

# NO TURNING BACK

How the Pandemic  
Has Reshaped Digital  
Business Agendas



*A survey of 2,000 IT leaders  
shows acceleration of  
multicloud, analytics,  
sustainability, and security*

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## Executive summary

**Digital transformation** was supposed to be an ongoing journey—not the turn-on-a-dime situation most businesses were thrust into when COVID-19 first took hold around the globe.

But a pivotal moment happened as organizations scrambled to support new work-from-home policies and digital customer touchpoints: IT and business leadership teams realized that some of the steps they had already taken to modernize their IT infrastructure—moving to the cloud, investing in data and analytics capabilities, and bolstering security across an evolving technology ecosystem—paid off when the crisis hit.

Organizations that were further along in their digital transformation journey were, for the most part, able to adapt more quickly and minimize disruptions to their business. What could have been disastrous instead became a case study in the promise of digital transformation. And now, as leadership teams turn to recovery and growth, they can apply the lessons learned about the value of digital transformation to new initiatives, across more parts of the business, leading to more and faster innovation.

This report, based on a global survey of 2,000 IT decision-makers, explores the impact of COVID-19 on technology initiatives around the globe, existing barriers to innovation, the inherent resilience of a digital approach, and four key areas IT leaders are pursuing to accelerate their digital transformation efforts as they prepare for whatever lies ahead:

- ▶ **Multicloud/hybrid cloud adoption and management**
- ▶ **Data analysis and intelligence (often enhanced by AI and machine learning)**
- ▶ **IT sustainability, to reduce carbon footprints as well as energy costs**
- ▶ **Security enhancements and risk mitigation**

We hope you find this report valuable in helping to assess your digital maturity versus your peers' and in the insights and recommendations we offer to help guide your path forward.



## About the research

### OBJECTIVES

IDG conducted this survey of 2,000 IT leaders in 14 countries across five industries. It explores the current state of digital transformation, the impact of the global pandemic on core IT initiatives, and the capabilities organizations want from their cloud providers. IT leaders can use these results to assess the state of their own cloud transformation efforts.

### METHODOLOGY

A 20-question online survey was fielded in October and November 2020.

To qualify, organizations had to have at least some portion of their IT environment in the public cloud.

The respondents were IT directors and above at organizations with 500+ employees across selected industries: financial services, healthcare, manufacturing, telecom/media, and retail/consumer goods.

The survey was fielded in North America (United States, Canada), Latin America (Brazil, Mexico), EMEA (France, Germany, United Kingdom), and JAPAC (Australia, China, India, Indonesia, Japan, Singapore, South Korea).



## *IT agendas in flux as organizations look for more than just work-from-home support*

**Whether they are at the cutting edge** of digital technology adoption or staying behind the curve, almost all organizations have transformed some aspects of their IT operations to support the changing dynamics of their business. Cloud deployments have become widespread, with more than 80% of organizations having migrated at least one application or infrastructure component to the cloud.<sup>1</sup>

The value of the cloud, along with other advances in mobile devices, artificial intelligence, and big data analytics, came into sharp relief when the pandemic hit. With COVID-19 necessitating the closure of offices, IT had to quickly adapt to new scenarios in which entire workforces were forced to work outside of the traditional office. Organizations reliant on brick-and-mortar operations had to build new customer experiences and adapt supply-chain operations to sustain their business.

Given the broad decentralization of employees and the mass migration to digital environments, it's not surprising that 59% of the organizations represented in the IDG survey had either accelerated or launched initiatives to improve remote work and collaboration capabilities. However, remote work was just one of many initiatives that IT leaders accelerated, despite initial concerns about the pandemic's chilling effect on IT budgets.

To help counter the operational and economic impacts of the pandemic, one-third of the organizations also accelerated or launched initiatives to shift more workloads and software development to the cloud and automate manual business processes. They still managed expenses, however, with 34% also accelerating or starting new efforts to reduce costs and capital expenditures—spurring even more movement to OpEx-friendly cloud delivery models.



