

# The Digital Enterprise Report

**How the World's Largest  
Organizations Are Evolving  
with Technology**



*Okta Shares Insights from Global IT, Security, and  
Engineering Decision Makers*



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### Welcome to Okta's first Digital Enterprise Report, a survey of IT, Security, and Engineering decision makers from the world's largest businesses.

Technological change has swept through organizations large and small, creating new opportunities and benefits for companies, their workforces, and their customers. Broad workforce ecosystems combined with diverse technology stacks have enabled significant advancements while also putting more at risk — more data to protect across more systems, and more significant consequences when breaches happen.

We surveyed 1000+ IT, Security, and Engineering decision makers from the world's largest companies — those with at least \$1 billion in revenue — to find out how they're capturing technological and business opportunities while protecting against risk, and how they see their organizations evolving for the future. Please see "How Did Okta Produce This Survey?" for more information.

Changing workforces. Digital transformation. Hybrid IT. Multi-cloud. Demands for increased privacy. The neverending specter of security breaches. Technology leaders from the world's largest companies sit at the intersection of a myriad of priorities, technologies, and new ideas. And often, these factors reinforce or build on each other to influence key initiatives like, as we'll see, digital transformation and Zero Trust.

In this report, we aim to showcase exactly how these large organizations are operating — and evolving — in a world where technologies like the cloud have changed everything. We shed light on three broad areas: Evolving Workforces; Technology and Operations; and Digital Transformation.

# Highlights

## Evolving Workforces

*Work has fundamentally changed, and so have security techniques*

The world's largest organizations are busy managing, securing, and provisioning a diverse and sometimes nebulous workforce. And it's not going to get easier anytime soon: nearly two-thirds of technology leaders surveyed expect to add more contractors and remote workers in the future. The security concerns around these remote workers and contractors remains significant; for example, 45% of decision makers see security as a limiting factor in bringing more contractors on board. With a rapidly evolving perimeter, security attitudes must change, so it's no surprise that a majority have Zero Trust security strategies or aspirations in progress.

## Cloud Technology and Operations

*Hybrid is here to stay, and multi-cloud is on the rise*

The world's largest companies are actively adopting cloud technologies, while still maintaining on-premises infrastructure and applications. We expect some combination of the two to be the status quo for some time, as many large companies are still early in their cloud journeys, with the majority only halfway to their target cloud adoption levels. These companies are also planning for the future by investing in Infrastructure as a Service (IaaS) to accelerate efficiency and growth. IaaS usage is on the rise, and while security looms as a concern, customer experience, better collaboration, and the ability to rapidly launch new products and services through agile application development are driving IaaS adoption. Also on the rise are multi-cloud strategies, with more than half of the large organizations surveyed deploying multiple platforms. But the future is by no means entirely cloud for these global businesses, with many deploying hybrid IT environments for the foreseeable future.

## Digital Transformation

*Software has eaten the world's largest organizations*

As venture capitalist Marc Andreessen famously wrote, "Software is eating the world." So it follows that the world's largest companies are seeing the impact of modern app development flood into more and more parts of their business, reshaping the products, services, and experiences they sell. A third are in the early stages of rethinking their business models, while half are well on the way to becoming digital businesses. Expectations around "digital transformation" are high, as leaders expect significant and sometimes long-term returns for undertaking such initiatives, like improving customer experience or keeping an edge on the competition. To fuel this transformation, the vast majority (86%) of digitally transforming organizations are adopting new technologies to support agile app development, as well as getting their hands dirty now with forward-looking technologies like blockchain and AI. All of this is happening while maintaining secure systems and a secure user experience that respect customer privacy.

# How Did Okta Produce This Survey?

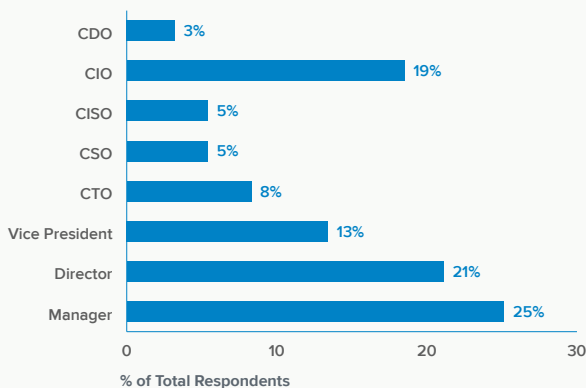
## How Did Okta Produce This Survey?

Commissioned by Okta, Qualtrics conducted a survey of 1,050 IT, Security, and Engineering decision makers at global companies with over \$1 billion in revenue, across multiple industries. Decision makers were defined as someone responsible for making technology purchasing decisions. Responses were collected in January and February of 2019. We refer to this survey as “our survey” and “survey,” and refer to the people who responded as “survey respondents” or “respondents.”

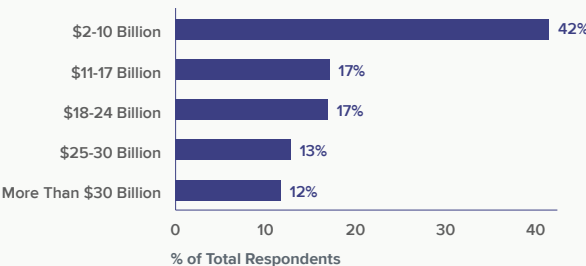
## Who Took the Survey?

Here is a look at the 1,050 survey respondents and the companies they represent.

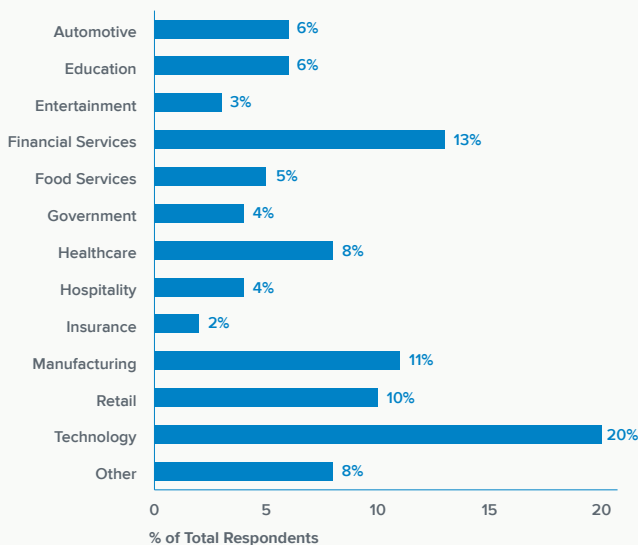
What Is Your Position Within the Company?



