

Digital Business Transformation: Disrupt To Win



Point of View
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As the seismic upheavals in retail, financial services, and manufacturing have shown, digital disruption is a constant force. Digital disruption radically alters markets through the application of new digital technologies, and it challenges established business models. What's more, the pace of digital disruption shows no signs of slowing as mobility, wearables, video, cloud, analytics, and other technologies continue to transform the ways we live, work, learn, and play.

Digital disruption threatens organizations of all kinds, whether public sector or private, but it also leads to the creation of new value. By its very definition, disruption overturns entrenched habits and ways of thinking—and disruptive innovation is both creative and destructive.¹ Smart organizations, old and new, are learning to innovate and compete at the blistering pace of the Internet's next wave—the Internet of Everything (IoE).

IoE represents a global market transition driven by a surge in connections among people, process, data, and things—from 13 billion today to 50 billion in the next decade. As these connections multiply, the result is exponential change, creating new revenue streams, better customer and citizen experiences, and new operational models that deliver ever-greater efficiency and value.

Organizations that meet those demands will drive their own disruption, but only if they embrace digital business transformation that blends physical and virtual





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Gartner estimates that by 2020, 75 percent of businesses will be digital, or have digital business transformations underway. However, only 30 percent of those efforts will be successful.

assets. As Gartner defines it, “Digital business is the creation of new business designs that not only connect people and business, but also connect people and business with things to drive revenue and efficiency. Digital business helps to eliminate barriers that now exist among industry segments while creating new value chains and opportunities that traditional businesses cannot offer.”²

All of this requires a fundamental rethinking of business and operational strategies as organizations adopt new models for agile IT, “edge” analytics, and platform-based security. Moreover, organizations must identify the “dark assets”—whether among people, process, data, or things—that will benefit most from being “lit up” with IoE connectivity.

A digitally transformed organization is *hyper-aware*, *predictive*, and *agile*—with dynamic processes enabling it to adapt and thrive in an environment of near-constant change. [🐦] Moreover, it will be in a position to capture its share of the \$19 trillion in combined IoE Value at Stake³ for public and private sector organizations over the next 10 years.

Considering the speed at which disruption is occurring, change will be uncomfortable, even when it presents new opportunities:

- In 2014, only 12.2 percent of the Fortune 500 companies from 1955 were still on the list, and their life expectancy is continuing to decline.⁴
- Gartner estimates that by 2020, 75 percent of businesses will be digital, or have digital business transformations underway. However, only 30 percent of those efforts will be successful, owing in part to a lack of specialized talent and technical expertise.⁵
- Seventy-eight percent of organizations have not yet established the capability to manage and transform processes across different parts of their organization. Yet delivering expected returns from digital business investments requires process reinvention—that is, significantly innovating how products and services are created, priced, distributed, and serviced across not just one group, but often across the value chain.⁶

The winners that emerge from this heightened period of disruption will have planned carefully and become fully digital businesses. Within this new model, their business processes will be intelligent systems that respond to any situation, connecting with both machines and people to enable critical, real-time responses and insight-driven decision-making.

But how do organizations embark upon digital business transformation? [🐦] Let’s begin by examining the pressures mounting in some specific industries—retail, financial services, oil and gas, and the public sector—along with some of the forward-looking digital solutions available to them.

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Across Industries, Disruption Reigns and Opportunities Abound

No matter the industry, the IoE era is creating significant challenges for established incumbents with more traditional business models, as well as for innovative upstarts. All can become *disruptees* just as quickly as they once disrupted. Unless, that is, they prepare for an environment of near-constant change and time-sensitive opportunities by implementing a business model that combines the right technology and business processes.

Retail: Tech-Savvy Customers Feel a Digital Disconnect

Today's retailers are struggling to keep pace with customer expectations stemming from recent digital technology innovations. While many retailers have not fully embraced e-business and implemented the necessary changes, they are now facing exponential complexity in the digital era. For example, some retailers have not built robust mobile strategies, and yet they are now faced with how to compete with others who are already taking advantage of wearables. Adapting to rapidly evolving consumer behaviors and competition from disruptive innovators will be insurmountable for many; those who have already taken significant steps to digitize their business will be much better positioned to survive. [Twitter]

- Mobility and apps [Figure 1] now represent a disruption similar in scope to e-commerce in the late 1990s and early 2000s. In the fourth quarter of 2014, year-over-year total discretionary retail spending rose 3 percent; e-commerce rose 9 percent; and mobile commerce rose 33 percent.⁷
- In the United States alone, Target, Radio Shack, Office Depot, and Barnes & Noble are just a few of the large companies that have announced store closings or downsizing plans in 2015.