## *Introduction*

**The concept of “digital transformation”** became so pervasive and inescapable in recent years that it risked devolving into meaningless jargon. Early on, digital transformation was focused largely on virtualization and lifting and shifting workloads to the cloud. Technology advances began to reveal the broader potential of the cloud but further muddled the definition of “digital transformation.” Then 2020 came along and put digital transformation's potential to the test.

Few could have anticipated the pervasive challenges caused by the sudden onset of the COVID-19 pandemic, which caused a global shock wave that disrupted business operations across every region and within every industry sector. In the pandemic's wake, however, the benefits of digital transformation have become evident, as cloud-based technologies and services have helped organizations rapidly support newly distributed workforces, stay connected with customers, and facilitate innovation.

A new IDG survey of more than 2,000 IT leaders worldwide indicates that organizations further along in their digital transformation journey have weathered the disruption better than others. The survey also underscores how a modern IT ecosystem can help organizations pivot quickly to overcome business, market, or even societal disruptions. Some organizations accelerated digital initiatives simply to survive. Others see new opportunities from the changes brought about by the pandemic and are rushing to exploit them.

IT initiatives weren't spared entirely from COVID's impact on business. More than half of the survey respondents (55%) delayed or canceled at least one technology project, including core initiatives involving areas such as automation, digital customer experiences, and security tools and practices. Although the overall percentages were relatively low, any cuts to core initiatives such as security or customer experience projects are notable, given both the increased risk introduced by wholesale shifts to remote work and the increased digital customer interactions required due to temporary closures of brick-and-mortar stores and travel restrictions that put a pause on in-person customer meetings.

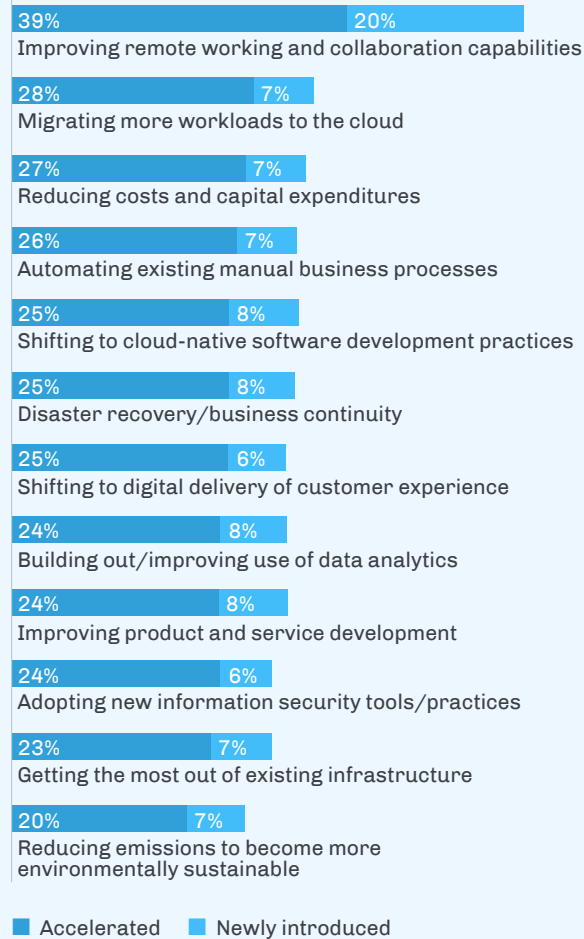
Although the survey exposed these and other differences, the results also showed commonality in some of the areas IT leaders are pursuing to continue their digital transformation efforts and prepare for whatever the future holds. Four critical areas stand out:

- ▶ **Multicloud/hybrid cloud adoption and management**
- ▶ **Data analysis and intelligence** (often enhanced by AI and machine learning)
- ▶ **IT sustainability**, to reduce carbon footprints as well as energy costs
- ▶ **Security enhancements and risk mitigation**

