Navigating IT Transformation

TALES FROM THE FRONT LINES

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CONTENTS

INTRODUCTION

As enterprises steer toward the future, they find themselves constrained by a variety of obstacles to embracing new IT operating models.

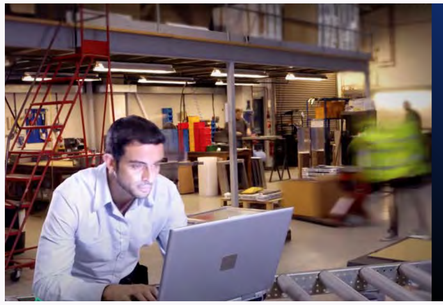
HERE ARE THEIR STORIES

Dan, a top IT infrastructure executive at a global financial services firm, finds himself caught in the epicenter of a perfect storm: he faces heightened competition and increasing demands from tech-savvy customers who want innovative services that require the flexibility and agility of the cloud, but the watchful eye of regulatory oversight presents serious security and compliance hurdles. Dan also faces constant pressure from the executives who want his team to do more with less, while internal customers clamor for more responsiveness.

The demands of today's business reveal serious cracks in this $1.2 billion bank's existing IT infrastructure. Even so, Dan and others on the front lines are wary of major infrastructure change given the risk of disruption to the business. As companies steer toward the future, they find themselves constrained by a variety of obstacles to modernize IT and embrace new operating models. Security and compliance concerns, the need to maintain and evolve legacy systems, and the persistent focus on cost reduction are often at odds with the push for a more agile response to business, an embrace of automation technologies, or a desire to sync IT priorities with key business objectives.

With both business and technology poised for major transformational change, Dan and his colleagues must overcome these challenges and push forward despite the risks. Their stories shed light on IT leaders' hopes for transformation, the ramifications of staying the course, and their determination to do what it takes to achieve digital excellence.

The rise of mobile, social media, cloud-native apps, Big Data, and the Internet-of-Things is creating unprecedented opportunity for digital transformation. These factors have come together to create an idea economy in which success is defined by a company's ability to turn ideas into innovative products and services faster than its competition. With these massive shifts in the enterprise landscape, Hewlett Packard Enterprise internal research forecasts that more than one trillion applications will exchange 58 zettabytes of digital data (one zettabyte is equivalent to approximately one-million terabytes) over 100 billion devices by 2020. These forces will drive innovations that will redefine business models, increase worker productivity, and foster richer interactions with customers.



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INTRODUCTION

This accelerated pace of business change has created new levels of complexity that tax current IT infrastructure. The proliferation of workload-specific hardware platforms, resource silos, and disparate processes has resulted in a chaotic digital sprawl that is difficult to manage and expensive to maintain.

Forward-leaning enterprises are starting to address the problem by building flexible, hybrid IT environments that combine private and public clouds with new architectures that bridge traditional IT and cloud native apps. According to a 451 Report, "The Transformative Impact of the Cloud," 74 percent of survey respondents are building private clouds and 26 percent are opting for the public cloud. Of the companies building on-premises cloud infrastructure, 44 percent say their time and resources were consumed by automation and orchestration tasks as their IT infrastructure matured.

Even self-described "innovator" companies are grappling with how to successfully navigate the new frontier. According to a recent IDG Research survey on infrastructure change, more than one-quarter of respondents consider their organizations innovative with respect to technology adoption.1 Of that group, 72% viewed their organization at the forefront of business strategy development. At the same time, however, 60% of respondents in the innovator group believe IT remains an obstacle to faster delivery of applications and services.

How to generate value with hybrid IT

The CIO's role is to work alongside organizations and co-create business opportunities.

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One in five respondents to the survey admitted that the pace of change within their organizations was too slow.

Most respondents to the IDG survey said they welcome disruptive change, with 65% agreeing that it can have a positive impact on the organization. The potential for reducing IT costs (32%), increasing capacity (31%), and increasing flexibility (29%) were the most-cited triggers for taking action on infrastructure.

Given the stakes, it is critical to meet these challenges and settle on the right infrastructure to power digital transformation.

"The balance is not to lose sight," says Carl, director of engineering at a $30 billion manufacturing and retail organization. "You could say we're building castles on shifting sand. When an infrastructure disruption happens, that just adds another layer of complexity."

> "I think as an IT professional you have to have a mindset that accepts that change is a continual process… You always have to look at how you can do things better."
>
> -SVP, Financial Services

The Need for Speed

THE NEED FOR SPEED

With next-generation initiatives like connected vehicles and Big Data analytics to assess street conditions, the ability to respond quickly and make business goals a reality is an ongoing challenge for the Department of Transportation (DOT) of a major U.S. city, especially because it has to operate within strict budgetary and process constraints.

By 2018, the goal is to have a driverless infrastructure in place that can support a proof-of-concept for autonomous vehicles. The traditional way of delivering applications—performing analysis, getting funding, gathering requirements, and doing an RFP—isn't going to cut it as new technologies zip down the pike at rapid speeds. The agency's current IT model is traditional and inflexible, and it can't adapt fast enough to meet existing business demands and drive the agency's new initiatives.