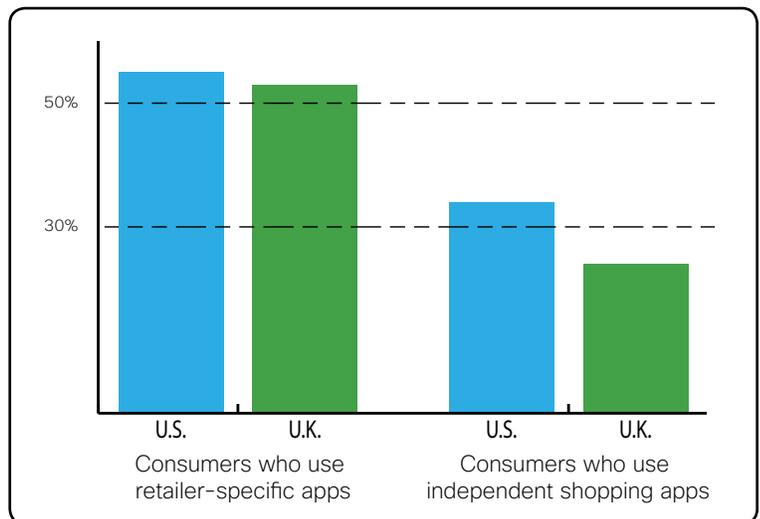
A Cisco survey of 1240 respondents in the United States and United Kingdom found that shoppers are increasingly demanding *hyper-relevant* experiences, in-store and out. Hyper-relevance is a new paradigm that enables consumers to receive what they want, when and how they want it. Increasingly, such hyper-relevance comes from outside the traditional realm of retail, where a new class of innovative, online disruptor has stepped up to challenge more established brick-and-mortar retailers.⁸

Yet, as Cisco's study shows, in-store experiences can blend the best of physical and virtual shopping by reflecting the situational context of each individual shopping journey and, in turn, driving greater savings, efficiency, and engagement.

Retail, financial services, and manufacturing are a few of the industries that have witnessed seismic upheavals in recent years as new digital technologies and business models displaced long-established strategies.

Figure 1

Consumer use of retail apps is strong and growing stronger.



Source: Cisco Consulting Services, 2015

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Globally, 75 percent of all respondents would move their money for one or more of the loE concepts.

To assess consumer receptivity to new digital experiences, Cisco tested a range of loE-driven retail concepts, including digital signage, checkout optimization, and augmented reality. These concepts provide a clear path to innovation and an imperative to act: given the inroads made by mobile apps, e-commerce portals, and a variety of disruptive players, stores must offer a highly compelling and unique experience that cannot be matched by online-only rivals.

Financial Services: 'Value Gap' Erodes Customer Trust

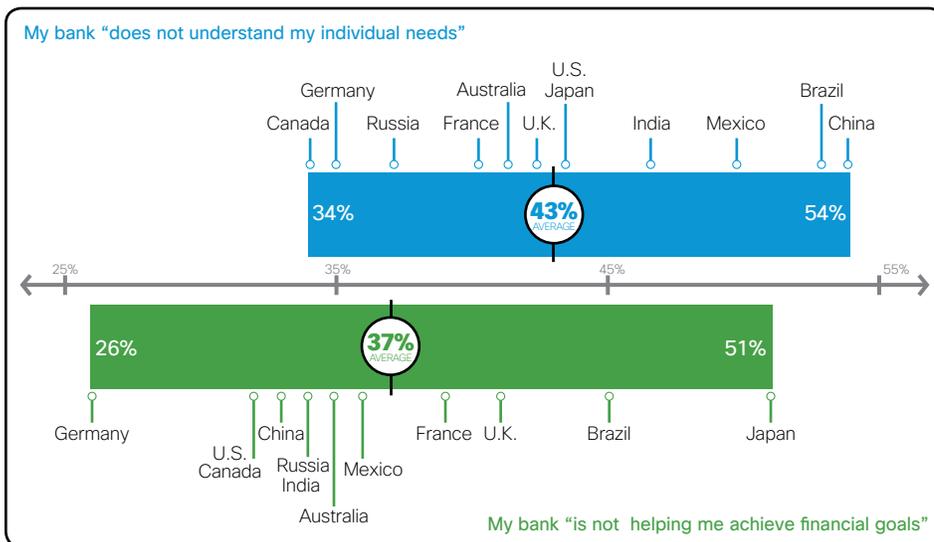
While banks have made great strides in using technology to cut costs and streamline transactions, customer experience and engagement have suffered. Today, many banks have ceded their privileged position of trusted advisor as customers perceive a widening "value gap." Many customers are willing to change providers in search of better advice and interactions.

