451 Research® | **BLACK & WHITE PAPER**

Transformational Directions for the Digital Business

NOVEMBER 2018

About this paper

A Black & White paper is a study based on primary research survey data that assesses the market dynamics of a key enterprise technology segment through the lens of the "on the ground" experience and opinions of real practitioners – what they are doing, and why they are doing it.

ABOUT THE AUTHOR
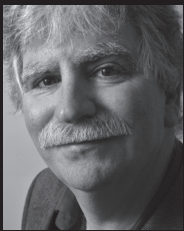
MIKE FRATTO

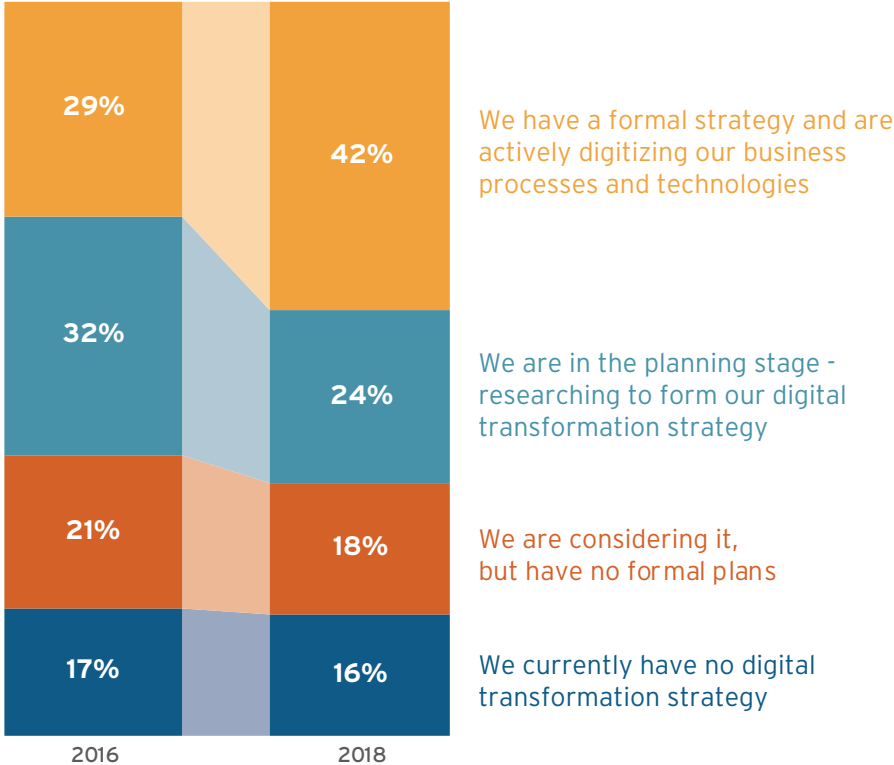#### SENIOR ANALYST, APPLIED INFRASTRUCTURE AND DEV OPS

Mike Fratto is a senior analyst on 451 Research's Applied Infrastructure and DevOps team covering enterprise networking. He has extensive experience reviewing and writing about enterprise remote access, security and network infrastructure products, as well as consulting with enterprise IT, equipment and software vendors, and service providers.

Transformation to Digital Business Accelerates

Digital transformation begets the modern 'digital business.' 451 Research defines a digital business as an organization that seeks to tap the power of digital technologies and modern processes to increase operational efficiency, deliver innovation across products and services, and increase its overall agility.

Given its latent promise and the early returns captured by organizations leaning into digital transformation, it's no wonder that a majority of enterprises sharply increased their digital transformation efforts in 2018. The data comparison in Figure 1 illustrates the progress that has been made. In just the past two years, the number of organizations in 'execution mode' has jumped from 29.4% to 42%.

Figure 1: The Increased Pace of Digital Transformation
Source: 451 Research Corporate Mobility and Digital Transformation (2016 n=500; 2018 n=517)

2016	2018	
29%	42%	We have a formal strategy and are actively digitizing our business processes and technologies
32%	24%	We are in the planning stage - researching to form our digital transformation strategy
21%	18%	We are considering it, but have no formal plans
17%	16%	We currently have no digital transformation strategy

Digital transformation is the result of IT innovation that is aligned with and driven by a well-planned business strategy, with the goal of transforming how organizations serve customers, employees and partners; support continuous improvement in business operations; disrupt existing businesses and markets; and invent new businesses and business models. The digital transformation process usually involves identifying inefficiencies that span functional units of an organization and extend to partners, and then developing new processes supported by digital technologies.

