exhibits a fast-developing case of hyper-digitization. Advanced mathematical analysis, powered by intensive computing systems, provides unprecedented opportunity to unleash the value of interconnected data. Electronic tags on packages, pallets and transport vehicles can relay critical information about the location and quality of items ranging from pharmaceuticals to food. Sensors in electrical grids and water systems, intelligent buildings and congested roadways can optimize the use of scarce resources. Predictions based on information relayed from security cameras, satellites and soil can improve public health and safety.

From individuals to businesses to industries

The forces of mobility, social media and hyper-digitization ripple from the individual through entire industries, as connected customers and employees move past traditional boundaries. Whether they buy from them or work for them, people are letting businesses know just what they want and need. This disruption is pushing all industries toward the digital end of the physical-digital continuum (see Figure 2). Even where offerings and points of engagement are primarily physical, as in agriculture or consumer white goods, business channels and customer relationships are being reshaped.



Source: IBM Institute for Business Value analysis.

Figure 2: **Digital transformation drivers are pushing industries along the physical-digital continuum.**

Transforming the business

What do businesses need to do to get ahead of the widespread forces for change in our digital age? Key areas include reconfiguring the customer value proposition (what is being offered) and reshaping the operating model (how it is delivered). Up to now, most organizations have focused on one of these areas through a set of specific initiatives. Each has its own set of challenges and opportunities:

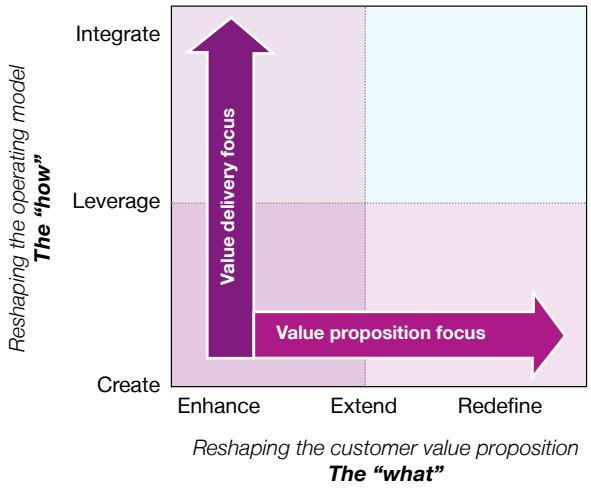
- Products and services, information and customer engagement can be reshaped using the new capabilities for mobility, interactivity and information access. The challenge then becomes how to monetize these new customer value propositions.
- The operating model can be realigned so that customer preferences and requirements inform every activity in the buying and selling chain. Doing this requires integrating all business activities and optimizing how data related to those activities is managed and tracked. What are the business requirements for achieving the topmost level and full scale of benefit?

Both sets of issues are best addressed in progressive stages of transformation, as seen in Figure 3.

Strategic paths to transformation

We have found from our research and client experience that the strategic routes to transformation can be summarized by three basic approaches. One focuses on customer value propositions and another on transforming the operating model. Taking a more holistic and integrated approach, the third combines those two approaches, simultaneously transforming the customer value proposition and organizing operations for delivery.

Elements of digital transformation

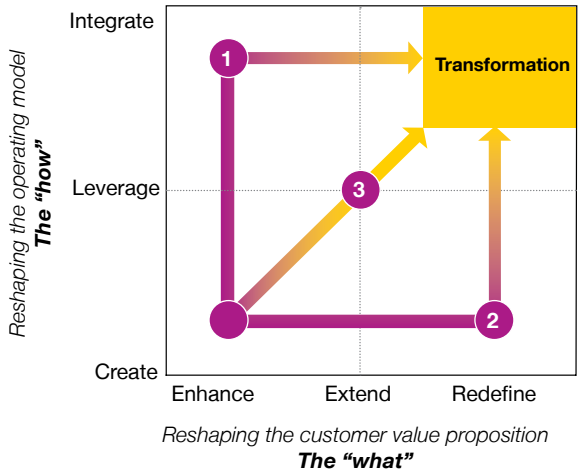


Source: IBM Institute for Business Value analysis.