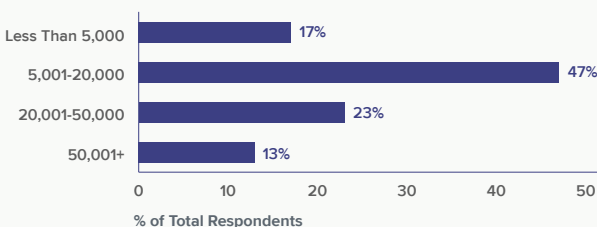
What Is Your Company's Annual Revenue? (In USD)



What Industry Is Your Company In?



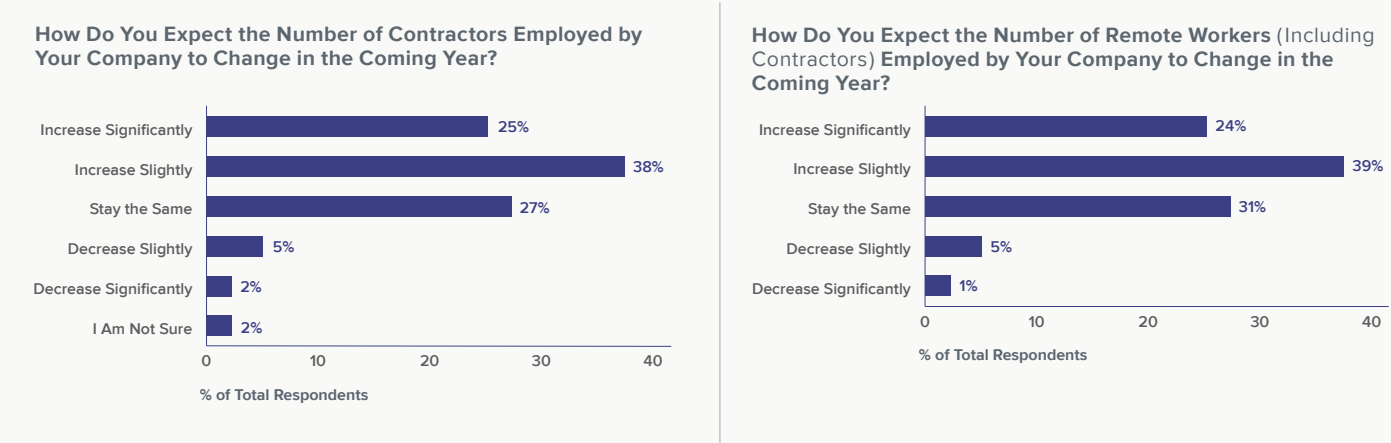
How Many People Are Employed in Your Company?  
Including employees and contractors



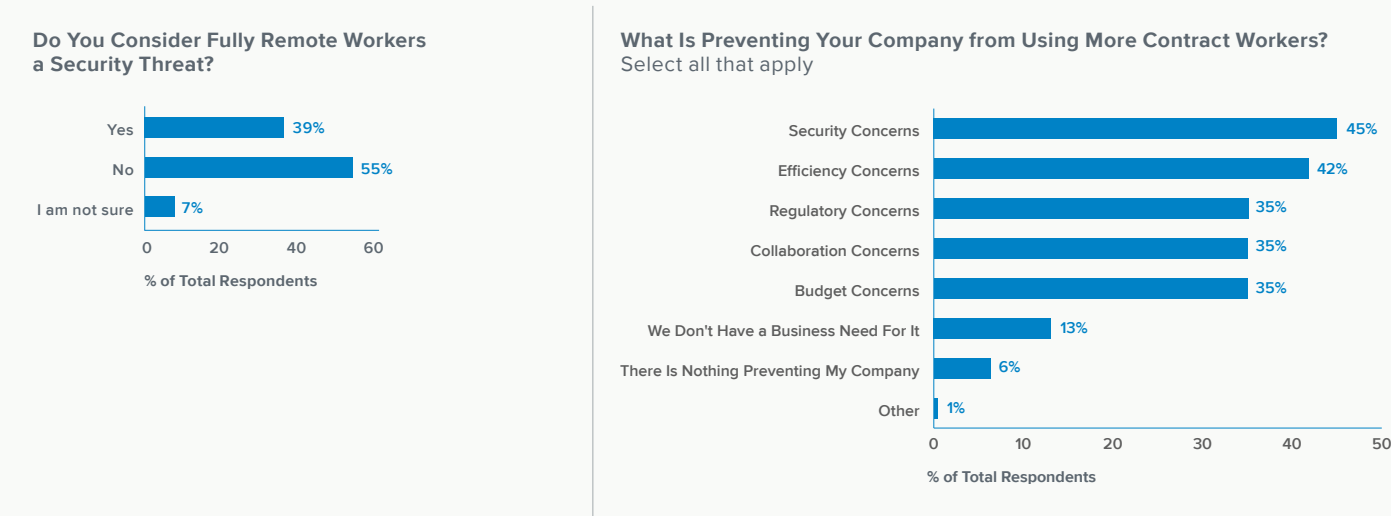
Evolving Workforces

Global Giants Are Getting Ready for More Remote Workers, More Contract Workers

The makeup of the workforce amongst large, global companies is shifting, and they are looking beyond traditional full-time hires to get the job done. 63% of respondents expect the number of contractors at their company to increase in the near future, and the same amount, 63%, said they expect to see more remote workers (including contractors) come on board as well.