Clearly, the perceived value that customers receive from banks is declining, along with their trust in banks to represent their interests. Banks are seen as commoditized—and replaceable—providers of transactions. It is easier than ever to switch to a disruptive non-bank (such as Wealthfront) that customers believe has a better understanding of their needs.

In a global Cisco survey of 7200 bank customers in 12 countries, many stressed that they are not getting the value they expect from their banks:

- Forty-three percent say their bank does not understand their individual needs; 37 percent do not believe that their bank is helping them achieve their financial goals. [Figure 2]
- 28 percent do not trust their bank to represent their best interests.
- A quarter intend to go elsewhere for their next product or service.

Figure 2
Banks often leave customers asking, "If you don't know me, how can you help me?"



Source: Cisco Consulting Services, 2015

However, there is good news for banks: they can drive their own disruption by combining the best aspects of online banking with the advantages of the physical branch to provide advice and convenience on an unprecedented scale.

The Cisco study tested several loE-enabled concepts that focus on ways to deliver better advice (virtual financial advice, virtual mortgage advice, automated investment advice) and more valuable mobile services (branch

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recognition, mobile payments). Globally, 75 percent of all respondents would move their money for one or more of the tested concepts.

These concept tests represent a small fraction of what is possible for banks as they merge their virtual and physical assets to offer convenience and expert advice at scale, reaching more customers than ever before. To provide relevant, contextual advice and experiences, banks will need to further digitize their business processes as they converge physical and virtual worlds.

Oil and Gas: Amid Reduced Prices, an Urgent Need for Digital Transformation

The oil and gas (O&G) industry has been buffeted by a confluence of new market dynamics, including rising production, soft demand, geopolitical instability, and an oil-price decline of about 50 percent since last June.

In the past, O&G companies have responded to such declines with short-term cost-cutting, including layoffs and capital expense reductions. Many are taking a similar approach this time—a risky proposition in a period of unparalleled uncertainty for the industry. Indeed, the current scenario could pose potentially disastrous consequences for O&G firms that aren't prepared to change their current operating models. For example, since October 2014, at least 10 O&G companies have filed for bankruptcy.⁹

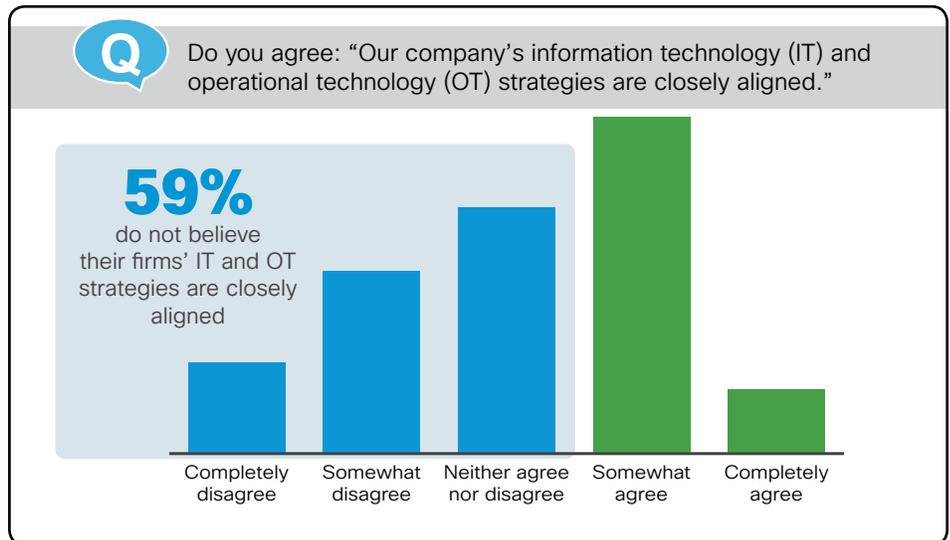
The current downturn represents an inflection point for the industry. Major technology advances have enabled some O&G firms to maintain or boost production in lower-price scenarios. This reality has the potential to prolong downward pressure on oil prices.