Figure 3: **Most companies focus on either creating digital value propositions or operating models.**

In today's increasingly digital world, even companies in the primarily physical industries will not start their digital transformation journey from "zero." Instead, most organizations are already finding ways to use digital information by providing interactive web sites, improved customer service or enhanced customer experiences. Similarly, they are creating basic operating capabilities such as online channels or digital supply chain tracking. From this starting point, a company's strategic approach to transformation typically follows one of the three paths shown in Figure 4.

Paths to digital transformation



1 Path 1
Create and integrate digital operations first. Then address the customer value proposition to achieve full transformation.

2 Path 2
Enhance, extend or reshape the customer value proposition with digital content, insight and engagement. Then focus on integrating digital operations.

3 Path 3
Build a new set of capabilities around the transformed customer value proposition and operating model in lock-step.

Source: IBM Institute for Business Value analysis.

Figure 4: **Digital transformation requires strategic development of the value proposition and the operating model.**

The best path for a particular company depends on its strategic objectives, industry context, competitive pressures and customer expectations. In industries where the product is mostly physical and customer requirements for information are not yet advanced, such as minerals and mining, companies may want to begin digital transformation with operations (Path 1). In others, such as financial services, where new revenue-based services can be offered online and through mobile devices, an initial focus on the customer value proposition will provide immediate benefits (Path 2).

However, many companies, indeed entire industries, need to redefine customer value propositions and operating models simultaneously, or in near tandem (Path 3), to succeed in digital transformation. Organizations that are able and eager to do so are in a unique position to seize industry leadership.

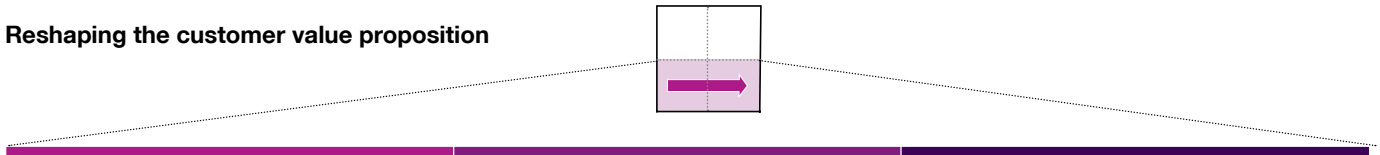
Many companies find they need to focus on both their customer value proposition and operating model.

Reshaping the customer value proposition

Using information and analytics, organizations can reshape the customer value proposition on three levels by enhancing, extending or redefining the value of the customer experience (see Figure 5).

Enhance products and services for a better customer experience. In all industries, companies augment traditional products with features and services that differentiate their brands on the basis of new types of information and interaction. Automotive companies like Volvo or BMW, for example, *enhance* their customers' automotive experiences by providing digital media access and enhanced security features, such as sensors that detect activity in blind spots.[11] The Danish toy manufacturer, Lego, best known for its interlocking plastic blocks, has created new robotics products with the help of virtual communities that allow customers to compete in company design challenges.[12] Macy's, the U.S. department store, recently showcased a fitting room with a mirror that digitally captures the reflection of a shopper trying on a new dress or other clothing. Then, with a push of a button, the customer can add a pair of shoes or a scarf to the image, "see" an accessorized version of her outfit and send the digital image to her friends for real-time opinions.[13]

Reshaping the customer value proposition



Enhance	Extend	Redefine
or augment physical products or services with digital content, information, insight and engagement	the physical or traditional products and services through digital content, creating new revenue streams	the value delivered to customers, replace physical with digital or build fully integrated digital/physical value and revenue
Key strategic moves • Augment the customer experience with digital content • Differentiate with digital community • Enhance customer experience across multiple touch-points	**Key strategic moves** • Add new revenue streams to traditional or mostly physical offerings • Create new revenue streams from stretching the brand • Integrate across touch-points to increase sales and transactions	**Key strategic moves** • Design new revenue models in which digital elements replaces physical ones • Recombine or reassemble "information elements" to create new or additional value • Transform the customer experience

Source: IBM Institute for Business Value analysis.