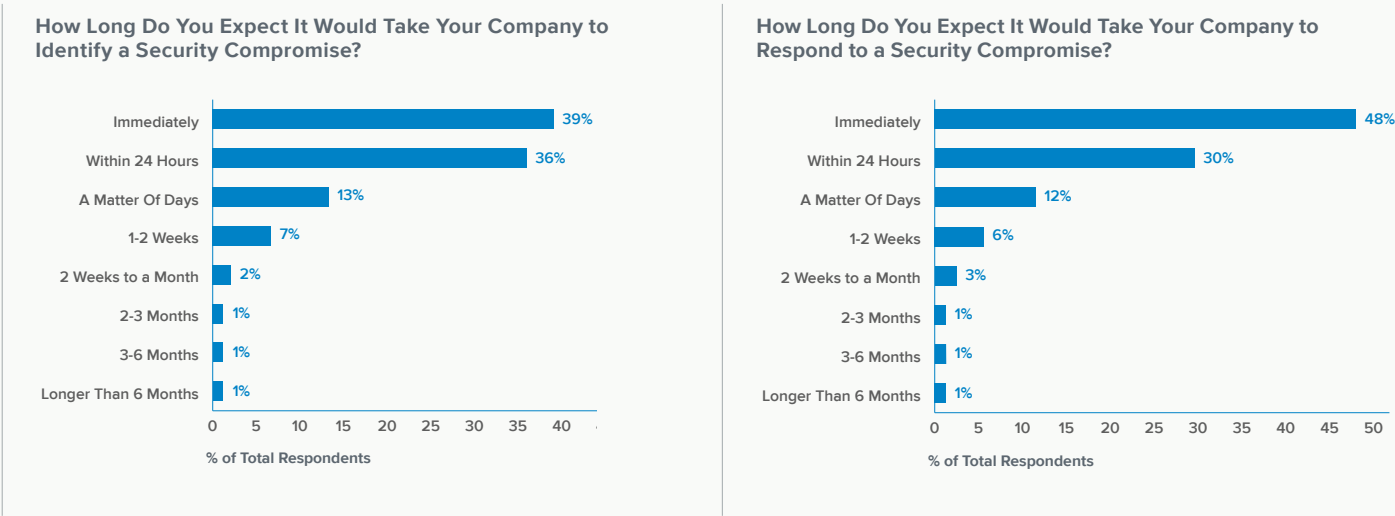


But with change comes risk and potential inefficiencies. Securing access to sensitive systems for remote and contract workers while enabling collaboration and productivity is no small feat. Nearly 40% of the decision makers we surveyed view fully remote workers as a security threat. And 45% of respondents cited “security concerns” and 41% said “efficiency concerns” when asked what’s keeping their companies from hiring more contractors.



Is IT Misaligned on Security Preparedness?

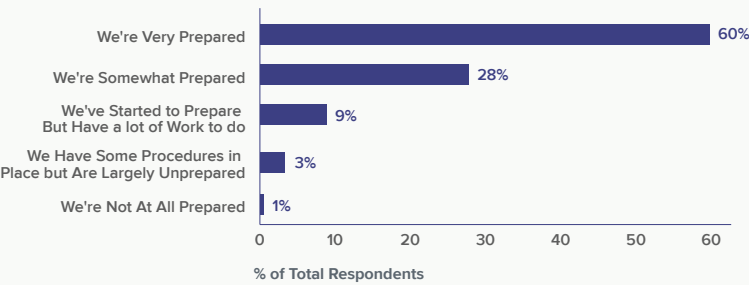
In the [2018 Cost of a Data Breach Study](#), researchers at the Ponemon Institute found that the mean time to identify a data breach incident was 197 days, and the mean time to contain was 69 days. Compare that to the sunny outlook of our survey respondents — 75% of whom who said they expected their company would identify a security compromise immediately or at least within 24 hours — and there appears to be a problem. The gulf between expectations and reality showcase why security can be such a challenge, even for the world's largest companies.



That gulf is even more problematic when attitudes differ significantly throughout the executive suite. 79% of CIOs stated their company was very prepared for a security breach, while only 56% of the rest of the executive suite (CDO, CISO, CSO, CTO, and VP respondents) said the same.



How Would You Grade Your Company's Level of Preparedness to Handle a Security Breach?



Interestingly, respondents from some of the most vulnerable industries (whether by volume of incidents, or resulting costs from breaches) displayed a confident outlook about being able to handle a security breach. 57% of financial services, 57% of healthcare, and 70% of technology respondents all replied, "We're very prepared," for a security breach.

"We're Very Prepared" by Industry

Automotive (51%) • Education (48%) • Entertainment (40%) • Financial Services (57%)  
Food Services (60%) • Government (49%) • Healthcare (57%) • Hospitality (55%)  
Insurance (63%) • Manufacturing (66%) • Retail (61%) • Technology (71%) • Other (60%)

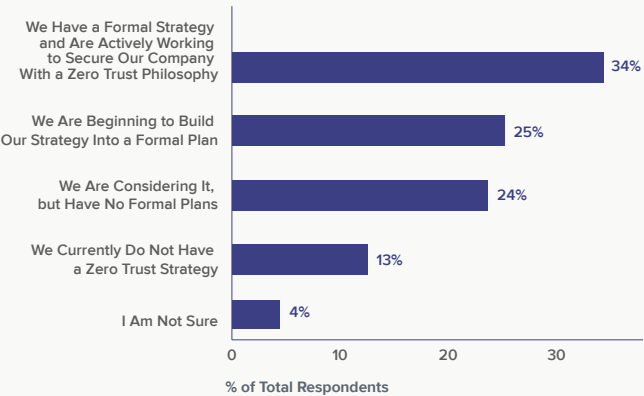
# More than Half of the World’s Largest Companies Are Pursuing Zero Trust

Some of that enthusiasm and perception of preparedness may be tied to progress in security innovation. [Zero Trust](#) is a hot topic in security circles, but what separates hype from reality? At its core, Zero Trust recognizes that modern businesses should no longer have a “trusted” internal network and an “untrusted” external network. With an increasing number of remote and contract employees, the explosion of IaaS and multi-cloud strategies, it’s no wonder that companies are recognizing the need to move beyond traditional perimeters when it comes to security postures. Instead, they need to securely enable access for various users (employees, partners, contractors, etc.) regardless of their location, device or network. For global businesses with vast networks, the Zero Trust journey can be a long, but important one.

Our survey found 60% of respondents are already working on Zero Trust strategies, whether they’re beginning to formalize a plan, or already actively working on executing against a formal plan.

Perhaps the drive towards Zero Trust is being led from the management layers in IT, rather than the boardroom. Our survey found a slight difference between 57% of the executive suite (CDO, CISO, CSO, CTO, and VP respondents) saying their company is working towards Zero Trust vs. 64% of mid-level leaders (managers and directors).

How Would You Describe Your Company’s Zero Trust Strategy?



Zero Trust Responses by Level



# Digital Transformation Walked so Zero Trust Could Run

Our survey also found that if companies were already working on digital transformation, they were more likely to also be on top of Zero Trust. 72% of respondents who were doing digital transformation reported that they were also in various stages of working on Zero Trust, vs. only 47% of respondents who were not digitally transforming but were pursuing Zero Trust.

## Zero Trust Meets Digital Transformation

Digital Transformation		
	Pursuing digital transformation (formal plans, or just beginning)	Not pursuing digital transformation (no formal plans yet)
Pursuing Zero Trust (formal plans, or just beginning)	72%	47%
Not pursuing Zero Trust (no formal plans yet, or not sure)	28%	53%



The Road to Zero Trust Is Paved with Strong MFA

In today’s security landscape, it’s no longer about the network — it’s centered on the people who access your systems, and the identity access controls for those individuals. Some of that control hinges on multi-factor authentication (MFA), yet not all factors were created equal. Some are stronger while others provide low assurance. Stronger factors include one-time passwords provided by software, physical and U2F tokens, and biometrics-based factors. Low assurance factors include security questions and passwords.