"This is not like a regular application where you know it can be done and delivered in X months," laments Sam, the DOT's director of applications and administration. "This is a big deal because the infrastructure itself doesn't even exist, and it's disruptive just to build this infrastructure."

Traditionally, it could take Sam's team of 25 approximately 10-12 months to bring a project to fruition, sometimes even longer. For one application that they have been working on for four years, it took a full year just to secure the infrastructure to host the application, then more time to deploy the server and storage capacity.

Sam isn't the only one facing this dilemma. Nearly 40% of respondents to the IDG survey also ranked accelerating the speed of service deployment as their top IT and business priority over the next 12 months.

"The pressure to deliver faster is real," Sam says. "Changing to agile methodologies and the cloud will help us deliver faster."

Gain Control Over Complexity

GAIN CONTROL OVER COMPLEXITY

For a publishing company making the transition from print to digital, managing all of the intricacies of hybrid cloud, mobility, integrated data analytics, multipurpose content management rendering, and managed services is a constant juggling act with lots of moving parts.

Against a backdrop of shrinking industry margins and growing customer expectations for a consummate digital experience, Jill, the vice president of IT, is feeling continuous pressure to ensure the details surrounding infrastructure run smoothly. This $2 billion company can't afford downtime or disruption as it races to monetize its digital transformation over the next year and harness customer data analytics to explore fresh opportunities for innovative products and services.

"Innovations and creativity are what this digital transformation is all about, but there are greater intricacies, more choices, and a lot more permutations that, at times, can seem overwhelming," she explains. "And it's only going to get more complex."

Jill is steering her publishing firm toward hybrid cloud and converged capabilities because the complexity of the current environment is curtailing reuse of systems, processes, and content. While Jill considers herself cautious, she says navigating this digital transformation has been one of the more creative experiences of her career, not to mention a real test of her professional capabilities.

Jill is not alone in this sentiment. Most respondents to the IDG survey see a personal upside to the journey, including the opportunity to use new technology (40%), the satisfaction of helping the business succeed (36%), and the chance to acquire new skills and areas of expertise (35%).

"Digital transformation requires consistency, self-discipline, a willingness to look both outwards and inwards, an ability to encourage and strengthen organizational contributions, and dialogue across all levels," she says. "You have to be willing to take risks and be ready to fail and learn from those outcomes."

> "Innovations and creativity are what this digital transformation is all about."

Flexibility to Respond

FLEXIBILITY TO RESPOND

At government agencies and companies where legacy systems remain active and have a long shelf life, IT leaders walk a fine line. They are wedded to the existing systems that run the business but also pressured to answer the call for continuous innovation.

According to the IDG research, respondents, on average, said that 40% of their existing infrastructure cannot be replaced due to budgetary or other reasons. As they integrate new technologies with these core legacy systems, respondents said they expected to be challenged by increased security risks (35%), budget concerns (34%), and infrastructure flexibility (32%).

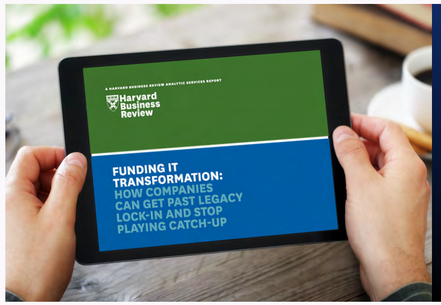
Sam's agency is facing many of these challenges because, of its 92 applications, 70 are considered legacy systems that remain core pillars of the business. Even the new, cloud-based applications in Sam's portfolio depend on legacy systems.

For Pete, director of trading technology at an $8 billion global financial services firm, migrating legacy systems to new private and public cloud services follows a natural progression based on a careful analysis of what technology is most appropriate. As applications age and appear ready for retirement, the team evaluates whether there's an opportunity to leverage the cloud, mobile, or other new technologies, working alongside business leaders to map out the optimal route.

For instance, the business might say that the current trading platform is too slow, impacting the firm's ability to take advantage of market situations and make split-second investment decisions. The team would evaluate the system—built 10 years ago when latency wasn't issue—and decide if a redesign is in order.

"It's not like the business is going to come to us and say, 'Use the latest technology,'" Pete explains. "They'll come to us with problems and issues, and it's the role of IT to respond."

"They'll come to us with problems and issues, and it's the role of IT to respond."