Oil and gas companies have been adopting new technologies for some time, but many are not realizing the full value from their digital projects. For the first time, O&G firms have the opportunity to make IT services a commodity in the business, creating the potential for dramatic cost reduction and improved efficiencies.

As a [Cisco study](#) of the oil and gas industry found, processes remain confined to silos, and there is a fundamental disconnect between digital and business strategies. [Twitter] Indeed, 59 percent of respondents (senior O&G executives) in the study do not believe their organizations' IT and operational technology (OT)

Figure 3

While some have made progress, most O&G companies have yet to integrate IT and OT strategies.



Source: Cisco Consulting Services, 2015

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Already, some forward-thinking public sector organizations are using IoT-enabled solutions to increase efficiency, reduce costs, save energy, and, most important, improve the lives of citizens.

strategies are closely aligned. Integration of IT and OT (both the technologies and associated business processes) has become an imperative to improve operational efficiencies, ensure survival, and set the stage for long-term growth. [Figure 3, previous page]

To be ready for true digital transformation, oil and gas companies need to converge IT and OT strategies, drive better data insights, and rethink their approach to cybersecurity.

Public Sector: Going Digital To Meet Rising Citizen Demands

Global recession, fiscal austerity, and calls for lower taxes have reduced the financial resources of public sector organizations, just as the demand for public transportation, education, healthcare, social insurance, and services of all kinds is expanding.

This challenge has contributed to an increasing gap between citizen expectations—fueled by the kinds of seamless interactions available online and through social media or mobile apps—and what governments actually deliver.

More than perhaps any technological advance since the dawn of the Internet, however, IoT holds tremendous potential for helping public sector leaders transform the citizen experience. Already, some forward-thinking organizations—federal, state, and local governments; healthcare organizations; educational institutions; utilities; and non-governmental organizations (NGOs)—are seizing the opportunity. They are using IoT-enabled solutions to increase efficiency, reduce costs, save energy, and, most important, improve the lives of citizens.

As a [global Cisco study](#) illustrated, these organizations are taking bold action. The leading cities Cisco studied are launching ambitious IoT strategies to capture new value and improve quality of life, as illustrated by these examples:

Figure 4
As telemedicine connects hospitals and clinics, citizens with limited economic and physical mobility no longer need to travel across the city to see a specialist.



- [Guayaquil, Ecuador](#), is undertaking a major expansion of network connectivity throughout the city, and to public institutions. One key benefit is in the area of healthcare: a telemedicine program, for example, has improved access to quality medical services by enabling patients to receive remote diagnoses and treatment from specialists via high-definition video. [Figure 4]
- [Amsterdam's Smart City](#) strategy features smart energy grid systems, street lighting, parking applications, building management, and public Wi-Fi. Amsterdam's citizens have captured up to 14 percent in energy savings due to apps that

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provide greater insight into individual energy use, while sensors on the electric grid have minimized power outages and downtime.

- San Antonio, Texas, is leveraging a fiber-optic and wireless mesh network that extends connectivity throughout the city. Networked control and synchronization of traffic lights are estimated to have saved \$2 billion in lost productivity and fuel costs related to road congestion, while providing additional gains in commuter safety and quality of life.

Analytics: a Cornerstone of Digital Business Transformation

The convergence of Big Data, cloud, mobility, social media, mobile apps, and rising security threats is setting the stage for the next wave of the Internet. [🐦] Along with increased complexity, there will be an exponential increase in the amount of data generated by sensors, machines, mobile devices, and more.

Data that does not translate into insights is useless. To get from data to insight—and to be in a position to drive new disruption—requires analytics across the entire spectrum of IoE: people, process, data, and things.

For example, in Cisco’s recent oil and gas study, 48 percent of respondents named “data” as the area of IoE they need to improve most to make effective use of connected technologies. [Figure 5]

In some cases, it will be important to perform analytics at the “edge” of the network—at or near the specific location where the data is generated via sensors, mobile phones, and other devices. This is particularly important in situations requiring low-latency data processing, or where bandwidth constraints make it too expensive to move data to the cloud or a data center.