We found that overall, security questions (61%) and software one-time passwords (54%) were the MFA types that respondents most often said they used. And when looking at the overall set of factors that respondents picked, the majority (61%) reported using a mix of stronger factors and weaker factors.

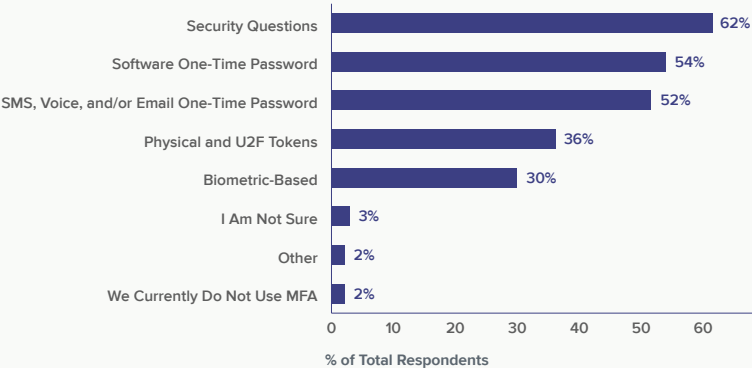
Low Assurance MFA

Security Questions  
SMS, Voice, Email One-Time Password

Stronger MFA

Software One-Time Password  
Physical and U2F Tokens  
Biometric-Based

What Kind of Multi-Factor Authentication (MFA) Does Your Company Rely On? Select all that apply



We also found a correlation between types of MFA and whether companies were pursuing a Zero Trust strategy. More than a quarter (27%) of respondents at companies without a Zero Trust strategy in the works were providing only weak MFA or none at all, compared to 15% of Zero-Trust-pursuing respondents providing the same.

MFA Meets Zero Trust

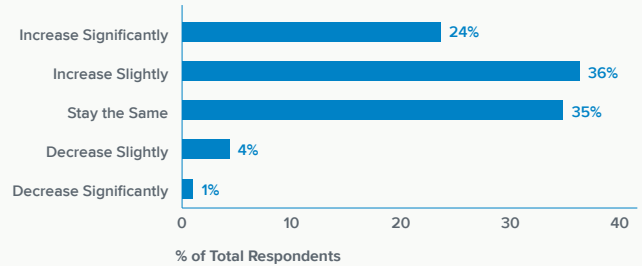
		Zero Trust		
MFA		Overall Respondents	Respondents Pursuing Zero Trust	Respondents Not Pursuing Zero Trust
	Using Only Strong MFA	15%	14%	16%
	Using a Mix of Strong and Low Assurance MFA	62%	69%	52%
	Using Only Low Assurance MFA	18%	14%	25%
	Not Using Any MFA	2%	1%	2%
	Not Sure/Other	4%	2%	5%

## Cloud Technology & Operations

### IaaS Is Growing, but Global IT, Security, and Engineering Leaders Are Weighing Security Concerns Against Customer Experience Benefits

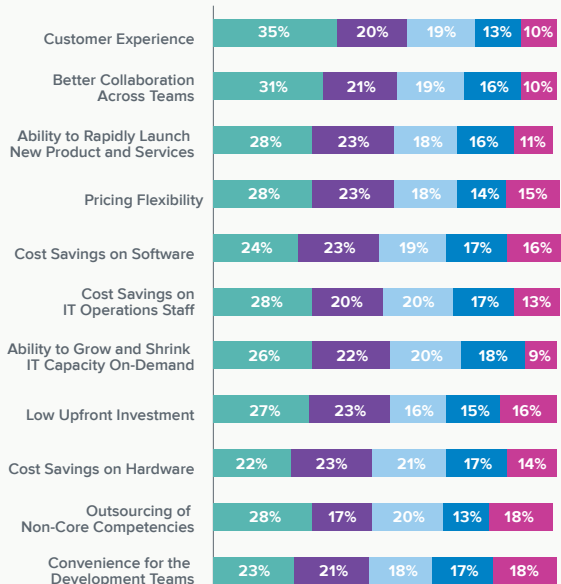
IaaS is on the rise. 60% of survey respondents expect to increase IaaS in the coming year, driven by a desire to improve customer experiences, drive collaboration, and rapidly bring new products to market. Those three reasons were the most commonly selected benefits for adopting IaaS, and reflect the increasingly digital demands of global companies.

#### How Do You Expect Your Adoption of IaaS to Change in the Coming Year?



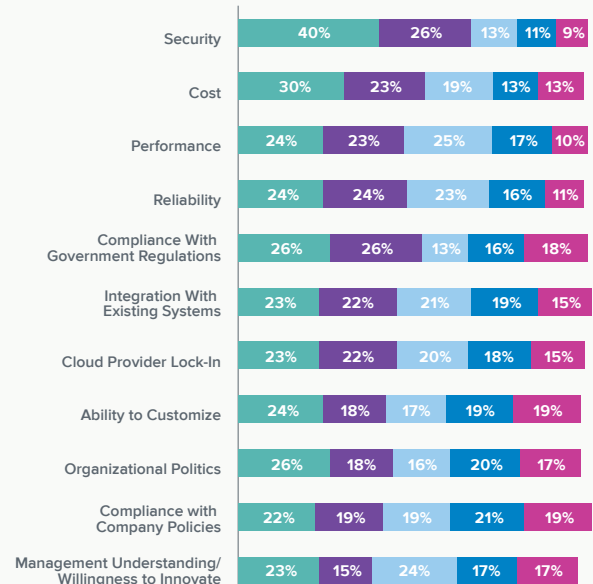
But with flexibility and agility comes trade-offs. Respondents ranked security as the top barrier for IaaS adoption most often (40%), with cost as the second most common top barrier (30%). Ultimately, the draw of building purpose-built customer experiences rapidly is still pushing IaaS adoption, despite potential security issues.