When digital transformation becomes a continual, iterative process within an organization, the business is transformed into an increasingly digital enterprise, and this change becomes deeply embedded in the organization's overall culture. Digital businesses can adapt quickly to customer demands with minimal disruption, and are often in a better position to capitalize on changing market dynamics.

There are plenty of examples that demonstrate the benefits of transforming into a digital business, such as in-store point-of-sale experiences in consumer retail, improved fan experiences at sporting and entertainment events, and increased ease for citizens seeking to engage with municipalities and local government agencies. These are common examples, but just about every organization in every market segment can become a digital business. How that transformation takes place is driven by informed decisions backed by continual data collection and analysis.

This paper serves to highlight what differentiates digital transformation leaders from those just starting out, and to identify some of the crucial lessons learned. The comparisons here draw on a major study of 1,402 businesses in the financial services, retail and healthcare sectors across 12 countries in North America, Europe and Asia, plus local and state government agencies in North America, carried out in May 2017. Unless otherwise noted, all data cited here comes from this 451 Digital Transformation Study.

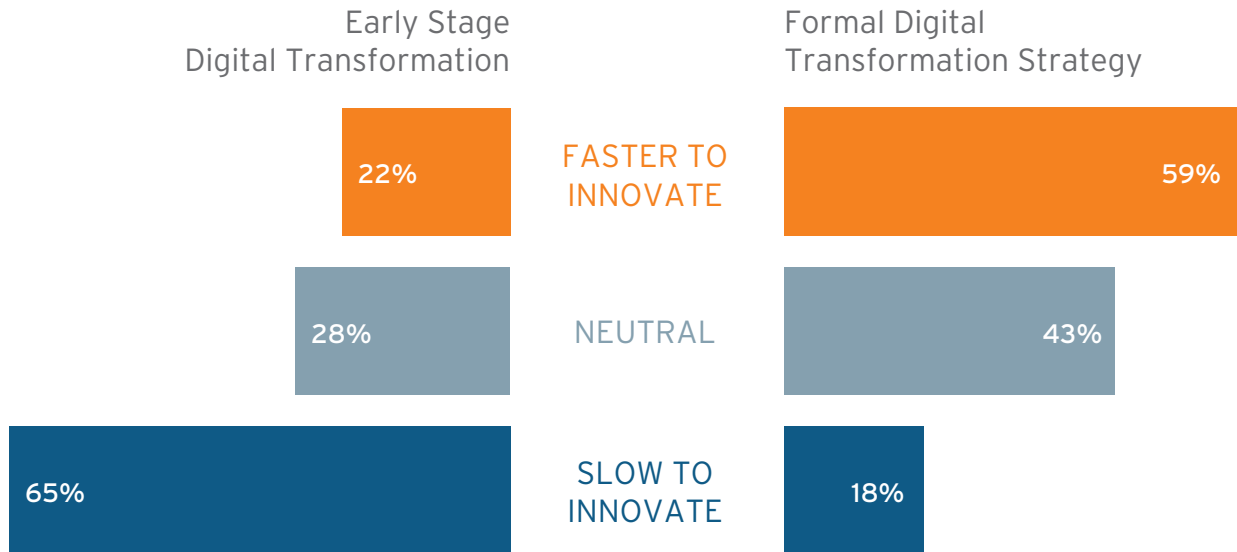# The Process of Digital Transformation

Perhaps the starkest difference between organizations with a strategic digital transformation process in place and those without one is their respective point of view on their firm's ability to innovate. The 451 Research Digital Transformation Study (see Figure 2) revealed that 65% of early-stage organizations (i.e., those without a strategy for their digital transformation, or those that are only just starting out) indicate that they are slow to innovate. By contrast, our analysis found that 59% of 'digital leaders' (i.e., organizations that have an active and formal strategy for digital transformation) consider themselves faster to innovate, indicating a positive correlation.

Faster innovation means digital leaders can respond more quickly to market demands, launch new products and services at a more rapid pace, and shift strategies as needed. Digital leaders can execute faster because these organizations have analyzed their existing business and IT processes, both for current products and services and for new developments. They will have identified inefficiencies and places where goals were poorly defined, and modernized with a renewed focus on their goals – taking advantage of new technologies and upgrading infrastructure where necessary to speed up transitions. The basic process of digital transformation is always the same:

1. Define a measurable goal or set of goals the organization wants to accomplish with key performance indicators (KPIs).

2. Perform a business process evaluation against those goals.

3. Identify inefficiencies and processes that don't serve the goal(s).

4. Create new processes and technology integrations to streamline operations.

5. Measure the impact against the KPIs in Step 1.

6. Go back to Step 1.

Early Stage Digital Transformation		Formal Digital Transformation Strategy
22%	FASTER TO INNOVATE	59%
28%	NEUTRAL	43%
65%	SLOW TO INNOVATE	18%

Note: Companies just getting started with digital transformation are early-stage organizations, whereas digital transformation leaders are further along, having followed a formal strategy.