Figure 5: **Three stages in reshaping the customer value proposition.**

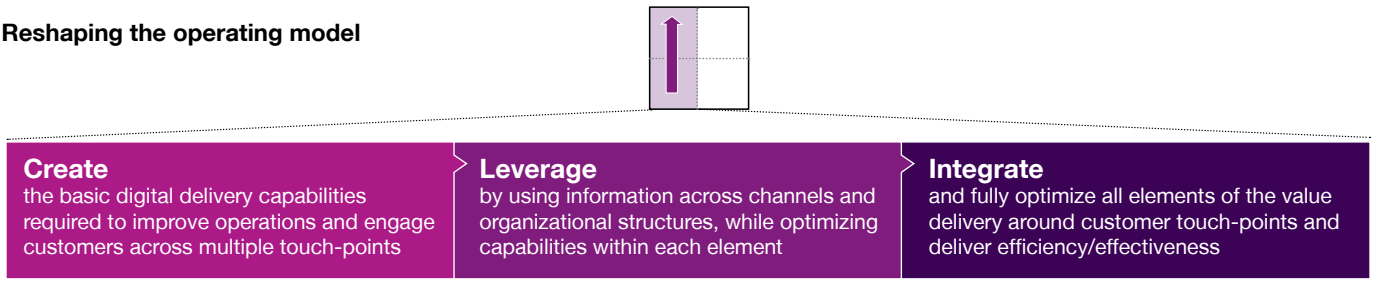
Extend offerings for new revenue streams. The next step is to find new ways to monetize these features, adding new revenue streams by *extending* traditional products and services through the use of digitally delivered services, content or information. In some industries, such as media and entertainment, companies must entirely replace lost revenue streams (see sidebar, *Music Lesson*, page 4). For others, supplementary revenue is the primary benefit. Telematics, for example, provides auto makers with revenue potential for everything from emergency response services and traffic and congestion alerts to advanced diagnostics and in-car applications tailored to the driving experience. Drivers who pay for "MyFord Touch" can adjust volume on their mp3 files, take phone calls and adjust temperature more safely with integrated voice-control technology.[14] Toy companies are seizing comparable opportunities. For example, WebKinz provides the young owners of its stuffed animals with a code for entering an online world, where they can "feed" and accessorize computerized versions of their pets. In addition to creating satisfying play for kids, the toy company gains revenue by selling aggregated data to other marketers.[15]

Redefine core elements for a radically reshaped value proposition. Seizing the full opportunity of the digital revolution, some companies transform the entire customer value proposition. Often this is a response to technologically innovative new entrants that spur traditional companies to radically reshape their customer value propositions. For example, while paper-based publishers struggled to find sustainable business models in an era of free content and citizen-journalists, *The Wall Street Journal* established incremental charges for its online articles. This strategy attracted new customers who preferred reading on PCs and mobile devices. The company created bundles across its portfolio of physical subscriptions, online platforms and affiliated publications, providing a virtual package of news, information and events its customers would pay for.[16] In the healthcare industry, medical device manufacturers partner with medical providers and patients to create disease-monitoring devices that can also communicate critical information about a patient's condition to remote caregivers. This communication service has become more valuable than the medical monitoring device itself.

Redefining the operating model

A focus on new customer value propositions is always dependent to some degree on a new operating model (see Figure 6). In many cases, the extent to which one transforms the operating model is also correlated to the efficiency and productivity gains that can be achieved.