#### Rank the Following Benefits of IaaS for Your Company 1 is the most beneficial



1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5

#### Rank the Following Barriers for IaaS Adoption in Your Company 1 is the most beneficial



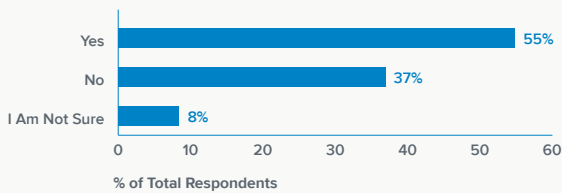
1 = 1, 2 = 2, 3 = 3, 4 = 4, 5 = 5

## Cloud Technology & Operations

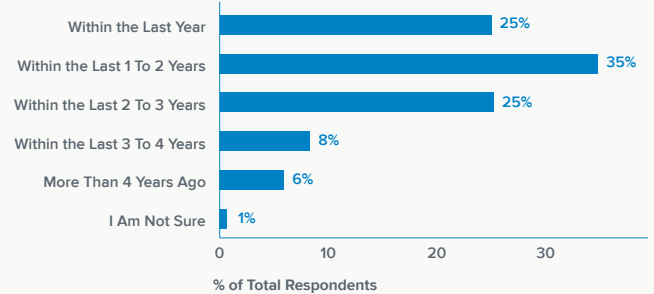
### Deploy New Clouds, but Keep the Old

If cloud is good, more cloud is better, right? Technology leaders looking to rapidly build new digital customer experiences are not only increasing IaaS, they're also adopting multi-cloud strategies. Our survey found more than half of the respondents surveyed are deploying multiple clouds, with 60% of those folks doing so within the last two years.

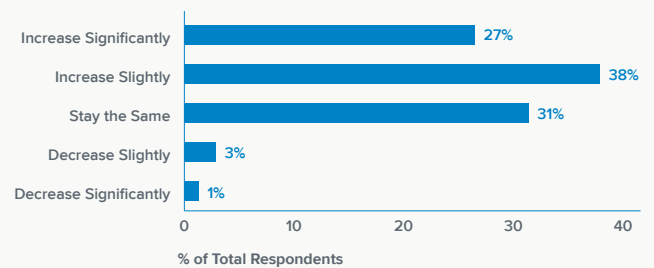
Are You Currently Deploying a Multi-Cloud Strategy?



When Did You Adopt a Multi-Cloud Approach?



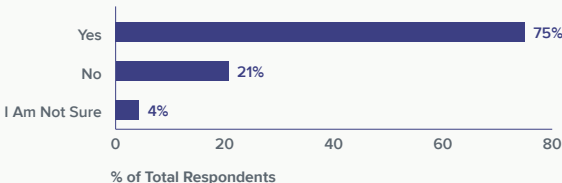
How Do You Expect the Number of Clouds Your Company Runs To Change in the Coming Year?



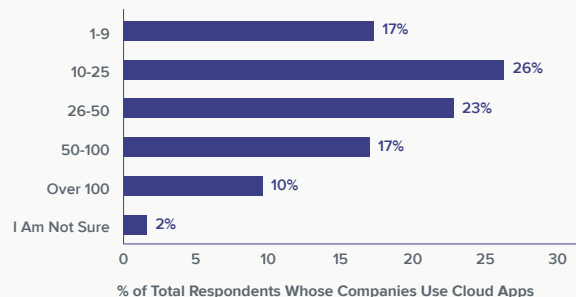
### The Growing App-etite Continues, but so Does Hybrid IT

As we found in Okta's 2019 [Businesses @ Work report](#), an in-depth look into the 5,500+ apps that Okta customers rely on, this survey (which was not limited to Okta customers) also found that there's a clear trend that larger companies are deploying more cloud-based apps over time. 75% of respondents are running apps in the cloud, with a broad spectrum of adoption volumes ranging from 1-10 apps all the way up to over 100. What's also abundantly clear is that the number is rising: 67% of respondents expect the number of cloud apps to increase in the coming year.

Does Your Company Use Applications that Run in the Cloud?



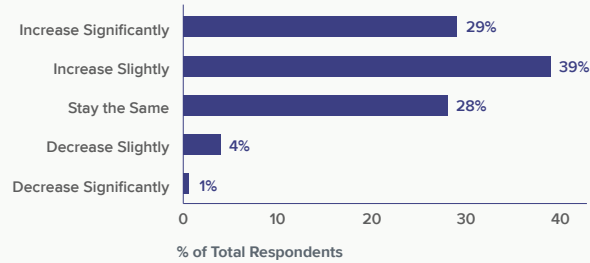
How Many Different Cloud Applications Does Your Company Use?



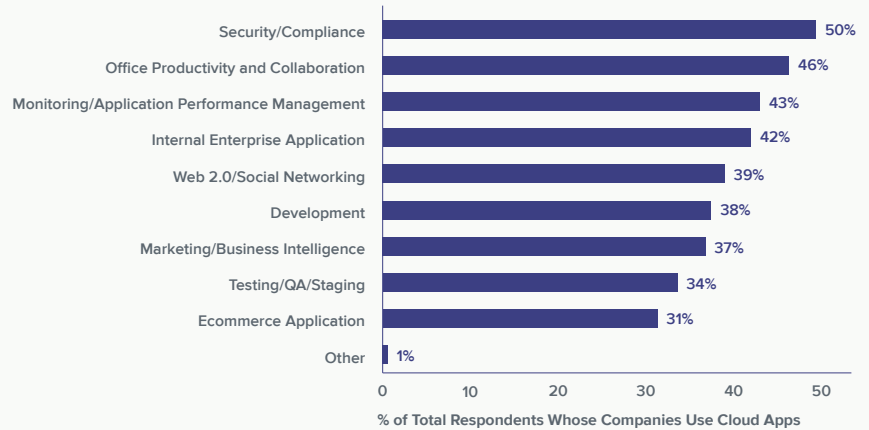
## Cloud Technology & Operations

Which types of apps are most popular? Given the security concerns and efficiency-focused efforts made apparent throughout the survey responses, it's no shock security/compliance topped the list, with office productivity and collaboration, monitoring/application performance management, and application performance monitoring applications at the head of the class.