Going through the steps from analysis to transformation and assessment then back to analysis creates a virtuous cycle for a data-driven organization and ultimately embeds data-driven decision-making deep into the organizational fabric.

Digital Business Transformational Drivers

Organizations at either end of the digital transformation spectrum – ranging from early-stage businesses without a transformation strategy to digital leaders with an active and formal strategy – have a number of transformational drivers in common. One key driver is to improve the end-user/customer experience and better meet end-user/customer demands. After all, customer satisfaction is the lifeblood of business, and satisfied customers tend to be repeat customers.

However, a 451 Research study found that the most important factor in a digital transformation program – the key to the hoped-for outcome – was improving the organization's overall operational efficiency. Efficiency seems like a fairly straightforward goal: to do more without spending more. The two most-cited objectives for improving operational efficiency were to better serve customers and to use data for better decision-making – each selected by 41% of the Digital Transformation Study's survey base. Those embarking on digital transformation projects see them as a mechanism not just for digital change, but for a broad, organizational rethink that can help reset the standards for how the organization approaches customers, employees, costs and revenue.

Enhanced customer engagement such as self-service capability is another common goal among organizations – 35% of digital business leaders in our study cited improving the use of self-service options as a main objective for improving customer experience, which can often lead to a quantifiable increase in customer satisfaction. This is evident in the number of established businesses in financial services, healthcare and retail services that are creating self-service portals, regardless of where they lie on the digital transformation spectrum.

Retailers, as well as sports and entertainment venues, are creating a virtuous triangle between CRM data, in-venue systems and client mobile apps in order to improve the customer experience – from buying tickets to a sporting event to offering promotions when in proximity to a store or merchandise location. Such efforts can lead to a quantifiable increase in both revenue and customer satisfaction.

Expectations vs Experience: The Need for Strategic Digital Transformation

Early-stage organizations, when compared to digital leaders, show slight but significant shifts in the drivers of digital transformation. Information security is always top of mind among organizations, but the 451 Research Digital Transformation Study revealed a slight increase among digital leaders in terms of wanting to better manage risk because many digital transformation strategies allow user and programmatic interactions in new – and potentially risky – ways.

As many as 40% of the 1,402 enterprises polled by 451 Research in the Digital Transformation Study said that better risk management is a key driver in their digital transformation projects. It may not be the central problem a business is setting out to address, but it is essential to incorporate risk-related thinking into the wider digital transformation strategy planning. This is borne out by the expression of priorities among organizations when it comes to their IT-related investments in a digital transformation project. When asked, both LOB executives and their IT counterparts highlighted the improved reliability of systems, networks and infrastructure as their top priority (41%).

As IT systems are integrated across the datacenter, cloud, partner services and client devices, risks to the customer and the organization are significantly increased. A breach can have long-term negative reputational impacts on the organization and on customer trust, and in many cases can have financial implications. For example, global shipping giant Maersk, which handles roughly 20% of all global container shipments, has estimated that the NotPetya malware outbreak of 2017 cost it between $250m and $300m after it had to reinstall thousands of servers and applications across its IT infrastructure to remedy the breach.

We find a disparity between organizations at either end of the digital transformation spectrum (those starting out on the transformational journey, and those that have made progress following a strategic plan) regarding the importance of reducing operating costs. As many as 55% of organizations just starting out indicate cost reduction as a primary driver, while 45% of organizations with an active digital strategy do. Embarking on a program of digital transformation will have significant cost impacts initially, but should result in far better and bigger returns in the future.

We also see a disparity between organizations at either end of the digital transformation spectrum regarding the goal of enhanced ability to innovate. When asked to identify the top three business drivers for digital transformation, 37% of digital leaders cited this as a key driver, compared with just 26% of early-stage organizations. Many organizations have evolved in ways that inhibit innovation by sticking to outmoded business processes that require manual intervention or demand managerial approval for common actions, or by not collecting and analyzing data on a regular basis.

In addition to our survey respondents expressing an overriding need to improve the reliability of systems, networks and infrastructure, 35% viewed improved infrastructure scalability and flexibility as their main IT-led priority for digital transformation (see Figure 3). This surpassed other priorities such as increasing the level of automation to reduce or remove the need for expensive labor and manual processes.

Most web-native companies founded in the last 10 years are natural digital businesses and aren't hobbled by rigid processes or poorly performing legacy infrastructure, enabling them to enact change and pivot faster. However, established companies can reform their processes to take advantage of the flexibility and data-driven decision-making now accessible and gain the full benefits of digital transformation, as digital leaders so ably demonstrate.