Create new digital capabilities. Typically, organizations first *create* the basic structures to engage customers through online channels. Burberry, for example, used its iconic plaid trench coat design to become a high-fashion house. It then created an innovative online channel, designed especially for young customers, and gained over 1 million followers on Facebook. It was a pacesetter in digitally streaming fashion shows, enabling customers to order online during the events. Shoppers can, at any time, easily click on the web site to engage a representative by phone or text chat. On the operational side of the business, supply chain investments have compressed order fulfillment time to weeks instead of the months typically required for high-end fashion.[17]



Source: IBM Institute for Business Value analysis.

Figure 6: Three stages in reconfiguring the operating model.

Leverage information to manage across the organization. At the next level of operating transformation, companies *leverage* information and relationships across channels, business units and supply chain partners. This makes it possible to integrate digital and physical components that provide the most value – to improve speed to market, for example, or to equip employees with information enabling them to surpass customer expectations. Meredith Corporation, best known for its special interest "shelter" magazines and local broadcast stations, leveraged insights about its readers and viewers by creating full-service marketing capabilities for its advertisers and other business clients. The marketing unit has worked with leading organizations from consumer products to financial services on social media and mobile campaigns, as well as traditional publishing. [18]

Integrate and optimize all digital and physical elements. Companies focused on fully reshaping the operating model *optimize* all elements of the value chain around points of customer engagement. Tesco, the third-largest retailer in the world, has long been a leader in innovative uses of technology – from self-service checkouts to the creation of its "Tesco in a box" capability that enables new stores to be set up quickly anywhere in the world with standardized business systems.[19]

Integrated information also benefits Tesco customers who want mobile and interactive shopping. Customers can use their phones to scan barcodes of products they have right at home – instead of sitting at their computers and scrolling through product lists to make selections. The scanned items are added to customers' online shopping baskets for home delivery. Within a month of its launch, this shopping phone app was downloaded 400,000 times. Tesco also provides an app for tracking loyalty points (customers don't have to carry a plastic card to the store), as well as apps for finding stores nearby. Once inside, the app can provide aisle numbers for products on customers' shopping lists.[20]

Fully reshaping the operating model requires optimizing the value chain around points of customer engagement.

Choosing a transformation path

Determining the best path to transformation – whether an extensive reshaping of the customer value proposition, a transformation of the operating model, or a combination of both – requires a thorough understanding and evaluation of several factors:

- Where products and services are on the physical-to-digital continuum in your industry
- Mobility and social networking adoption levels and expectations of customers
- Strategic moves by other industry players
- The degree of integration at every stage of the transformation – between new digital processes and legacy, physical ones.

Transforming operations first, for example, builds customer alignment and efficiency. But if competitors are interacting with customers in new ways, operationally focused organizations may lose revenue opportunities, customer loyalty and market share.

Conversely, moving too quickly to transform the value proposition may raise cost challenges if the new offering involves too much complexity or manual intervention. Too narrow a focus on customer value is also very likely to result in a one-time breakthrough rather than continuous innovation for greater customer value.

Is your organization ready for digital transformation?

Are you reshaping your customer value proposition?

- **How are you engaging with customers to understand their needs and expectations – and how they are changing in the digital environment?**
- **How do mobile and online technologies change the way you can engage with and create new value for your customers?**
- **How will you drive the digital agenda in your industry rather than having it imposed on you by competitors?**

Are you optimizing your operations?

- **How do you integrate online and social media touch-points, customer information and insights across your entire enterprise?**
- **What are you doing to make sure you are putting the customer at the center of your supply chain planning and execution every time?**
- **How are you realizing the benefits of open collaboration – within your enterprise, with customers and with partners?**
- **How are you optimizing your digital and physical components across all aspects of your operating model?**

Essential capabilities

Businesses aiming to generate new customer value propositions or transform their operating models need to develop a new portfolio of capabilities for flexibility and responsiveness to fast-changing customer requirements (see Figure 7).