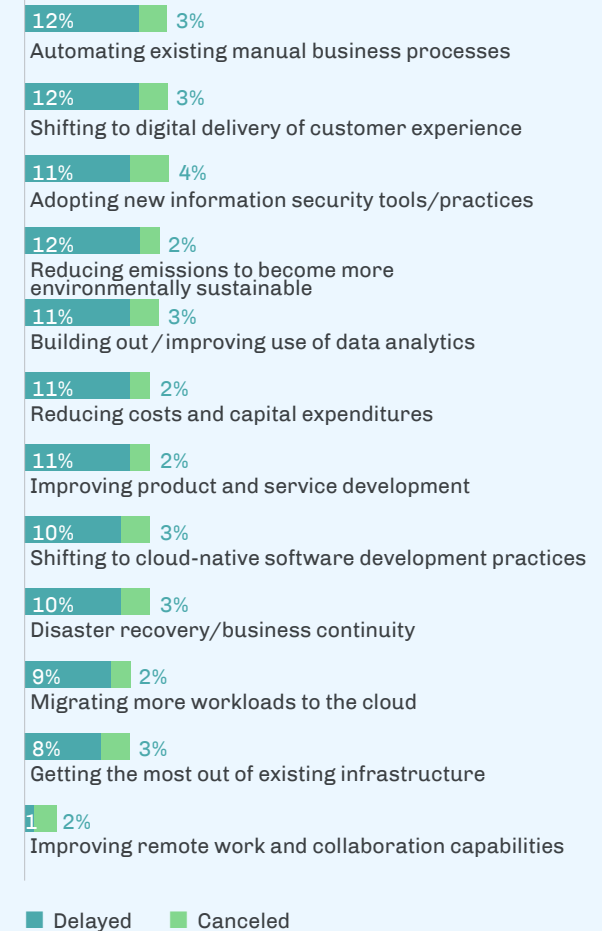
By accelerating these and other digital transformation initiatives, many organizations may find an unanticipated silver lining associated with the dark cloud that hovered over most of 2020. By revealing the advantages of digital technologies—and by forcing their accelerated adoption—the lessons learned from COVID-19 could put many companies in a better position to achieve the operational and competitive benefits of digital transformation sooner rather than later.

Recovery from a crisis can be a catalyst for transformation. Some companies will now look to transform all aspects of their business through the enterprise cloud.

### COVID sped up the shift to remote work, but that wasn't all



### COVID impacted a broad range of IT initiatives





## COVID-19 impact: For better or worse

A global IDC survey in June 2020 showed a clear connection between an organization’s digital fitness and its ability to respond to and recover from pandemic-related challenges. “Those with a more mature DX strategy had the resources, tools, and insight lined up to quickly make tough decisions about how to proceed,” IDC states.<sup>2</sup>

The IDG survey revealed similar disparities in how organizations at different levels of digital maturity were impacted by the global pandemic. All respondents have at least some portion of their IT environment in the public cloud.

“Digital-forward” organizations—those that have fully transformed to or are actively implementing digital business strategies—were better prepared to respond to the pandemic than organizations that have not yet implemented transformation strategies. Researchers classified those organizations as “digital-conservative.”

For example, digital-conservative organizations were more likely than their digital-forward peers to have canceled or delayed three or more IT initiatives (16% versus 8%). These decisions to accelerate or pull back on digital initiatives had real business impact; McKinsey notes that executives whose organizations invested more in digital technology than their peers during the crisis were “twice as likely to report outsize revenue growth than executives at other companies.”<sup>3</sup>

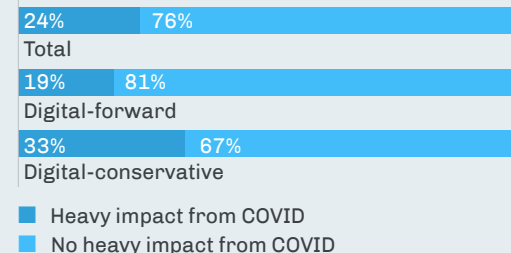
There were regional differences as well. Organizations in EMEA were more likely to have canceled or delayed initiatives and less likely to have accelerated or launched new initiatives than those in other regions:

- ▶ **18% delayed or canceled** analytics projects, versus 10% in North America.
- ▶ **31% accelerated or launched new efforts to migrate workloads to the cloud**, versus 37% in North America.