Digital Business Transformation Barriers and Benefits

Shifting Business Objectives

Business objectives between organizations with and without a formal digital transformation strategy vary slightly, but do so in important ways. Improving customer service is a priority for most businesses, yet more organizations with digital transformation strategies in place state that improved self-service options are important (35%, compared with 27% of early-stage companies). Self-service options that are executed well improve the way customers interact with businesses when and how they need to with minimal effort, which is particularly true for consumer and B2B self-service options. For example, all major airlines now have mobile apps allowing customers to perform common functions such as rebooking flights, tracking luggage and getting real-time flight status updates.

Real-time integration between disparate business systems tied into social media and CRM open more opportunities for companies to respond to their customers, take ownership of a problem, and provide an on-the-spot resolution. That means happier customers and fewer representatives manning the phones. Self-service can boost customer experience and potentially lead to improved operational efficiency and reductions in operating costs.
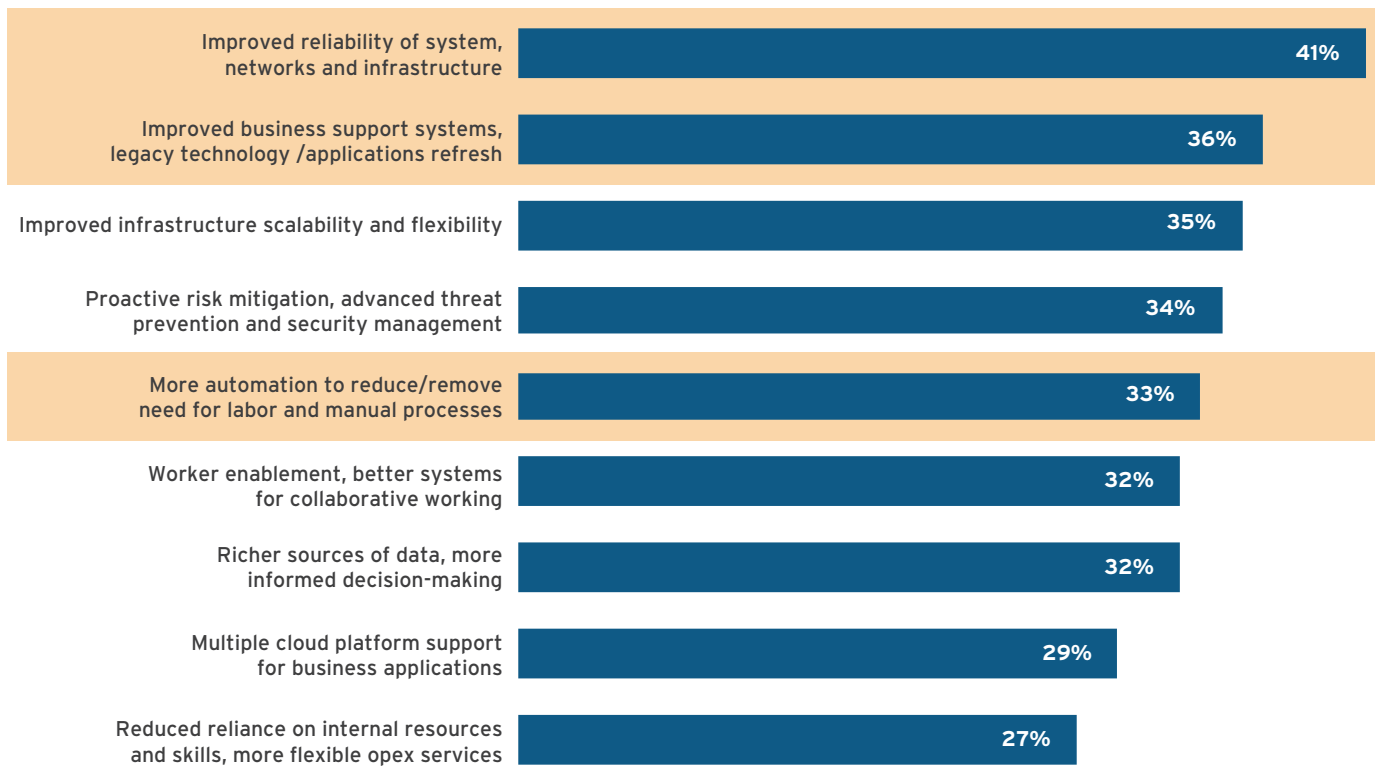
Shifting IT Priorities

To support an organization's digital transformation, IT must set its own goals, which align with the stated business objectives. IT must work well with line-of-business leaders to understand their needs and adopt technologies that will help achieve efficient and innovative goals. Transformation to digital business will impact IT's priorities across the board, and 451 Research studies (see Figure 3) highlighted three key areas:

- **Improved reliability** spans all aspects of IT, and new demands are made when shifting to cloud or multi-cloud strategies and/or adopting rapid application development methods and practices. As more applications move from on-premises datacenters to cloud environments, IT must adapt to connecting users and customers to these cloud-based business applications via the internet – which, without the right support services, can be problematic.