How to get past legacy lock-in

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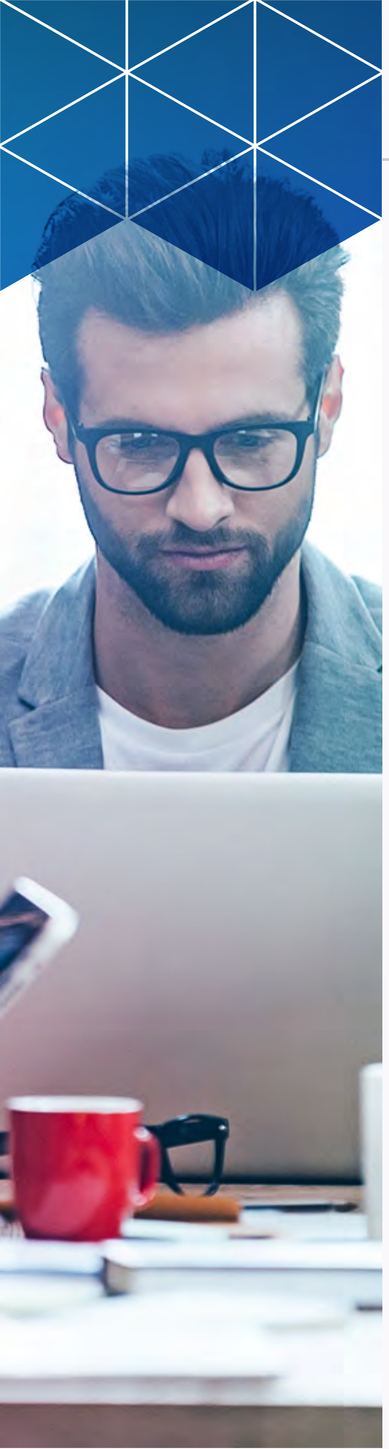
Risk Management in the Age of Cloud



Mark is the IT director at a $12 billion educational institution that supports 30,000 users, the majority of whom are tech-savvy "digital natives," born and bred on technology and constantly pushing the boundaries of what it can do. Mark and his IT team are expanding the university's public and private clouds to provide innovative services (such as online classrooms) that are proving to be a huge hit with the highly mobile student population and help to keep costs in line.

Yet, there's a problem: The more IT shifts services to the public cloud, the greater the perceived security risk. Mark and his team are currently juggling myriad vendor and student portals as part of an evolving IT infrastructure, each accessed through different methods. As students venture further out into the digital frontier, the university is squaring off against huge security gaps, including a flurry of attacks—about 30,000 to 40,000 daily—and an onslaught of "ransomware" (a software attack that locks out access to a system until a sum of money is paid).

Nevertheless, IT architecture modernization is a must, and security has to be built in from the ground floor, not retrofitted after the fact. According to the IDG survey, potential security risks are among the top concerns that could delay major IT infrastructure change and were cited by 43% of respondents, along with budget constraints (38%) and a lack of requisite skills (34%).

Private clouds offer the flexibility of public cloud while meeting the security and compliance requirements demanded by the university. "We have to be online, we have to be agile, but we have to have security—and people want this all in real time," Mark says.

The university system went through a virtualization and consolidation initiative several years ago, despite plenty of user pushback. A focus on the benefits of the project fostered buy-in across the community and made all the difference.

"If I have old legacy systems, I'll be a dinosaur and get phased out," Mark says. "I might have discomfort, and I might not like what I'm doing all the time, but I have to change with the times."

> "We have to be online, we have to be agile, but we have to have security."

Optimizing IT Cost of Ownership

These days, it's hard to find any IT organization that isn't trying to do more with less, which means a dogged focus on cost reduction and efficiency. Yet the process for getting there isn't always guaranteed.

Consider Pete's financial services firm, which is aggressively integrating public and private cloud with existing IT infrastructure to create a hybrid environment for economies of scale. Adopting these new IT operating models raises a fresh set of challenges in areas like security for public cloud, for example. As a result, IT must often go back to the drawing board to consider new infrastructure and technology additions that can rapidly consume their budget. In fact, 57% of respondents to the IDG survey shared Pete's concerns and said lowering operating costs while increasing operational velocity was extremely challenging for their IT organizations.

"The business looks at IT as an expense center, so obviously the more cheaply you can deliver expected results, the better you're doing your job," says Pete. "But reduction of cost doesn't come easily. You have to deal with the consequences."

John, the CIO of a $1 billion healthcare company, is pushing to the cloud as much as possible to boost agility, increase business responsiveness, and reduce costs. Yet John, who learned a myriad of lessons from his firm's last big infrastructure disruption, says that this time, the emphasis won't be on sorting through the pros and cons of the infrastructure change. Rather, he intends to zero in on potential benefits as the best way to help his organization navigate the inevitable bumps in the road without grinding to a halt.

"We need to think about what drove us to this route in the first place. Was it cost reduction, improving patient care, or getting more speed out of our systems?" he explains. "We talk about the benefits and focus on where we are now and where we're going to."