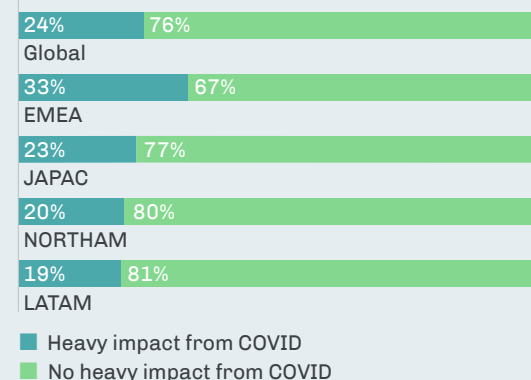
There was not much variation across industries in IT initiatives being canceled or delayed. There were, however, some notable differences in the projects that were accelerated.

Accelerated or new technology projects could signal a high level of confidence based on past investments, or a more urgent need to add digital capabilities in response to the sudden shutdown of offices, retail outlets, or manufacturing facilities.

‘Digital-forward’ organizations experienced less disruption to IT initiatives than ‘digital-conservative’ businesses



EMEA experienced more cancellations and delays of 3+ IT initiatives



### Initiatives accelerated or introduced due to COVID | Top 5 by industry

| Manufacturing  | %  | Financial services                                     | %  | Retail   | %  | Telecom/Media  | %  | Healthcare   | %  |
|--|----|--|----|--|----|--|----|--|----|
| Improve remote work and collaboration capabilities       | 58 | Improve remote work and collaboration capabilities     | 55 | Improve remote work and collaboration capabilities | 64 | Improve remote work and collaboration capabilities       | 57 | Improve remote work and collaboration capabilities   | 59 |
| Build out/improve use of data analytics and intelligence | 37 | Migrate more workloads to the cloud                    | 40 | Migrate more workloads to the cloud                | 35 | Reduce costs and capital expenditures                    | 35 | Migrate more workloads to the cloud                  | 34 |
| Migrate more workloads to the cloud                      | 36 | Disaster recovery and business continuity              | 39 | Reduce costs and capital expenditures              | 35 | Improve product and service development/R&D              | 33 | Shift to cloud-native software development practices | 34 |
| Reduce costs and capital expenditures                    | 35 | Automate existing manual business processes            | 37 | Disaster recovery and business continuity          | 34 | Shift to cloud-native software development practices     | 31 | Improve product and service development/R&D          | 33 |
| Shift to cloud-native software development practices     | 35 | Get the most out of existing infrastructure and assets | 34 | Automate existing manual business processes        | 33 | Build out/improve use of data analytics and intelligence | 30 | Automate existing manual business processes          | 33 |



## Multicloud management needs increase

**Historically, organizations have worried** about becoming too reliant on individual providers for critical digital technologies. Overdependence on a sole source can result in the dreaded “vendor lock-in,” which can lead over time to higher costs or prevent the organization from accessing innovations achieved by other technology providers.

This long-standing dynamic remains a concern in the cloud. Although IT departments might prefer the simplicity of working with a single public cloud platform, the downsides to sole dependency can quickly outweigh the benefits. Multicloud has become the modern form of using a multivendor strategy to mitigate risk. Inherently, multicloud also provides businesses the flexibility to choose the best capabilities from each of the providers they want to partner with.

For this reason, using more than one public cloud has become an accepted practice. Two-thirds (66%) of enterprise organizations use multiple public clouds, citing a variety of benefits:

- ▶ **Greater platform and service flexibility**
- ▶ **Improved disaster recovery and business continuity**
- ▶ **Best-of-breed platform and service options**
- ▶ **Cost savings/optimization<sup>4</sup>**

Although deploying multiple cloud services is relatively easy, managing a multicloud environment can quickly become a burden on IT teams. IDC predicts that by 2023, more than 70% of organizations will use multicloud management platform capabilities as part of their managed cloud services portfolio. IDC also notes that multicloud management is critical for standardizing tool sets, ensuring quality of service, and enabling demand management.<sup>5</sup>



## Key role for cloud providers: strategic advisor

The CIO's role has evolved significantly over the past decade. IT leaders now play a more strategic role in many organizations, providing influence and guidance in areas such as driving business innovation and identifying opportunities for competitive differentiation.<sup>6</sup>

Beyond technology, many CIOs are looking to major cloud providers to provide guidance and strategic partnership. Two-thirds of the global survey participants said they want support from their public cloud providers when it comes to shaping their organization's business objectives.