- **Improving business support systems** enables better decision-making through improved analytics and visualization, along with better collaboration tools and real-time intelligence. Improving business support systems has multiple benefits, from creating more efficient workflows and processes that speed up operations to providing deeper and more timely insight into everything from supply chain management to customer interaction.

- **Automation** is at the heart of digital transformation, enabling organizations to drastically reduce overhead and delays from manual processes and error-prone data entry. Both IT and business units benefit from automation by being able to meet the needs of stakeholders – whether customers or other departments – quickly and efficiently, allowing more time to focus on projects aimed at increasing current revenue or developing new revenue streams.

Figure 3: IT-Led Priorities in Digital Transformation

Source: 451 Research Digital Transformation Study, May 2017 (n=1,402)

Priority	%
Improved reliability of system, networks and infrastructure	41%
Improved business support systems, legacy technology /applications refresh	36%
Improved infrastructure scalability and flexibility	35%
Proactive risk mitigation, advanced threat prevention and security management	34%
More automation to reduce/remove need for labor and manual processes	33%
Worker enablement, better systems for collaborative working	32%
Richer sources of data, more informed decision-making	32%
Multiple cloud platform support for business applications	29%
Reduced reliance on internal resources and skills, more flexible opex services	27%

These three IT priorities – improving business support systems, improving reliability and leveraging automation – are the three table legs of any digital transformation effort. Remove one leg and the table falls over. No business wants to sacrifice reliability for faster automation, nor is there any benefit to shifting from one manual workflow to another when it could be automated.

Those three legs form the foundation on which digital businesses are built. For example, one UK furniture manufacturer's digital transformation brought about, in part, improved logistics and delivery with dynamic routing and scheduling, allowing drivers to deliver furniture within a promised time window, even when events outside of their immediate control would normally have delayed these deliveries. Not only were the drivers' days more time efficient, customers were happier because products were delivered when promised.

# Four Transformational Pillars for Digital Business

The four pillars of transformation for digital business are all built on innovation in business processes and workflows. The power of digital transformation lies in the ability to rethink processes and workflows without constraint, regardless of how the business is organized, and with a keen eye toward specific goals. These four pillars are:

- **Improving Operational Efficiency:** Operational efficiency reduces costs and speeds up transactions and workflows, but achieving efficiency has more to do with innovation – coming up with new and improved ways to accomplish tasks – than it has to do with simply streamlining inefficient steps. Using digitally integrated systems, order fulfillment that cuts across multiple business units and departments can be automated to provide a service when a customer needs it, and not days or weeks later. The transformation lies in rethinking workflows.

- **Exceptional Customer Experience:** Superior customer experience is the lofty goal of any customer-oriented business – and a common theme of digital transformation is the improvement of customer experience. It costs less to keep a customer than to attract a new one, so a critical priority for the business should be customer retention. Analyzing customer interactions and identifying steps where the experience can be improved can have significant benefits. In fact, 45% of digital leaders are focused on improving customer experiences. Successful retailers and entertainment venues, for example, focus on improving the entire customer experience from first contact through follow-up.

- **Agility:** Agility is like operational efficiency, but the critical difference is in allowing organizations to recognize when a change needs to occur in real-time or near-real-time. Data collection and analysis paired with immediate decision-making to either change an existing workflow or create a new one – a much bigger commitment – can make companies more agile and able to respond quickly to changing demands, all while providing the same level of governance and management.

- **Better Managing Risk:** Risk is always a consideration for organizations, and it must be managed with all new business and IT processes, including digital transformations. It is not just the risk that organizations are aware of that can be problematic; new digital processes can have unintended consequences. For example, the increased use of chip-enabled credit cards, and chip-and-pin cards outside the US, has reduced fraud through cloning but may mean an increase in fraud from card-not-present transactions. Risk management during digital transformation must encompass more than just those processes being transformed.