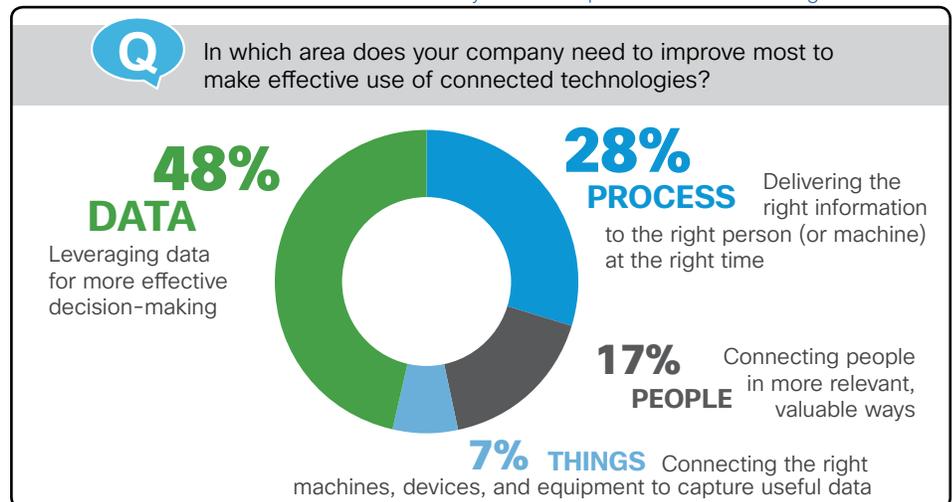
In a Cisco survey on the Internet of Things (IoT) and analytics, nearly 40 percent of respondents believed that within three years, most data generated by IoT solutions would be processed at the edge of the network.

By processing information at the edge, organizations can capitalize on fleeting opportunities and create real-time insights. For example:

- In-store shoppers may browse products while using a mobile device to compare prices. With real-time insights from edge analytics, a retailer can engage

Figure 5

Respondents to Cisco’s oil and gas survey say data is the area of IoE they need to improve most to drive insights and value.

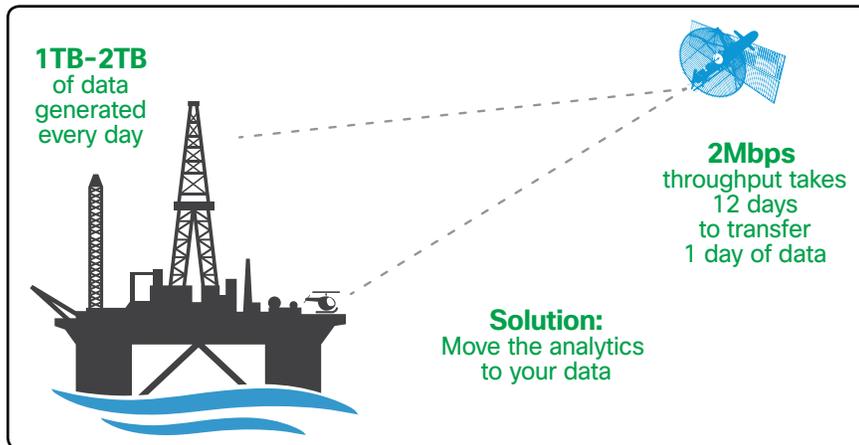


Source: Cisco Consulting Services, 2015

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Figure 6

While “edge computing” has many applications, it is particularly useful in industries that deploy many sensors in remote locations.



these customers with timely offers and facilitate convenient checkout.

- A typical offshore oil platform generates between 1TB and 2TB of data per day.¹⁰ Most of this data is time-sensitive, pertaining to platform production and drilling-platform safety. The most common communication link for offshore oil platforms is transmitting data via a satellite connection, with data speeds ranging from 64Kbps to 2Mbps. This means it would take more than 12 days to move one day’s worth of oil-platform data to a central repository.

[Figure 6]

According to Cisco Consulting Services, analytics will drive nearly 40 percent of loE’s Value at Stake over the next decade.[[Twitter](#)] Therefore, analytics must be at the center of a holistic, organization-wide approach to digital business transformation. Too often, however, organizational “silos” deny access to the full range of data required to perform analytics—severely curtailing the ability to derive actionable business insights.