As business and technology objectives become more closely aligned, IT leaders are finding they can tap into the expertise of cloud providers to identify the right technologies, processes, and skills needed to achieve business objectives. These relationships work best as a collaboration.



### Multicloud/hybrid cloud support and cutting-edge technologies are top “must-haves” when selecting a cloud provider



The complexities of managing multiple cloud services may explain why multicloud/hybrid cloud support is survey respondents' top “must-have” capability when considering a cloud provider.

One trend that reduces the challenge of managing multiple public clouds is the broad adoption of open source solutions, which today form the foundation of many cloud services. When two or more public cloud providers rely on the same open source code bases and open APIs, it eases the movement of workloads and data among different clouds. That improved interoperability exists even though there are often variations in how the different providers name and enhance these open-source-based functions. APIs based on open source projects such as Kubernetes also make it possible to use a consistent platform for deploying and managing cloud-native and legacy applications across multiple public or private clouds with a single interface.

Several years ago, many IT professionals were leery of open source solutions, fearing they lacked vendor support and clear developmental road maps. Now, with major cloud providers embracing various open source initiatives and communities, this model of collectively developed software has become increasingly familiar and popular. Indeed, three-quarters of the survey respondents expressed a preference for open source cloud solutions.

Even with the proliferation of open source cloud solutions, organizations will still need to manage integrations and workflows across multicloud environments.

## What's Next

Multicloud and hybrid cloud solutions are becoming more a requirement than an option as organizations accelerate digital transformation. Make sure your cloud strategy addresses management, governance, security, and integration needs across multiple cloud services, to reduce both complexity and risk.

Even if you have committed to a primary public cloud platform, don't ignore the innovations constantly occurring on other cloud platforms. Cutting-edge cloud services such as data analytics, container development, and AI/machine learning solutions are critically important. Look for the best combination of solutions to drive positive outcomes across your business. You'll also need a multicloud solution that manages, protects, and provides full visibility across your entire public cloud estate.

## Intelligent data analytics remains a top priority

**Prior to the pandemic**, IT leaders identified data and business analytics initiatives as the primary driver of IT investment for the year ahead.<sup>7</sup> For good reason: Big data analysis has become a near-universal reality, with organizations drowning in data from data centers and clouds, laptops and phones, edge devices, social network feeds, and dozens of other sources.

All this data represents a potential gold mine of business value, but only if it can be properly managed and analyzed for insights. As data volumes increase, organizations are looking to the cloud for help. As noted earlier, big data analysis was one of the top must-have considerations for selecting public cloud providers, because of the advanced capabilities these providers can offer. Moving forward, analytics will remain a top priority as business leaders look to harness more insights to help understand and improve all aspects of business strategy and operations and put useful data in the hands of every employee.

To identify the most meaningful trends and insights across growing volumes and types of data, AI and machine learning are fast becoming must-have technologies themselves. The amount and diversity of available data today make it hard for even trained data scientists to confidently create algorithms able to uncover hidden data gems.

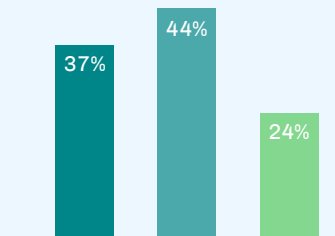
Increasingly, data analytics will require the power of AI solutions that can automatically review and correlate data that, to human eyes, may have few clear interdependencies. The IDG survey indicates that analytics and AI/machine learning, though highly desired, are still underutilized, as just over one-third of the survey respondents are using cloud-based analytics, AI/ML, and IoT technologies and fewer than half are looking to embed AI across all cloud solutions.

As in other areas, digital-forward organizations represented in the survey have been more aggressive than their digital-conservative peers in data analytics, AI/ML, and IoT adoption. Among the digital-forward organizations, 44% are currently using these technologies, whereas only 24% of digital-conservative companies are doing so. This capabilities gap is giving digital-forward organizations broader and deeper insights into their business, which will help them gain competitive advantage against more conservative companies in their markets.