When respondents in 451 Research's Digital Transformation Study were asked to allocate 100 points across the organizational goals for digital transformation, businesses overall put more emphasis on improving operational efficiency, followed by enhancement of customer experience, agility and better managing risk (see Figure 4). This held true regardless of which stage of the digital transformation process the companies were at – early, mid-stage or advanced – with their strategies.
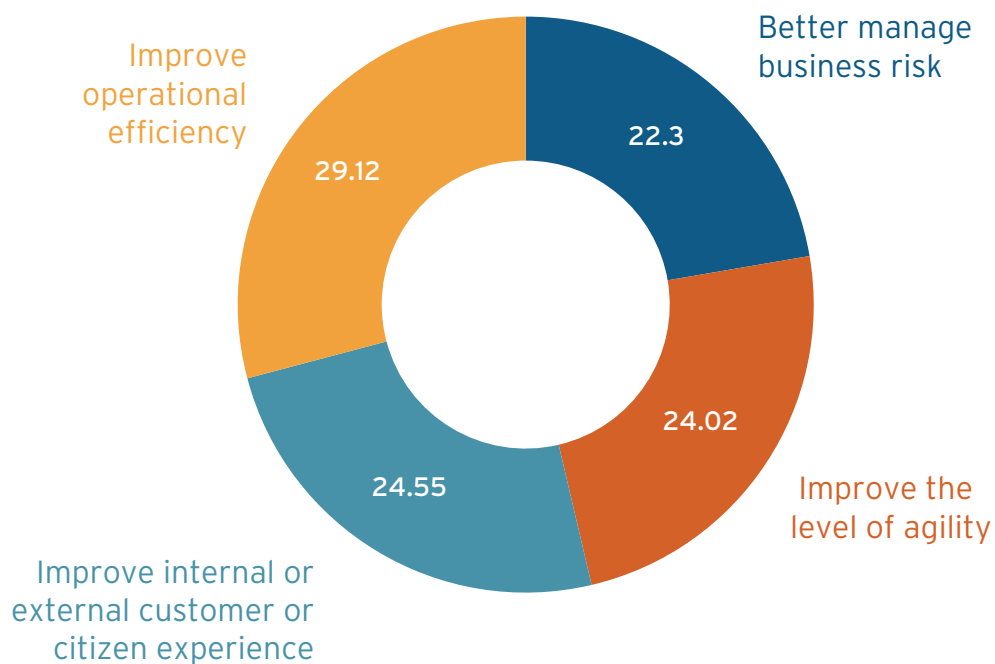
Overcoming the Hurdles to Becoming a Digital Business

A large component of digital transformation has nothing to do with digital technology and has everything to do with people and processes. People can be resistant to change, particularly when they are out of the loop on what is occurring, and change is foisted on them with little context. A transformation plan for becoming a digital business should include an employee communications policy that is transparent about the coming changes and why they are occurring.

- **Business unit silos are an extremely common feature within organizations.** And people within these silos feel a great deal of pride and ownership regarding their business units. While pride and ownership are generally beneficial attributes, they can also foster a sense of proprietary fiefdoms, which leads to ineffective collaboration between business units and departments. Without a clear, common strategy for digital transformation, these silos can be hard to break through.

- **Like business units, IT can be a significant cause of delay in digital transformation.** In the 451 Research study, 35% of digital leaders cited inflexible IT systems as a significant barrier to digital transformation, while 31% cited an inability to migrate legacy systems to the cloud as a barrier. IT commonly has to support monolithic application architectures that are resistant to migration to cloud or microservices architectures. Legacy technology decisions, such as the selection of proprietary products and services, can haunt an organization's attempts to retool with more flexible architectures. There is often also inherent organizational inflexibility – related to the aforementioned silos – where people and departments resist change, which can slow the pace of improvement or short-circuit attempts to modernize the business. In one case, a manager at a defense manufacturer

slowed a transformation project by insisting that IT replicate its manual processes electronically, with no thought to improving workflows and rooting out inefficiencies. This manager had no context for the change and had some legitimate governance concerns that had not been addressed.

- **Risk management and information security concerns can halt digital transformation** in its tracks if not addressed early on. For 49% of digital leaders in our study, improved security of the customer data they store and process is a primary objective. Any organization in a regulated field like healthcare, financial services or retail, or organizations that abide by quality controls like ISO quality management standards or ITIL, must ensure that the requirements of these regulations and standards are met to achieve a successful transformation. As IT systems across an organization or between business partners become integrated, ensuring that access controls and proper usage monitoring are in place is critical to assuring assessors and partners that security concerns have been addressed.