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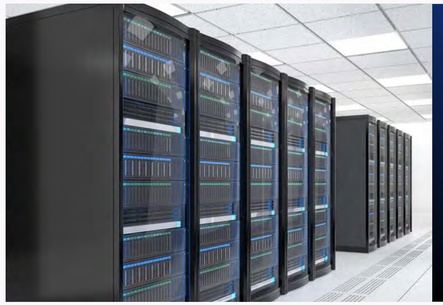
Paths to Change

CONVERGED SYSTEMS

As all of these IT leaders discovered, staying the course and making incremental upgrades to traditional IT is not an effective bridge to a digital future, yet infrastructure modernization is a disruption few can afford. While there's no one-size-fits-all answer to making painless change on this scale, there are scenarios that allow companies to make the transition on their own terms instead of orchestrating sweeping changes. Enterprises need to establish the **right mix of public cloud, private cloud, and traditional IT capabilities** in a **hybrid infrastructure** with a single management environment to ensure performance, scalability, security, and data-compliance requirements are met.

Many businesses have already taken the first step to hybrid infrastructure by embracing converged systems, which support a wide range of workloads (physical or virtual) from an integrated solution stack. The IDG research found that about a third (37 percent) of organizations globally have deployed converged systems while another 44 percent plan to deploy the technology in the future.

Converged systems address inefficiencies through higher density and eliminate a lot of the network sprawl caused by traditional resources silos, but they are still defined by hardware. This, together with the need for multiple management tools, still creates complexity for IT operations that makes change a slow and painful process, much like traditional IT infrastructure.



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HYPERCONVERGED INFRASTRUCTURE

Hyperconverged infrastructure, an incremental step to hybrid cloud, picks up where converged leaves off by replacing management islands with an easy-to-consume infrastructure capacity that does not require connectivity to SANs. The model, best for risk-averse companies looking for a staged approach to change, adds a software layer to bring storage and compute resources together for greater flexibility. More than half of the organizations responding to the IDG survey reported having plans to deploy hyperconverged systems.

Hyperconverged systems do require a different infrastructure for physical and SAN-attached applications. This limitation means there are still management silos associated with these systems, which opens the door for some enterprises to consider a different, more progressive approach.

IDC market spotlight: Hyperconverged

Can you bridge the gap between integrated and scale-out infrastructure?

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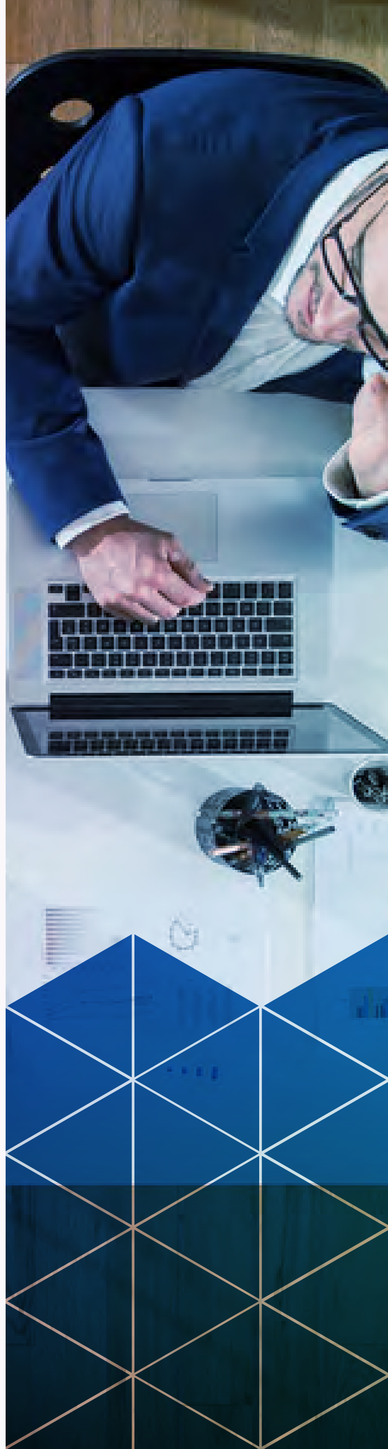
68% CAGR for hyperconverged

Hyperconverged is not a destination, but an evolutionary journey

Learn more



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COMPOSABLE INFRASTRUCTURE

Composable Infrastructure can be the alternative for companies ready to embrace IT infrastructure modernization and hybrid cloud as a quantum change. Composable Infrastructure creates a single platform and IT operational model for all workloads, melding compute, storage, fabric, and management into a single infrastructure as fluid resource pools. The approach also encompasses a software-defined intelligence for frictionless operations and a unified API to "compose" infrastructure-as-code in just minutes.

Of those survey respondents who were knowledgeable about this next-generation approach, 41 percent said they anticipated improved deployment speeds as a result of the new infrastructure; 38 percent expected better operational efficiency; and 32 percent expected less maintenance of physical infrastructure and the ability to drive more growth initiatives through IT. There was strong interest in Composable Infrastructure across all markets participating in the survey.

Ready to move beyond convergence?

Composable Infrastructure: A new way to architect your data center

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Why choose Composable Infrastructure?