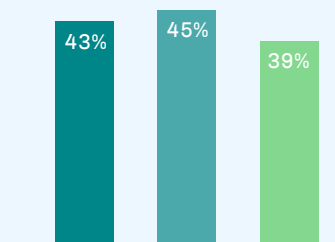
Another factor limiting data analytics and AI adoption is the lack of in-house skills. Insufficient IT and developer skill sets emerged in the survey as the No. 1 impediment to innovation. IT skill gaps are an issue for both digital-forward (34%) and digital-conservative (40%) organizations. The need to fill the IT skills gap has become a primary driver behind public cloud adoption. Major cloud providers, with their economies of scale and vast resources, can do the heavy lifting of deploying and managing many advanced technologies, including analytics.

As they build out analytics capabilities, organizations want assurances that they will maintain control of their data stored in cloud environments. Data sovereignty/control is a top-5 must-have consideration for cloud providers. When asked specifically about security and compliance, respondents indicated that their top requirement for cloud providers is the ability to control access to data used in cloud services.

### Digital-forward organizations are more bullish on analytics, AI capabilities



Currently using analytics, AI/ML, IoT cloud technologies



Looking to embed AI across the full stack of cloud solutions

■ % Total  
 ■ % Digital-forward  
 ■ % Digital-conservative



## Barriers to innovation

**“Innovation” has become** a near-universal high-priority goal for organizations hoping to realize the many benefits associated with digital transformation.

But there are many impediments to innovation—and the primary pain points are fairly consistent across geographic regions and industry sectors.

There was more consistency across the different industry sectors surveyed.

### Top barriers to innovation: by region

| GLOBAL                                       | %  | NORTHAM                         | %  | JAPAC  | %  | LATAM  | %  | EMEA                                     | %  |
|--|----|---------------------------------|----|--|----|--|----|--|----|
| Insufficient IT and developer skill sets     | 36 | Security risks and concerns     | 36 | Insufficient IT and developer skill sets     | 42 | Security risks and concerns                  | 34 | Insufficient IT and developer skill sets | 35 |
| Security risks and concerns                  | 33 | Legacy systems and technologies | 35 | Internal processes and governance structures | 34 | Internal processes and governance structures | 25 | Legacy systems and technologies          | 31 |
| Internal processes and governance structures | 31 | Inability to show ROI           | 33 | Security risks and concerns                  | 33 | Insufficient IT and developer skill sets     | 24 | Security risks and concerns              | 30 |

### Top barriers to innovation: by industry

| Manufacturing                                | %  | Financial services                           | %  | Retail                                   | %  | Telecom/media                            | %  | Healthcare                                   | %  |
|--|----|--|----|--|----|--|----|--|----|
| Insufficient IT and developer skill sets     | 33 | Insufficient IT and developer skill sets     | 37 | Insufficient IT and developer skill sets | 37 | Insufficient IT and developer skill sets | 37 | Insufficient IT and developer skill sets     | 38 |
| Security risks and concerns                  | 33 | Security risks and concerns                  | 33 | Security risks and concerns              | 32 | Security risks and concerns              | 35 | Internal processes and governance structures | 37 |
| Internal processes and governance structures | 33 | Internal processes and governance structures | 33 | Legacy systems and technologies          | 28 | Internal processes and legacy systems    | 27 | Legacy systems and technologies              | 32 |



## What's next

AI-enabled data analytics is quickly becoming a pillar of business strategy. Analytics will play a key role, for example, in helping optimize and innovate across survey respondents' top-priority areas for 2021, which include sales and marketing, product and service development and delivery, customer experience and support, and operations.

The technical and operational demands for taking advantage of these technologies are already outpacing the skill sets and resources of all but the largest enterprises. IT leaders will increasingly rely on cloud service providers to fill these gaps.