Achieving Successful Digital Business Outcomes

In any large-scale business or IT project, success comes with planning and a methodical approach to change. Digital transformation is a continual process that will involve multiple parts of an organization, and a well-defined project plan will ensure that it moves forward successfully. But more importantly, with a methodical, data-driven approach, organizations are better able to address unforeseen issues that inevitably arise.
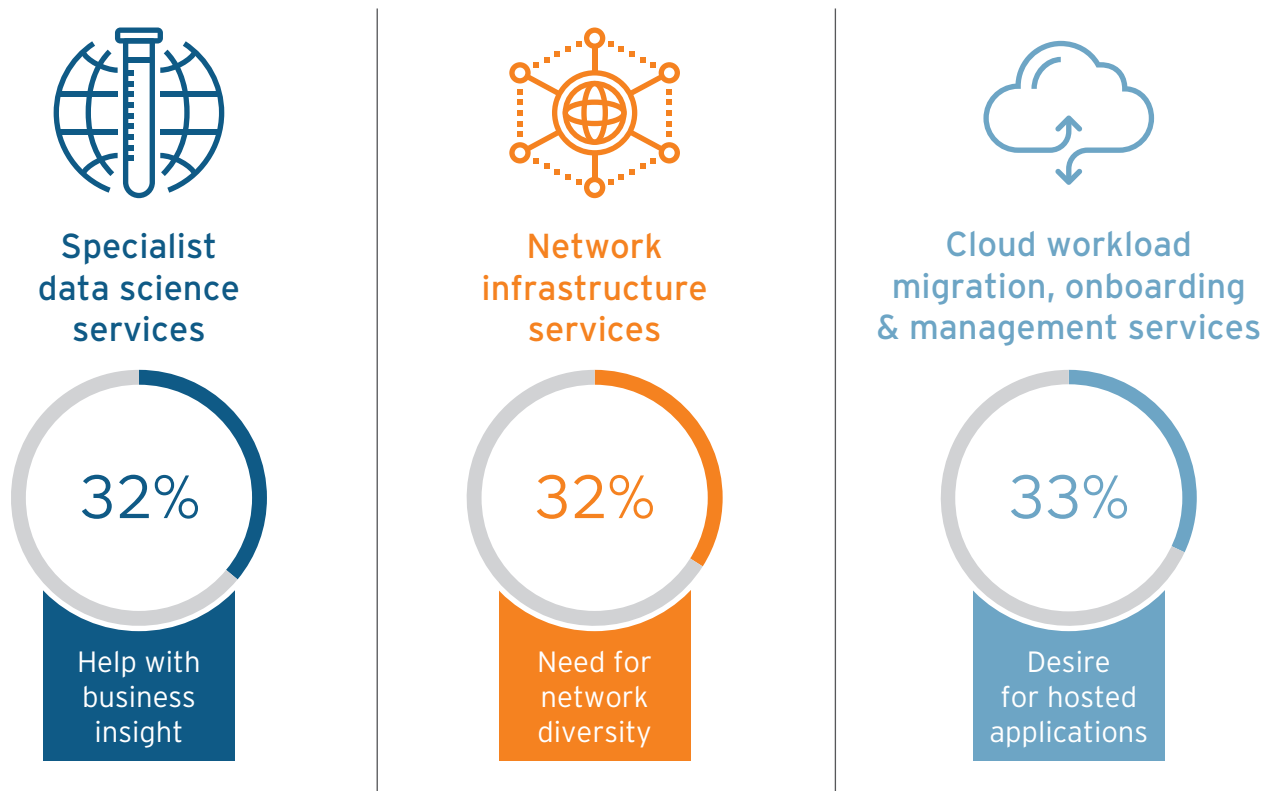
- **Organizations that succeed in their transformation and become digital businesses are data-driven** – 34% of surveyed enterprises said that harnessing the power of data-driven decision-making was a critical business driver. Successful organizations are data-driven throughout the transformation process, and the collection and analysis of data is used to measure success against established KPIs and to inform what changes need to be made for continual improvement. Collecting and analyzing data forces organizations to consider the status quo, and highlights issues they otherwise might not consider. For example, companies adopting cloud services should monitor the costs of running workloads in the cloud vs. on-premises to ensure that workloads are placed efficiently and do not lead to overspending on IT resources.

- **IT flexibility is at the core of implementing digital transformation projects, but it is not enough to simply move quickly.** IT systems must be built with an API-first and integration-first philosophy, with the expectation being that other parts of the business will leverage new IT systems in the future, and they will be ready to go. Just like monolithic business applications are being broken down into services and microservices for greater scalability and reliability, future digital business applications are also going to be using other applications and services as data sources, enabling greater data reuse and richer workflows.

- **The scope of a digital transformation project can be daunting.** Engaging with consulting and professional services providers (see Figure 5) that can offer guidance at every stage will help accelerate the organizational learning required to integrate the digital transformation into the overall organizational culture. In most cases, professional services from multiple sources – such as managed services and cloud providers, systems integrators and business process consultants – will be beneficial, since they specialize in different areas of IT and the business.