Deliver business model innovation. Foremost among capabilities for the digital age is the ability to design and deliver new business models. Companies must constantly explore the best new ways to capture revenue, structure enterprise activities and stake a position in new or existing industries. Subscription or per-usage fees? Acquire new skills or outsource certain functions? Collaborate with competitors or break into an entirely new industry? Answers to these questions will help determine flexible new business models suited to the fast-changing era of digital transformation. And as quickly as each question is answered, it must be re-examined again. Only the most disciplined approach to reassembling all the elements of business frequently, even continuously, will enable companies to keep up with customers and ahead of competitors.

Drive customer and community collaboration. Another key competency is finding new ways to engage customers and communities. This requires interaction with customers across every phase of business activities – not just sales, marketing and service, but also product design, supply chain management, human resources, IT and finance. Engaging with customers at every point where value is created is what differentiates a customer-centered business from one that simply targets customers well. Customer interaction in these areas often leads to open collaboration that accelerates innovation using online communities. Companies may create their own virtual communities, or use groups already organized by customers.[21]

Digital transformation capabilities

Business model innovation	Building customer value as a core competency across industry, revenue and enterprise models
Customer and community collaboration	Driving customer centricity into each part of the enterprise and using social networking tools and capabilities to engage
Cross-channel integration	Integrating all customer touch-points across digital and physical channels
Insights from analytics	Integrating information across all sources (internal, external) and taking full advantage of the predictive power of advanced analytics
Digitally enabled supply chain	Optimizing all supply chain elements, effectively integrating cross enterprise
Networked workforce	Getting the right skills aligned around the right business opportunities

Source: IBM Institute for Business Value analysis.

Figure 7: **Reshaping the business and operating model requires a new set of capabilities.**

Going beyond traditional partnerships with developers and suppliers, some companies make their designers and engineers available to customers. Customers of Threadless, the online retailer, create t-shirt designs using templates provided on the company's web site.[22] Novartis employees collaborate with patient groups in online communities to develop new drugs.[23] To enable open innovation like this, companies need to meet high expectations from customers, partners and suppliers for information that is transparent and readily available. They also need to demonstrate an authentic commitment to creating value for all members of the collaboration – and that often requires significant cultural change.

Integrate cross-channel. The ability to integrate across all customer touch-points is essential for managing digital operations. Online, customers switch back and forth between e-mail and social networks. They change platforms and channels – comparing prices on a smart phone one minute, trying on shoes in a bricks-and-mortar shop the next, and later making a transaction on their PC. During all of these interactions, customers expect consistency and clarity. They want companies to be aware of their past purchases, service calls and inquiries.

Experiences in one channel raise expectations across all of them. Customers want a toll-free phone number, but have little patience for voice menus. They want a web site that gets them to information as quickly and effectively as an iPad application – one or two clicks at most. Consistency builds the brand promise and bolsters customer satisfaction. Continuity and context provide seamless experiences across all points of customer contact.

Businesses can develop the individualized information that meets customer expectations.

Get insights from analytics. Creating and maintaining a customer-centric enterprise changes the basis for decisions within an organization and among its partners. Insight from analytics brings predictive capabilities to all functions so that all channels can be aligned around customer needs and preferences. For example, electronics retailer Best Buy leverages data and analytics to transform the way it manages its supply chain and engages with customers. Its sales people, equipped with data analysis tools, are able to suggest add-on purchases based on past customer behavior.[24]

The computing power needed for analytics can be local and centralized, or accessible through shared services "in the cloud." Businesses of every size have the ability to develop highly segmented and individualized information that meets individual customer expectations. Top-performing companies are formulating decisions based on facts rather than gut feeling or personal experience and are embedding analytics into all their operations to transform insights into action.[25]

Optimize the digitally enabled supply chain. Physical components of the supply chain, such as trucks, pallets, warehouses, even individual packages, are being equipped and interconnected with sensors and actuators that enable data and analysis for on-the-spot action. Companies that capture and integrate that information gain the full benefits of a digitally enabled supply chain – the ability to dynamically manage costs for serving even the smallest segments of their markets and the flexibility to determine the best inventory allotments based on supply and demand predictions. Using real-time data, these companies can also find the best transport methods by weighing predicted customer service outcomes against impact on their carbon footprint.