### Top 5 priority areas for 2021

| Manufacturing                | Financial services          | Retail                              | Telecom/Media               | Healthcare                  |
|------------------------------|-----------------------------|-------------------------------------|-----------------------------|-----------------------------|
| Product/Service Development  | Sales and Marketing         | Customer Support                    | Sales and Marketing         | Sales and Marketing         |
| Sales and Marketing          | Product/Service Development | Customer Acquisition and Retention  | Product/Service Development | Product/Service Delivery    |
| Product Lifecycle Management | Customer Experience         | Product/Service Development         | Customer Experience         | Customer Experience         |
| Customer Experience          | Customer Support            | Logistics, Fulfillment and Delivery | Customer Support            | Operations                  |
| Product/Service Delivery     | Operations                  | Product Lifecycle Management        | Operations                  | Product/Service Development |

## Sustainability is no longer a back-burner concern

**Some of the most important findings** of the IDG survey are related to a topic relatively new to IT leaders' mandates: sustainability. Today organizations feel pressure to make their operations more energy-efficient and "greener," due to external as well as internal factors.

On the external front, many governments are pressing organizations to reduce their carbon footprint. At the same time, growing numbers of customers, young and old, factor an organization's sustainability profile into their purchasing decisions.

Internally, many organizations share the desire to become better environmental citizens. In fact, more than half of those surveyed said corporate social responsibility was the reason sustainability was important to their company, more than any other driving factor. Of course, it doesn't hurt that efficient sustainability efforts can also decrease escalating energy costs.

With these combined incentives mounting, being sustainable increasingly isn't a choice—it's a mandate.

That reality is reflected in the IDG survey: 90% said that sustainability is a priority and/or a performance metric for their IT department. Two-thirds of the respondents' organizations have put sustainability targets in place, and another 29% plan to implement them.

Considering the growing focus on digital platforms, it isn't surprising that IT data centers are the No. 1 area of focus for organizations seeking to meet their sustainability targets. In addition to the economies of scale they gain by migrating to cloud-based data centers, IT leaders can also drive down energy usage by leveraging new, energy-efficient platforms.

Given such public cloud efficiencies, one of the fastest ways organizations can hit their sustainability targets and reduce energy costs is by moving more of their compute, storage, and networking operations into the cloud.

### Most organizations have or are committed to sustainability targets



### What's next

If you're looking for ways to drive your own sustainability initiatives, you can learn a lot by studying the energy reduction initiatives under way at the major public cloud providers. Google, for example, has committed to powering its data centers completely with carbon-free energy by 2030<sup>8</sup> and offers best practices to help organizations increase their own sustainability efforts.

Although almost all organizations can make progress in reducing the energy consumption of their on-premises IT infrastructure, few will be able to approach the sustainability profiles possible within large and cutting-edge public cloud environments. As sustainability becomes an ever-higher priority within your organization, you will find that progress increasingly involves expanded use of public cloud infrastructure.



## The importance of security continues to rise

In the early days of public cloud computing, there was widespread corporate concern about the security of workloads and data placed in the cloud. Those days are past.

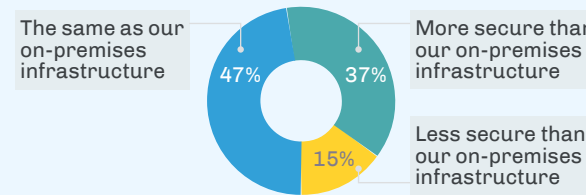
Among the surveyed IT leaders, 84% believe their cloud infrastructure is as secure or more secure than their on-premises infrastructure. That's not to suggest organizations have become complacent when it comes to security when working with public cloud providers. Although they are putting more trust into their cloud providers to secure sensitive data, apps, and infrastructure, they also expect cloud providers to deliver on specific security and compliance-related requirements. Leading the list: the ability to use cloud services while still being able to control access to their own data. Organizations are embracing a shared-responsibility model as they move more of their digital estate to the cloud.

Security is a moving target for organizations, and the COVID-19 pandemic has provided another twist to the security landscape. In the early days of the crisis, 61% of IT and security leaders expressed greater concern about attacks designed to target work-from-home employees and 73% said the pandemic would alter the way their business evaluates risk for at least the next five years.<sup>9</sup>

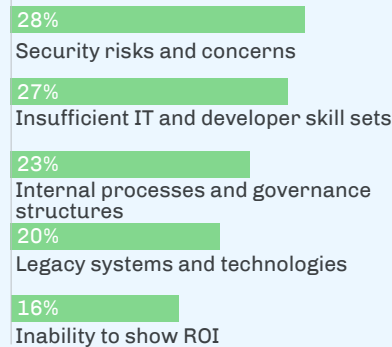
Providing strong security without inhibiting business operations remains a delicate balancing act. As mentioned earlier, survey respondents view security risks and concerns as a top barrier to innovation. To help with this pain point, IT leaders are turning to cloud providers for support. The reasons are twofold: An increasing amount of organizations' data and workloads reside in the public cloud, and most IT leaders think the security of public cloud infrastructure is equal to or better than that of their own data centers.