Reimagine Your Organization—from Top to Bottom

As we have seen in the previous industry examples, the rapidly accelerating, exponential change of the loE era cannot be met with linear thinking or manual (paper-based) processes. To thrive in this competitive landscape, new kinds of business processes will be essential. Once the “dark assets” (e.g., shelves, shopping carts, oil rigs, supply chains, parking spaces, and so forth) of an organization are connected, the processes can become dynamic and automated—enabling increased opportunities for innovation, efficiency, risk mitigation, improved customer/citizen satisfaction, and growth.

What does digital business transformation look like, and how do organizations begin to implement it? [[Twitter](#)] These five key focus areas illustrate how a true digital business can function:

- **Lead from the Top Down:** To capture the full return on investment in digital transformation, organizational changes must be driven by the executive leadership team and board of directors. Indeed, given the magnitude of digital transformation, only top-down leadership will ensure that new strategic directions are cultivated throughout the organization and supported by the right collaboration platforms. Cybersecurity is but one illustrative example. As complexity mounts and threats extend across all devices, the cloud, and endpoints, every organization is only as strong as its weakest link. Top-down



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leadership is critical to creating a consistent culture around security and avoiding piecemeal, siloed solutions.

- **Create the Workforce of the Future:** Critical foundational elements of digital business transformation, including analytics and security, will require a next-generation workforce that is digitally savvy, creative, and accustomed to constant change. At the same time, the expertise of an older generation of workers is being lost to retirement. In such an environment, the sharing of information—in real time and unhindered by fragmented silos—becomes ever more critical. Collaboration solutions such as video conferencing and web conferencing enable the knowledge sharing and training that will be required to prepare this new workforce quickly and effectively, with minimal disruption to company operations. In addition, cutting-edge collaboration tools, wearables, augmented reality, and real-time analytics can create a workplace environment that is more likely to attract and retain young, tech-savvy talent.
- **Merge Business Processes and Technology:** Many organizations are not realizing the full value from their digital projects. Processes remain confined to silos, and there is a fundamental disconnect between digital and business strategies. By knocking down silos and bringing together IT and OT, organizations can drive real-time agility and deliver new levels of business and operational efficiency as they connect everything, embrace analytics, and secure their technology and operations. Companies that foster a strong IT-OT partnership can reap a host of benefits, including improved collaboration and problem solving, actionable insights from data analytics, and pervasive security for both their physical and digital assets.
- **Ideate and Innovate Fast:** Agile IT, automated business processes, enhanced collaboration and decision-making, real-time insight—all of these factors combine to create fast innovation. The digital business is in a position to ideate quickly as creative, connected employees drive rapid prototypes and speed time to market. Then, they can respond quickly to ever-changing opportunities, successes, and failures. Leaders must also recognize that every single employee is a decision-maker. Organizations must focus on enhancing the quality of each decision taken. The way to do this is by adopting a dynamic management model that endows employees with the requisite tools, data, processes, and interactions they need to engage, evaluate, and execute in every aspect of their work. Decision-driven collaboration promises a deep and far-reaching payoff: millions of better decisions, both large and small, that are fact-based, highly informed, and ever more efficient and effective.
- **Cultivate the Partner Ecosystem:** In the hyperconnected world of IoE, no single organization will thrive by itself. Organizations will need to rethink their partner ecosystems as they seek unique value that will create new disruption. Cultivating the right network of vendors, partners, and contract

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workers will be critical to smoother and more impactful digital business transformation. An experienced digital transformation partner can help benchmark an organization's digital maturity, envision what is possible, and take full advantage of established best practices. The best partners have deep, industry-specific expertise across analytics, security, and cloud, with the ability to provide not only IT services, but also strategic business consulting assistance. The best organizations will build their ecosystems around digitization; as they drive their own digital business transformation, they will benefit from the "network effect" of other organizations' efforts. After all, a cutting-edge innovation from a partner could have little value if your organization lags in its own digital evolution. At the same time, a partner that lags in digital transformation could be a risk—and a weak link in the security chain. In recent years, some of the most heavily publicized security breaches of large organizations occurred when cybercriminals exploited the vulnerabilities of third-party vendors.

Key Attributes of a True Digital Business

The stakes are high, and leaders must act fast.

Leaders who invest in the areas above will drive true digital transformation and their organizations will become: 1) hyper-aware, 2) predictive, and 3) agile. Digital businesses that possess these attributes will seamlessly and securely bridge physical and virtual environments in order to innovate faster and achieve their desired business outcomes, whether striving to increase market share, reduce customer acquisition costs, or accelerate time to market.