Too often, though, organizations are designing optimized supply chains to satisfy partners' and suppliers' needs rather than the newly awakened expectations of customers. Only 53 percent of companies include customer input in their decisions, compared to 63 percent who include that of suppliers.[26]

Enable the networked workforce. All these capabilities require the right people and skills across the workforce. A workplace that fosters social networking among employees, as well as with customers and partners, requires values-based guidelines instead of rigid rules. In companies where business leaders set the example, employee participation in online communities can bring a variety of viewpoints into the organization and create fertile ground for innovation and business growth. And with workforces increasingly mobile and global, face-to-face oversight of work teams is as obsolete as reports submitted on paper. Instead, collaboration, enabled by mobile and online tools, is becoming an essential part of the communication mix within organizations and among companies, partners and customers.

How to get started

How do companies determine the best strategy for digital transformation? A structured approach allows organizations to engage customers, partners and employees at every step along the transformation roadmap.

Identify transformation opportunities based on a thorough understanding of digital transformation in the industry. This depends on the degree to which your products and services are – or could be – digitized and how competitors are responding to new and rapidly changing customer expectations. And products and services are directly affected by new technologies, changing how customers engage and collaborate.

Redefine the value proposition based on what existing and prospective customers are likely to pay for going forward. This requires looking at new ways to use technology to differentiate offerings, reach existing customers with new digital offerings or relationships and, finally, redefining entire offerings for digital value.

Design the optimized operating model that combines organizational capabilities and technology requirements. Thinking through the "how" of value delivery requires understanding of current capabilities and opportunities. Operational design should support customer interaction as part of cross-channel integration and supply chain collaboration.

To execute the strategy, redefine the operating model as needed to support the new value proposition. Optimize processes across online and physical interactions, building a new set of digital capabilities for customer engagement, supply chain integration and a networked workforce.

Continuously evolve using customer insight and advanced analytics. Customer requirements and preferences change as new markets are opened, as customers embrace new technologies, such as location-based applications, and abandon older channels, such as e-mail. With the ability to analyze customer interactions even at the micro-segment level a fresh source of insights is always available for innovation.

Conclusion

Businesses in every industry are under intense pressure to rethink their customer value propositions and operations. Yet few, if any, offerings and operations will ever be entirely digitized: buildings and servers, as well as customers and employees, will always have physical requirements. Physical and digital processes need to be managed together without alienating customers and creating unnecessary levels of complexity. Integrating new and traditional operations will require evaluating the impact on customers of every business decision and every interaction.

Companies taking a proactive position in the digital revolution and leveraging the full potential of disruptive technologies are:

1. Reshaping customer value propositions
2. Remodeling their business operations to deliver new customer value propositions effectively, efficiently and in innovative ways
3. Doing both at the same time, which leads to the broadest industry transformation.

All of these transformation paths require clear vision, the right skills in the right place and tenacity to overcome cultural resistance to analytically based decisions across the extended enterprise.

The path to digital transformation will vary by industry, as will customer adoption and an organization's legacy environment. However, every industry is under pressure to change, and every organization needs to have a plan in place. Those that do not take advantage of the new digital age may drastically limit opportunities for future success. Those that are able to overcome the challenge of optimizing both physical and digital elements by implementing new business models based on customer demand can win first choice of talent, partners and resources. As industry leaders, they have the opportunity to distance themselves from new and existing competitors.

To learn more about this IBM Institute for Business Value study, please contact us at *iibv@us.ibm.com*. For a full catalog of our research, visit:

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