### Organizations look to cloud providers for security support – but still want control

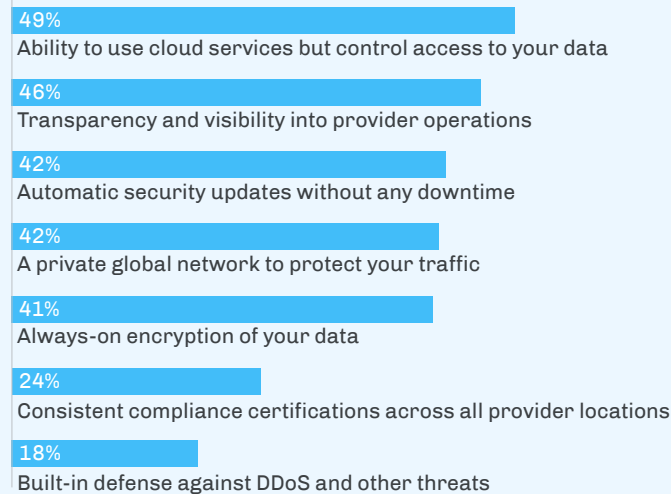
How organizations rate security of their cloud infrastructure



#### Where organizations seek help from cloud providers



#### Infrastructure security and compliance requirements for cloud providers



## What's next

There is a parallel when it comes to organizations' achieving sustainability and security objectives. For many, the simplest and fastest route to reaching both of these objectives is by increasing the use of public cloud infrastructure.

As your IT environment multiplies and diversifies—including via the adoption of multicloud strategies—it's important to deploy comprehensive and consistent security solutions and services. A shared-responsibility model between IT and its service providers will help minimize security vulnerabilities across today's complex and distributed IT landscape.

## Summary

**The events of the past year** catapulted digital transformation from being a somewhat abstract concept for some organizations into an essential reality. The COVID-19 pandemic drove home, in no uncertain terms, the importance of having advanced, flexible, and pervasive digital operations. We also learned that organizations further ahead on the digital maturity path were able to navigate 2020's disruptions more smoothly and confidently than their digitally cautious peers.

At the same time, the central role public cloud computing plays within digital transformation became more evident as well. Most obviously, the mass migration of employees to their homes cemented the value provided by anytime/anywhere public cloud services. In addition, the ability to quickly scale up infrastructure and application services on demand helped businesses quickly pivot to digital experiences for their customers.

The major public clouds are now seen as the best sources for many of the advanced technologies and capabilities modern organizations require. Those critical capabilities include multicloud/hybrid cloud support, data analytics, AI and machine learning, IT sustainability, and ever-more-capable cybersecurity protections.

The rapid pivot that many organizations were forced to make in 2020 provides valuable lessons, along with validation of the scalability, flexibility, and security of a modern, cloud-based infrastructure. Expect the movement toward cloud-driven transformation to accelerate further in the months and years ahead.

IDG Communications, Inc.



### Endnotes

- 1 IDG, "The 2020 IDG Cloud Computing Survey," June 2020
- 2 IDC, "DX Maturity Key to Software Agility and Overcoming Disruption," Doc # US46656820, July 2020
- 3 McKinsey, "How COVID-19 has pushed companies over the technology tipping point—and transformed business forever," October 2020
- 4 IDG, "The 2020 IDG Cloud Computing Survey," June 2020
- 5 IDC FutureScape: "Worldwide Services 2021 Predictions," Doc # US45374020, October 2020
- 6 IDG, "Spring 2020: State of the CIO," March 2020
- 7 Ibid.
- Google, "Announcing 'round the clock clean energy for cloud," September 2020
- 8 CSO, "Pandemic impact report: Security leaders weigh in," April 2020



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