Below we outline how several organizations and public sector entities exemplify these characteristics and capabilities of a digital business.

Hyper-aware

By implementing and automating IoT technologies such as sensors, beacons, and RFID tags, organizations can capture new sources of value. This is the way to gain true visibility into, for example, what the customer is experiencing in the store, how the citizen is engaging in the community, or how the oil rig is functioning at sea.

In the public sector, the [Port of Hamburg](#), Germany, has become more hyper-aware by using sensors to enable better decision-making throughout its operations. People receive data at the right time so they can invoke the proper processes when needed. An integrated traffic management system (waterways, roads, rail) allows the port to manage bridge closures and roadway congestion that tends to increase when ships are offloading. By integrating its traffic management, the port cut network costs by 78 percent, reduced standstill times for trucks and cars on the port grounds, lowered carbon dioxide emissions, and enabled cargo carriers to work more efficiently.



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Predictive

By overlaying intelligence and analytics on top of IoT-driven technologies, organizations can gain real-time anticipatory insight into what is happening, and what to expect. In a retail context, for example, if the parking lot is filling up but the store is nearly empty, staff can be redeployed before a bottleneck occurs.

In the manufacturing industry, Flextronics—a leading end-to-end supply chain solutions company—became more predictive by combining IoT-driven automation and real-time data analytics capabilities to dramatically improve production assembly processes. Enhanced data visibility and analytics now enable the company's customers to perform real-time data correlation and, as a result, quickly anticipate irregularities in supply chain components. In addition, real-time data visibility on the factory floor reduces assembly and machining lead times, and decreases the cost of quality.

Agile

Dynamic customer experiences and processes are enabled by agile infrastructures and organizational models. When business processes can change dynamically, human, technology, and product resources can be brought to bear in real time with tremendous efficiency.

Are You Ready?



How can you best evaluate your organization's digital readiness? Gartner, the technology analyst firm, has created a framework for determining your level of digital business maturity. The six elements below provide a checklist to gauge your organization's readiness, with some specific industry examples.

- ✓ **Ideation:** Do you mine social media conversations or other "crowdsourcing" methods to conceive of product or service offerings? Or, do you still rely on traditional, "closed" R&D processes?
- ✓ **Create:** If you're a manufacturing firm, have you automated up to 50 percent of your manufacturing floor processes,¹¹ with the ability to make real-time, analytics-driven adjustments to avoid production delays?
- ✓ **Engage:** If you're a bank, do you still make your customers endure arduous, paper-based processes, such as filling out mortgage applications? Or, have you digitized your processes so that customer data is accessible and transferable across multiple services?
- ✓ **Offer:** As a wealth management firm, do you offer financial advice either virtually (via a live remote expert using high-definition video conferencing) or through an automated service?
- ✓ **Monetization:** As a city, are you still collecting parking fees through coin-operated meters? Or, are you leveraging IoT both to identify non-compliant usage of parking spaces and to introduce variable pricing?
- ✓ **Adapt:** Are you attempting a digital transformation without modifying critical factors such as your organization's culture, workforce skill sets, and governance? If so, you need to rethink your approach. Digital success depends heavily on integration of technology with the "people" and "process" elements of the business.

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In the insurance and financial services industry, Nationwide improved its agility—and customer experience—by connecting mortgage experts with customers in real time using Cisco’s Remote Expert Collaboration solution (high-definition video conferencing). As a result, the firm improved new mortgage originations by more than 60 percent, while also posting a double-digit gain in customer satisfaction and a 66 percent reduction in cost of sales.

Disruption Waits for No One

The stakes are high, and leaders must act fast. Customers and citizens are already connected, mobile, and tech-savvy. Increasingly, they demand the kinds of services and capabilities that only a digitally transformed organization can offer. At the same time, new innovators, sometimes from beyond the traditional realm of competition, are rising to fill the void and meet their needs.

In short, digital transformation is not a luxury; it is a necessity. [Twitter] With its rapid evolution, the next wave of the Internet is changing *everything*. All organizations must evolve and innovate at that same blistering pace. That is, if they want to survive and thrive in an environment of near-constant change and disruption—as they capture the abundant opportunities available to the fast movers of the IoT economy.

Acknowledgements

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Attaining IoT Value: How To Move from Connecting Things to Capturing Insights, December 2014



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