Discover 10 reasons to make the move

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HudsonAlpha gains speed and productivity

Learn how HPE Synergy is helping to transform human genome analysis

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Complement Infrastructure With the Right Hybrid Cloud

COMPLEMENT INFRASTRUCTURE WITH THE RIGHT HYBRID CLOUD

In addition to choosing the right underlying infrastructure approach, IT leaders need to consider how to best incorporate cloud into their mix, especially as the adoption of public, private, and **hybrid cloud** continues to grow. According to 451 Research, cloud-based infrastructure is preferred over non-cloud infrastructure by nearly a 3:1 margin for a wide range of workloads, with the highest proportion (47%) slated for private cloud. Key factors driving cloud adoption include cost savings, improved time to market (or reduced time to deploy or change infrastructure), flexibility, and performance.

Progressive IT shops are adopting a multi-cloud environment to enable an IT-as-a-service model, as they become internal service brokers to their organizations. Thirty-seven percent of organizations surveyed by 451 Research have already deployed hybrid cloud solutions as a way to allow multiple clouds to interact seamlessly, leveraging private clouds for workloads requiring high levels of data protection, for example, along with public cloud for cheap compute.

As business dynamics drive the need for major IT infrastructure change, organizations can't afford to be complacent. They also shouldn't initiate change for change's sake. Instead, IT leaders should embrace infrastructure technology that minimizes business disruption and fosters speed and agility, making the path to a hybrid infrastructure an advantage for both the business and their own personal brand.

Northern Ireland simplifies with IaaS

See how IT Assist delivers simpler and faster cloud services

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Who is the right partner for your private cloud?

Forrester evaluates how the top nine private cloud software suites stack up

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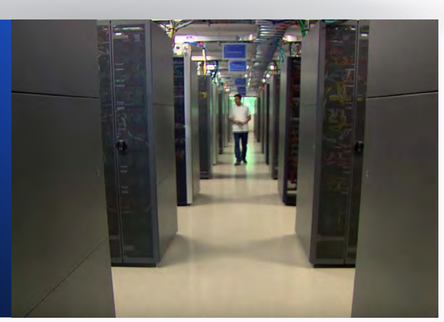

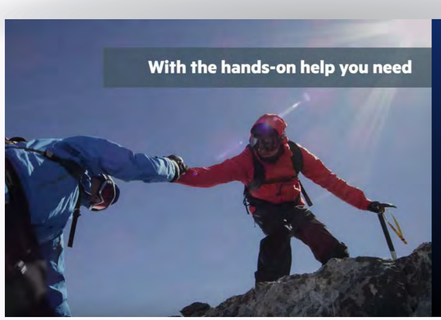

Don't go it alone

IT transformation takes more than technology. Who is your services partner?

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RESEARCH SUMMARY

This research was conducted by IDG on behalf of Hewlett Packard Enterprise to better understand the impact of major infrastructure change on enterprise organizations, and more specifically on the individuals involved in making the decisions that lead to infrastructure change. Our aim was to appreciate:

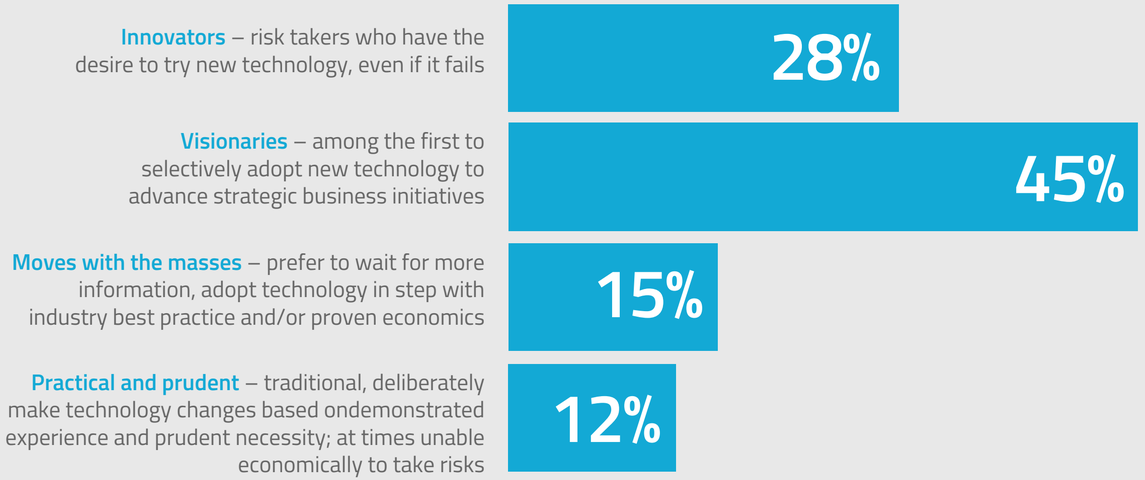
- The challenges and objectives that are driving infrastructure change at enterprise organizations
- The emotional aspect of making IT strategy changes that can potentially put reputations and careers at risk
- Senior IT decision makers' familiarity with and reaction to the concept of Composable Infrastructure
- The value that IT decision makers place on this new approach that spans traditional infrastructure and new operational models such as DevOps.