### How Do You Expect the Number of Cloud-Based Applications Used in Your Company to Change in the Coming Year?



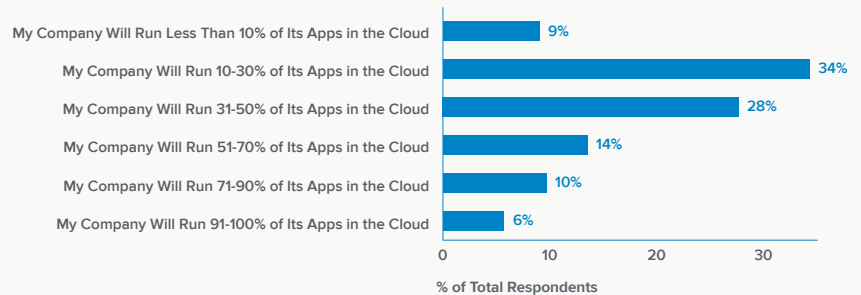
### Which Types of Cloud Applications Do You Use? Select all that apply



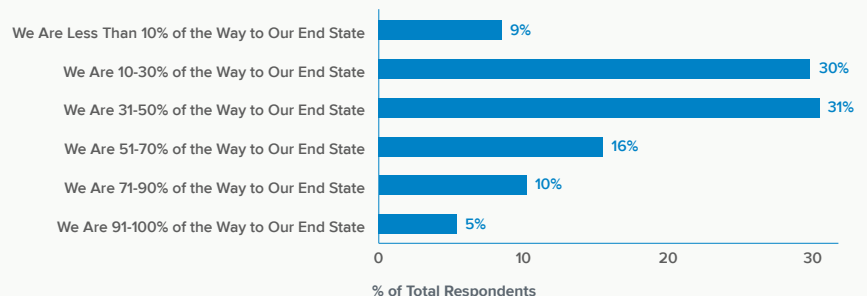
## Digital Transformation

Even with current strong adoption and future increases in cloud apps, the respondents report that the world's largest businesses are relying on a hybrid approach to their application workload, mixing on-premises and cloud solutions. With a diverse set of application workloads across disparate workforces, a hybrid approach to IT makes sense for these large organizations. 62% of technology decision makers expect their company's cloud application "end state" to be between 10% to 50% of apps running in the cloud. Yet even if 100% cloud deployment is not the end goal, companies still have a long way to go before they're at their desired mix of on-premises and cloud applications; 70% of respondents said they were less than 50% of the way to their cloud end state.

### How Would You Describe Your Cloud Application "End State"?



### How Close Are You to Your Cloud "End State"?

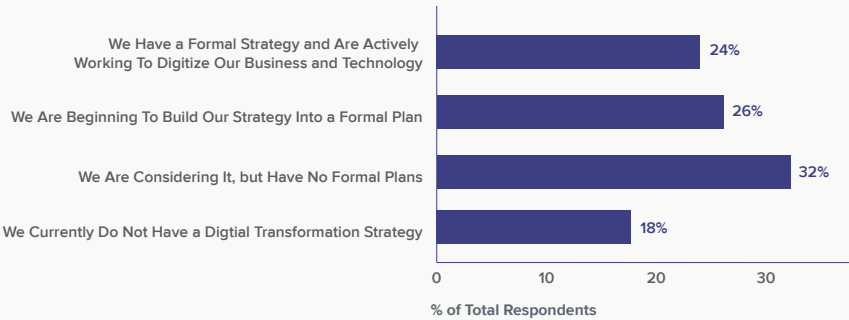


The Road to Digital Transformation

The world’s largest organizations are seeing the impact of modern app development flood into more and more parts of their business, and technology leaders must evolve from just incorporating digital practices into marketing to offering digital products that create new revenue streams.

Nearly a third of our survey respondents are in the early stages of considering digital transformation, but without any formal plans. Half the respondents are well on the way to becoming digital businesses, either beginning to formalize a plan, or already working on executing against a formal strategy to digitize their business and technology. Collectively, transforming is on nearly everyone’s mind.

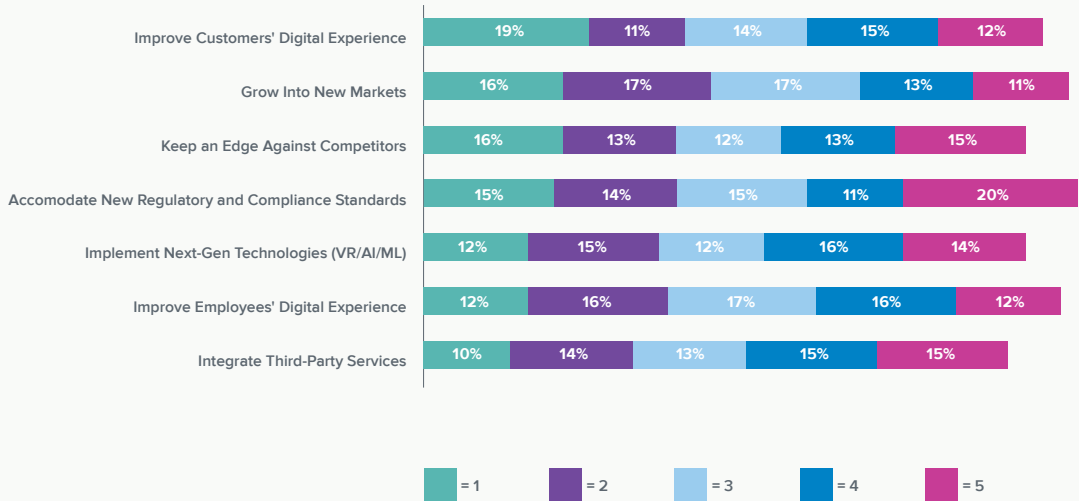
How Would You Describe Your Company’s Status Regarding a Digital Transformation Initiative?



Playing the Long Game on Digital Transformation

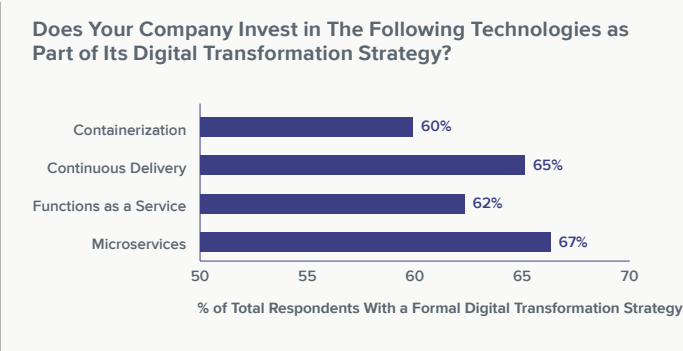
Expectations around digital transformation are high, as IT, Security, and Engineering decision makers expect significant and often long-term returns for undertaking such initiatives. When asked to rank their expected benefits of digital transformation, respondents picked improve customer experience (19%), keep an edge against competitors (16%), and grow into new markets (16%) most frequently for the #1 spot.