Service provider choices are especially important because trends such as multi-cloud, big data and advanced analytics, intelligent automation software and IoT are steadily propelling IT infrastructure – and the business applications it serves – to a point where it will play an even bigger role as business becomes increasingly digital.

Figure 5: Services Desired From Transformational Partners
Source: 451 Research Digital Transformation Study, May 2017 (n=1,293)

Specialist data science services

32%

Help with business insight

Network infrastructure services

32%

Need for network diversity

Cloud workload migration, onboarding & management services

33%

Desire for hosted applications

The 451 Take: Recommendations

Digital transformation will bring many benefits, both now and in the future, because it involves adapting the business, its processes and its approach to technology in order to become more agile and focused on a clearly defined set of goals. Digital transformation relies on being data-driven, which involves analysis of what works and what needs to be improved. Through continuous monitoring, success can be measured and improved upon in real-time or near-real-time.

Plan for More Time Rather Than Less

Transforming into a digital business takes time, and organizations early in their journey can underestimate how long it will take. Some 42% of digital leaders in our study expect their *current projects* to take 3-5 years to complete, while 54% of early-stage companies expect *the entire process* to take just 1-2 years. It is important to set achievable timeline expectations with measurable KPIs to track success, and to adjust accordingly when encountering hurdles. Among the study respondents, retailers cite lack of agility (39%) and failure to embrace change (37%), as reasons holding them back from digital transformation. Addressing these issues will be a continual process that will present hurdles early on.

Start With Critical Projects

Conventional wisdom in business process transformation is to begin with changes to noncritical processes and then tackle more critical ones. That's a safe approach, but it will actually delay an organization's digital transformation in the areas that are most impactful. Digital transformation is about transforming faster than before while ensuring the transformations are based on good data and decisions. Using a critical process or goal to start with commits the organization to the success of the transformation and raises the stakes for everyone involved. Employees will be excited about enacting positive change – and the higher the stakes, the more focus on success everyone will have.

Taking on a critical process first also signals to the business, the market, investors and competitors that the organization is willing to take measured risks to open or expand lines of business, improve operational efficiency, and create an agile environment that can respond quickly to market and customer demands.

Become and Remain Data-Driven

One of the subtle changes in modern application development resulted from a shift toward starting with clearly defined and measurable goals and then using those goals to determine the architecture. KPIs not only define what aspects are critical for a digital transformation project, but also provide measurable outcomes that can help determine the success of a project and indicate where improvements can be made. Measuring success starts with data collection, and more than one-third of financial services and healthcare organizations in our study (37%) are seeking ways to improve their business support systems for more informed decision-making.

Digital transformation is a data-driven approach to business, and starting the process off with well-defined and measurable KPIs will keep all stakeholders on task and limit project creep. KPIs should be developed for multiple points along the way so that deviations can be identified sooner and proper responses developed in a timely fashion.

Access to a richer data set is a key emphasis for 37% of retailers in our study. Along those lines, a well-known Canadian transportation company wanted to increase customer engagement with retailers on stations. Using a loyalty program tied to location awareness and contextual promotions, the transportation company was able to track and relay the increased engagement to its retail partners based on time of day and location, and demonstrate the value of participation.

Seek Assistance From Specialists

Embarking on a digital transformation project is going to be initially disruptive, and these tend to be large projects. Each market segment will have elements in common with other organizations in the same segment, while each organization within a given segment will also have unique organizational and technical requirements to satisfy.

Modern organizations increasingly find that there are three core elements of effectively executing on a digital transformation strategy: personnel culture shifts that facilitate transformative technologies, deployment of these technologies, and use of third parties to fill gaps and extend internal capabilities. Use of third-party service providers for infrastructure management remains nascent, but inherent value should spur increased adoption in coming years. Concerns about handing over infrastructure control to outside forces persist, but so does recognition of organizational benefits, such as streamlined facilitation of modernization efforts and optimization of internal teams and practices.

Organizations embarking on a digital transformation journey should start with the support of specialist professional services from providers that have worked with other companies in similar market segments and can bring that experience to bear. It's important to talk to any customer references when engaging professional services providers. A one-on-one conversation between peers can shed light not only on the customer's experience with that particular professional services organization, but also on the process overall.

ABOUT CENTURYLINK

CenturyLink (NYSE: CTL) is the second largest U.S. communications provider to global enterprise customers. With customers in more than 60 countries and an intense focus on the customer experience, CenturyLink is a global communications, hosting, cloud and IT services company enabling millions of customers to transform their businesses through innovative technology solutions.

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Learn more about how CenturyLink can be your digital business partner at: *www.centurylink.com/digitalbusiness*

About 451 Research

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