Business and IT Priorities

- More than one-quarter would classify their organizations as innovators with respect to technology adoption. One in five (one-third in the US) feel the pace of change in their organization is too slow.
- IT Directors and VPs who sit on the development side of IT (versus I&O) are twice as likely to put their organizations in the "innovator" category (26% versus 12%).
- Technology, retail, communications, and utilities are the verticals that pop up most frequently among the "innovators."
- Respondents agree that their IT organizations are successful at keeping the business running and that they are prioritizing efficiency and ROI.
- The challenges of "doing more with less" and IT complexity resonate strongly with respondents.
- The most important business and IT objectives are gaining strategic advantage, improving business profitability, accelerating the speed of service delivery, and synching business initiatives and technology investments.
- Accelerating the speed of service deployment is identified as the most relevant objective, and is also the most likely to be funded if respondents could only fund one.

More than one-quarter would classify their organizations as innovators with respect to technology adoption.

Pace of New Technology Adoption



Q: How would you describe the pace of new technology adoption at your organization?

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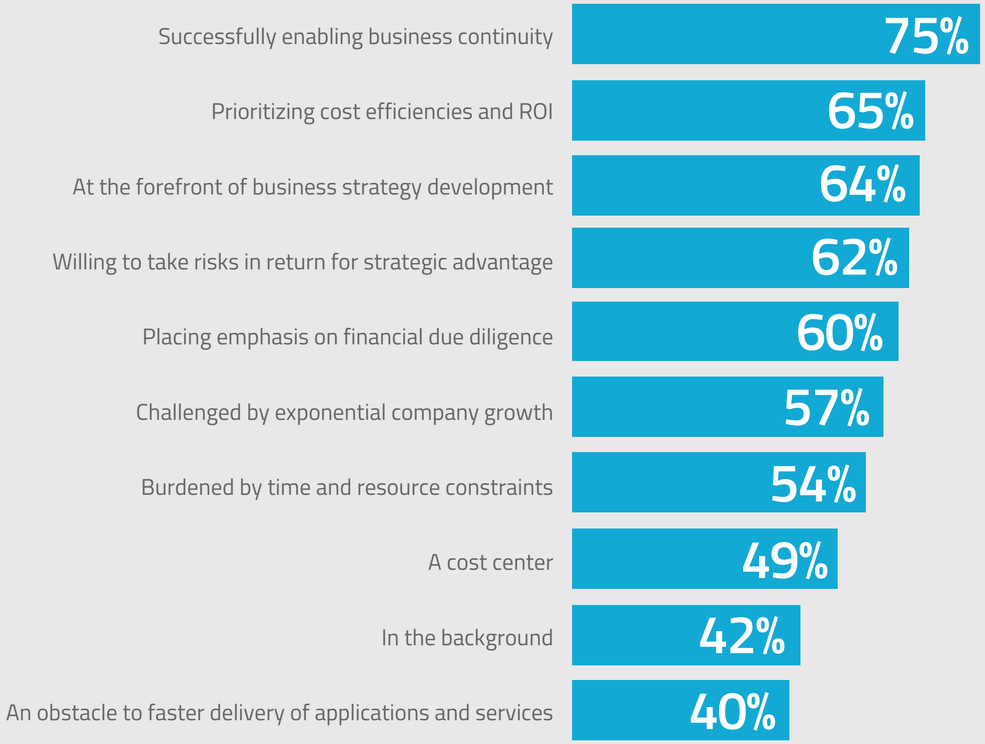
RESEARCH SUMMARY

Respondents most readily agree that their IT organizations are successful at keeping the business running and that they are prioritizing efficiency/ROI.

I Perceive the IT Organization At My Company To Be:



Q: Please rate your level of agreement with the following statements.

Accelerating the speed of service deployment is identified as the most relevant objective, and is also the most likely to be funded if respondents could only fund one.

Top 3 Objectives Most Relevant to Organization

Q: Which three of these objectives are the most relevant for your organization?

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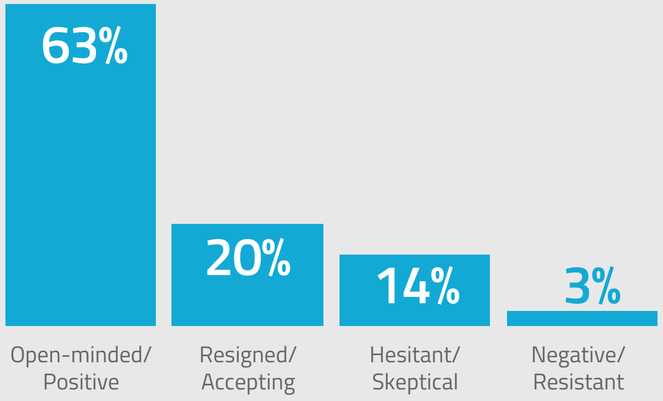
RESEARCH SUMMARY

Concerns Regarding IT Infrastructure Change

- The top concerns that might delay major IT infrastructure change include security risk, budget constraints, and skills gaps. In their own words, respondents also cite the risk of layoffs, lack of buy-in or support, and low employee morale.
- Despite these concerns, more than six in ten respondents report their organizations have reacted in a positive way to major IT infrastructure change in the past.
- When weighing their personal concerns about IT infrastructure change, re spondents worry about losing something they've built, and the potential impact on their personal lives and reputations.