How Would You Rank Your Digital Transformation Goals?  
1 Is the Most Important



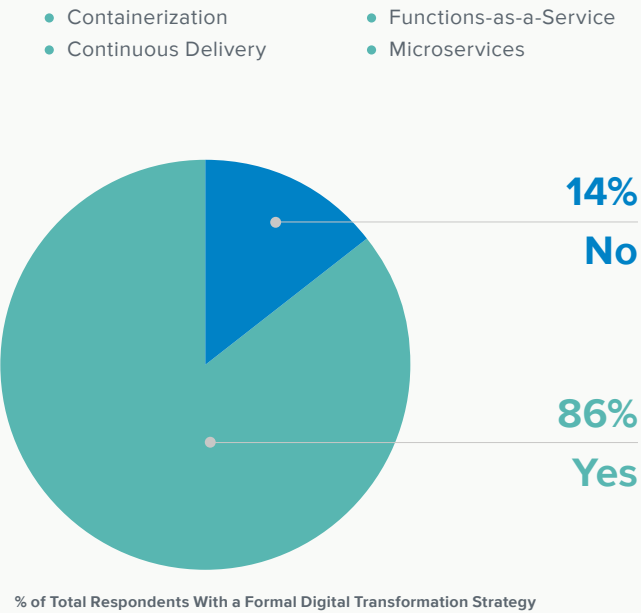
Better App Development, Faster Digital Transformation

Organizations investing in digital transformation are making sure developers have what they need to get the job done. For respondents with a formal digital transformation initiative, agile app development is a big part of the puzzle, showing how the world's largest companies are embracing technologies initially adopted by startups. Containerization, continuous delivery, functions as a service, and microservices were each cited by at least 60% of respondents as a development method or technology their global company was investing in. Collectively, 85% of digitally transforming respondents are relying on at least one of these technologies to empower agile app development.



Digital Transformation Meets Modern App Development

Companies investing in at least one of these agile app development technologies as part of their digital transformation strategy:



We looked at the rise of IaaS earlier in this report, with most of our survey respondents (60%) adopting IaaS. This percentage increases when you look at businesses with agile app development and digital transformation strategies in progress. For respondents at digitally transforming companies using one of the above agile development technologies, 67% are also increasing their IaaS adoption in the coming year — making them more likely to be on the IaaS bandwagon than the average global giant in our report.

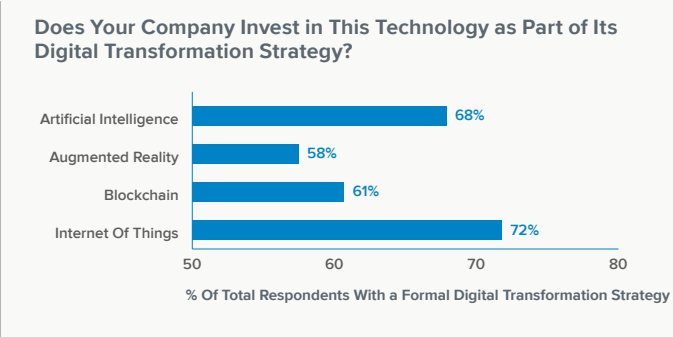
IaaS Meets Agile App Development Meets Digital Transformation

IaaS	Digital Transformation			
		Overall Respondents	Has Formal Digital Transformation Strategy, Investing in At Least One Agile Development Technology	Has Formal Digital Transformation Strategy, Not Investing in Any Agile Development Technology
	Increasing IaaS Adoption in the Coming Year	60%	67%	24%
	IaaS Adoption Staying the Same in the Coming Year	35%	29%	70%
	Decreasing IaaS Adoption in the Coming Year	5%	3%	5%

Big Companies Making Big Bets on the Next Big Thing in Tech

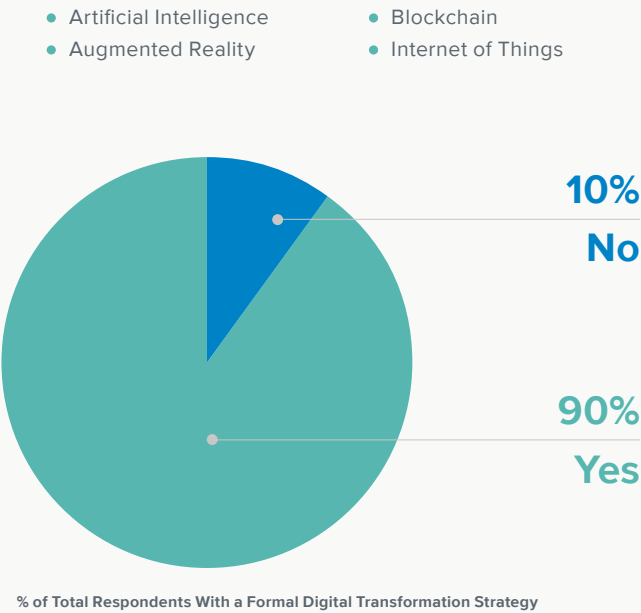
Is the future here already? Organizations thinking about expanding their businesses and improving their customer experiences certainly think so. Respondents at companies already working on a formal digital transformation initiative reported that they're investing in some of the latest and greatest technologies (and buzzwords). The Internet of Things (72%), artificial intelligence (68%), blockchain (61%), and augmented reality (58%) are all largely on the radars of these forward looking giants.

Bundled together, 90% of the respondents whose organizations are working on a formal digital transformation are also investing in at least one or more of these forward-looking technologies.



Digital Transformation Meets Forward-Looking Technologies

Companies investing in at least one of these technologies as part of their digital transformation strategy:

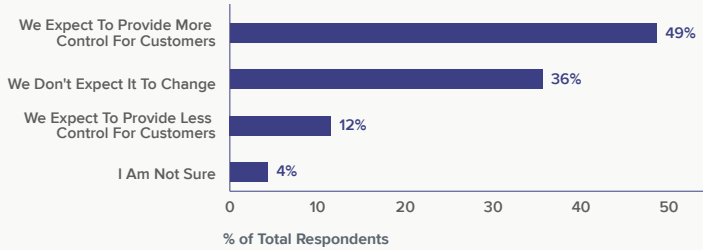


Meeting Customer Privacy Demands

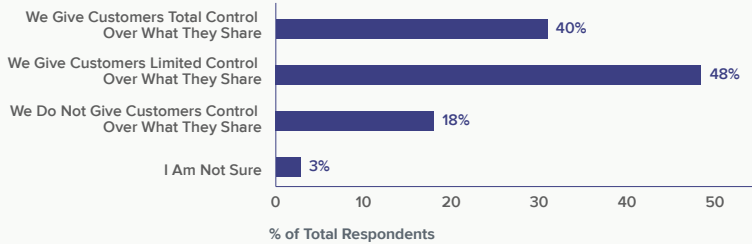
As the world's largest companies build new products, services, and experiences as part of their digital transformation, they're also modifying data collection practices. It makes sense: after a year filled with privacy scandals across the technology landscape, large global companies are recognizing the need to make privacy a top focus and strategic differentiator. While nearly half of survey respondents said they give customers only limited control over what data customers share with their organization, nearly half again said they expect to provide more control over data privacy to their customers in the coming year. Topping the list of industries expecting to give more granular data privacy control to customers are the same ones who have historically collected customer data to sell goods and services: technology, retail, manufacturing, and automotive.