Despite concerns, more than six in ten respondents report their organizations have reacted in a positive way to major IT infrastructure change in the past.

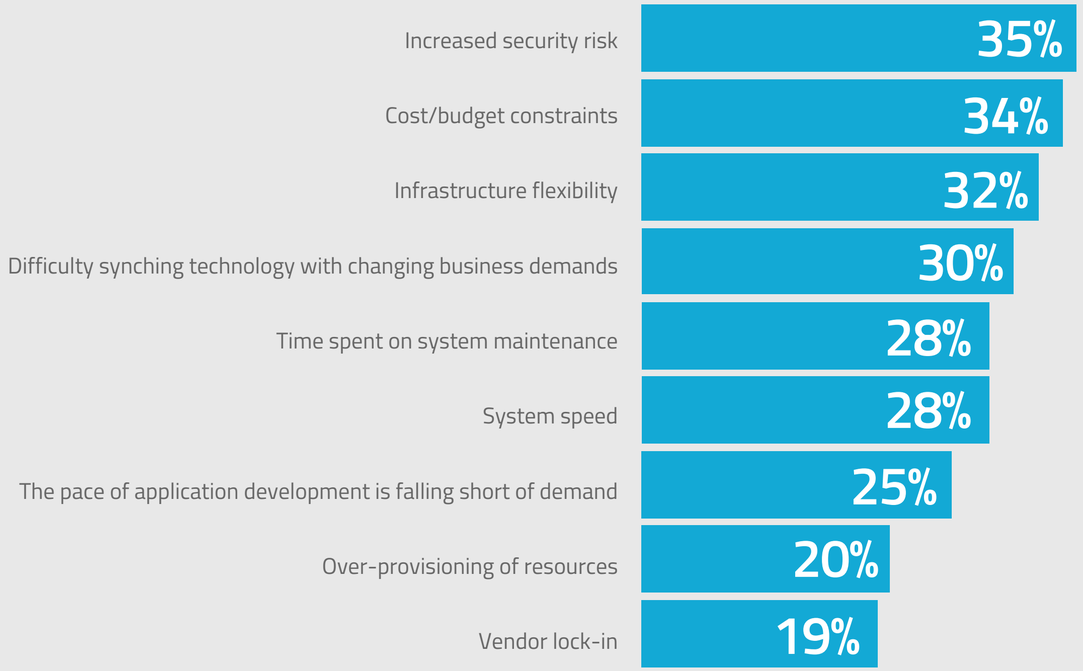
Major IT Infrastructure Change in Past – Organization's Reaction



Q: Thinking about a major IT Infrastructure change that your organization has experienced in the past, how would you describe your IT organization'sreaction to that change?

The top concerns about leaving legacy systems in place while integrating new technologies are security risk, budget, and (lack of) infrastructure flexibility.

Challenges of Keeping Core Legacy Systems Running While Integrating New Technologies



Q: What are your company's challenges in balancing the need to keep core legacy systems up and running while integrating new technologies (e.g., cloud, mobile, Big Data, social, etc. that can keep the business competitive and growing?

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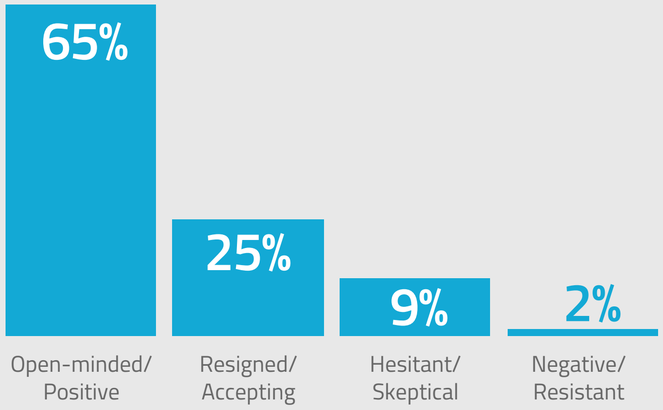
RESEARCH SUMMARY

Attitude Toward IT Infrastructure Change

- Respondents report their organizations have reacted in a positive way to major IT infrastructure change in the past. They describe feeling "excited," "part of a team," and "a sense of accomplishment" when faced with disruptive change in their organizations.
- The potential to reduce costs, increase capacity, and be more flexible are the business outcomes most likely to spark IT infrastructure change.
- Meanwhile, on a personal note, respondents are most excited about the potential that IT infrastructure change will allow them to use new technology, help the business succeed, and to acquire new skills. Interviewees also note the importance of receiving accolades for a job well done.

For the most part respondents are in agreement that disruptive change within the organization can be a positive thing.

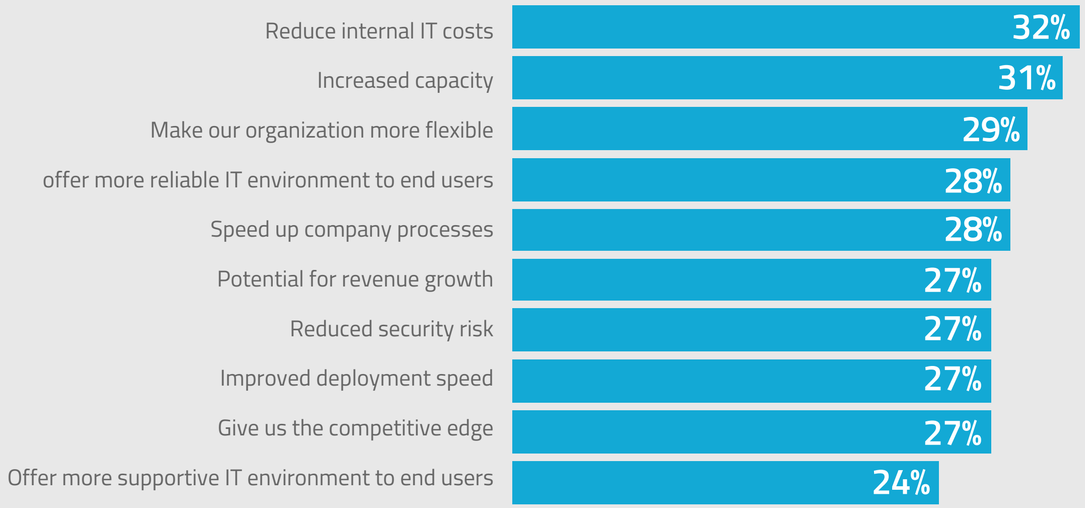
Major IT Infrastructure Change – Personal Reaction



Q: How do you, personally, feel about disruptive change within your organization?

The potential to reduce costs, increase capacity, and be more flexible are the business outcomes most likely to spark IT infrastructure change.

Expected Business Benefits that Prompt IT Infrastructure Change – Top 10



Q: What were the expected business benefits that prompted (or would prompt) a major IT infrastructure change?

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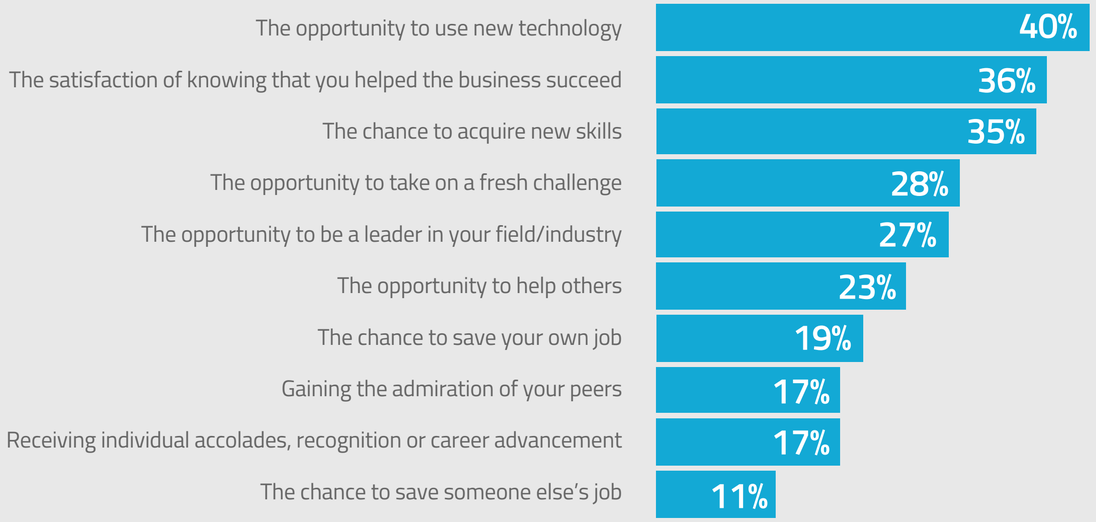
RESEARCH SUMMARY

Who They Are

All of the 300 participants are IT decision makers. Most respondents are responsible for overseeing IT operations at multiple sites. 50% hold CTO or CIO positions and represent industries from technology and financial services to transportation and healthcare.

Meanwhile on a personal note, respondents are most excited about the potential that IT infrastructure change will allow them to use new technology, help the business succeed, and to acquire new skills.

Expected Personal Benefits that Prompt IT Infrastructure Change



Q: What were the expected personal benefits that prompted (or would prompt) you to consider a major IT infrastructure change?

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