How Do You Expect Your Company's Customer Data Privacy Policy to Change in the Coming Year?



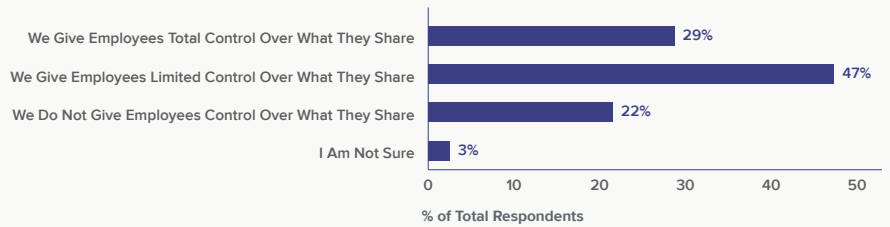
How Would You Describe Your Company's Customer Data Privacy Policy?



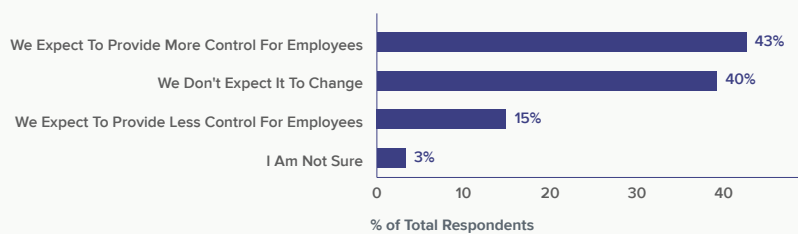
## Digital Transformation

The new focus on privacy extends to employee data as well. While nowhere near as big a part of public discourse compared to consumer privacy, 42% of respondents said they expect their global companies will give employees more visibility into and control over their personal data in the coming year.

### How Would You Describe Your Company's Employee Data Privacy Policy?



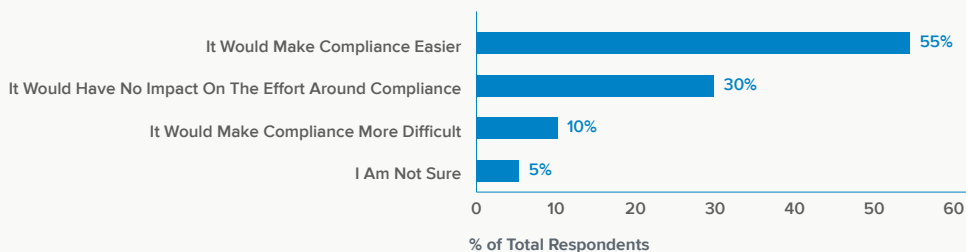
### How Do You Expect Your Company's Employee Data Privacy Policy to Change in The Coming Year?



## Calling Washington — Global IT, Security, and Engineering Decision Makers See the Benefit of a Universal Federal Privacy Law in the US

After the onset of [the EU's General Data Protection Regulation \(GDPR\)](#), and the backlash against consumer-focused tech companies vacuuming up data, new data privacy legislation is being proposed, passed, and implemented across the United States. Specifically, the landmark [California Consumer Privacy Act](#) is scheduled to take effect in 2020, and so far in 2019, new state-level privacy legislation has been introduced in Washington, Maryland, Massachusetts, Hawaii, New Mexico, and Rhode Island. In addition, federal privacy legislation is being debated at the national level. With such a rapidly-changing regulatory landscape, compliance stands to be a substantial challenge for businesses of all sizes. With that in mind, it's no shock that over half of survey respondents said a pre-emptive federal privacy law would make compliance easier. The alternative? Organizations reckoning with the byzantine nuances of differing state laws.

### What Is Your Opinion on a Universal Federal Privacy Policy Law in The United States?





## Closing — Onward, Global Giants

The global IT, Security, and Engineering decision makers we surveyed are juggling many different priorities, technologies, and new ideas — and we can see the ways in which forward-looking organizations are transforming with technology. It's not enough

anymore to be adopting a few cloud apps. Truly forward-looking organizations are investing in Zero Trust security and strong MFA, modern app development, IaaS, and digital transformation. Even as they're increasing cloud adoption and deploying multiple cloud platforms, they're recognizing their target end state still includes on-premises technologies. And they're focused on how their tech investments will deliver superior customer experiences — experiences that keep them ahead of the competition and accommodate growing customer demands for data privacy.

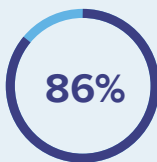
And yet, there is still a large innovation opportunity for most of the world's largest organizations. When we look at the technology investments of these forward-looking businesses, we found that only 41% of organizations were making progress on four or more of those eight dimensions. While it's less than half of the global companies surveyed, many have taken preliminary steps across these parameters, with 86% successfully undertaking at least two forward-looking approaches. As more and more global leaders realize the benefits that come with innovation, the pack at the digital front of the race will steadily grow.

We hope this report has given you insight into how — and how much — global technology decision makers are driving evolution in their companies and how your organization can also evolve to keep up with these global giants.

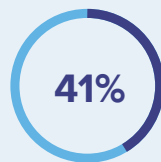
### **Key Dimensions: Forward-Looking Technology Investments**

- Pursuing Zero Trust strategy (formal plan in progress, or beginning formal plan)
- Pursuing digital transformation (formal plan in progress, or beginning formal plan)
- Using any of the agile application development technologies (Containerization, Continuous Delivery, Functions-as-a-Service, Microservices)
- Using any of the strong MFA types: Biometric-Based, Physical and U2F Tokens, Software One-Time Password
- Increasing IaaS usage
- More than 30% of the way to a cloud “end state” that will run at least 30% of their apps in the cloud
- Prioritizing the role of customer experience in goals and expected outcomes of digital transformation initiatives<sup>1</sup>

Moving Forward on at  
Least Two Dimensions



Moving Forward on at  
Least Four Dimensions



<sup>1</sup> Respondents who ranked “Improve customers’ digital experience” as first or second more important digital transformation goal; or who answered “What is the No. 1 expected business outcome of your digital transformation initiative?” with any of the following: “We expect to gain new customers with our current offerings,” “We expect to move into new markets with new offerings,” “We expect to retain a higher percentage of our current customer base”