

April 2024 | Guide

Nutanix Enterprise Cloud Index Report: Global Public Sector



NUTANIX

Table of Contents

About This Report

Public Sector Shifting from Hybrid Cloud to Multicloud within Three Years	03
Findings At-A-Glance	03

Key Findings

01. The use of multiple IT environments has remained flat over the past year in global public sector organizations, though this Vertical foresees a substantial near-term boost in usage.	04
02. Hybrid multicloud deployments, on average, trail those of other Industries.	05
03. IT operating models in use vary among public service sub-sectors.	07
04. When public sector organizations are investing in IT infrastructure, protection from ransomware is the prevailing purchase criterion.	09
05. Security and compliance are the biggest drivers of application relocation and the top priority for CIO/CTOs, as public sector organizations recover from high rates of ransomware attacks.	12
06. AI use is ramping up, though issues persist concerning data privacy and best practices.	14
07. Top challenges involve multi-environment storage, operations, security, and sustainability.	16

Summary

Summary and Outlook	19
---------------------	----



Public Sector Shifting from Hybrid Cloud to Multicloud within Three Years

About this Report: Background and Research Goals

For the sixth consecutive year, Nutanix commissioned a global research study to learn about the state of enterprise cloud deployments, IT infrastructure, and data management initiatives and challenges. In December 2023, U.K. researcher Vanson Bourne surveyed 1,500 IT and DevOps/platform engineering decision-makers around the world. The respondent base spanned multiple industries, business sizes, and geographies, including North and South America; Europe, the Middle East and Africa (EMEA); and the Asia-Pacific-Japan (APJ) region.

This report is supplemental to the global [6th Annual Enterprise Cloud Index](#) master report and focuses on cloud deployments in the global public sector. It accounts for data supplied by 409 worldwide survey respondents in federal/national governments, state and local governments, public education, public healthcare, and other public sector organizations. It highlights current adoption levels of several IT operating models and the technology plans, priorities, and challenges of IT professionals in worldwide public sector organizations and how they compare to the full global response pool and other industries.

Findings At-A-Glance



01. Adoption Trends

Growth in mixed-IT deployments, including hybrid multicloud, was flat over the past year. However, hybrid cloud—the precursor step to hybrid multicloud—constituted the most common IT model in the public sector, outpacing the global average.



02. IT Priorities

Protection from ransomware and other security/compliance-related issues are top of mind in the public sector, both as a priority and as a challenge.



03. AI Stance

Public sector respondents are bullish on the many and varied uses of AI, though they report early growing pains with the technology.



04. Management Challenges

Achieving the operational consistency needed for cloud-smart IT is becoming easier with solutions such as containers and cloud-agnostic management tools. The public sector, however, remains particularly challenged to meet data storage/usage guidelines, often dictated by changing privacy regulations, and combating ransomware.



05. Sustainability Status

While 87% of public sector respondents said sustainability initiatives were a priority, sustainability ranked comparatively low in terms of IT purchasing decision criteria and budget increases.

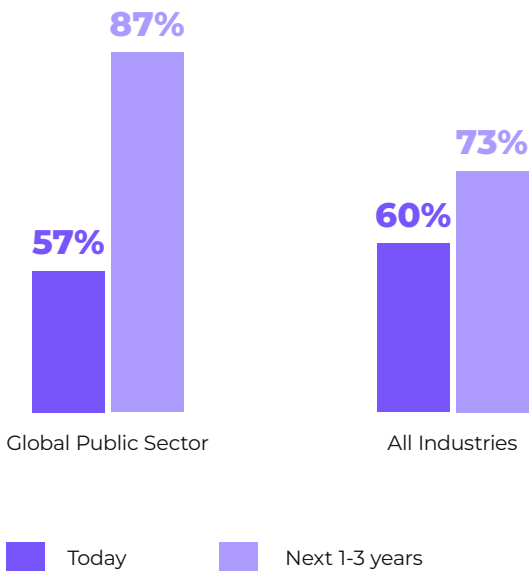


01. Key Findings

The use of multiple IT environments has remained flat over the past year in global public sector organizations, though this vertical foresees a substantial near-term boost in usage.

Whether they're using integrated private and public clouds or multiple public clouds, **57%** of all global public sector organizations reported having more than one IT model in operation this year (Figure 1). Respondents in this vertical anticipate significant growth in the use of multiple models over the next one to three years, with usage expected to increase **30** percentage points to **87%** usage during that time.

Figure 1: Current and Planned Use of Multiple IT Environments



These mixed-model adoption rates, on average, largely parallel deployment trends across the full ECI global response pool. While global cross-industry usage of multiple models (**60%**) currently outpaces the public sector by a small margin, planned short-term increases across the full response pool—while healthy—are notably lower, with **73%** usage expected within three years.

Note that the data in Figure 1 counts all private datacenters/clouds in use—regardless of whether they reside on-premises, in a hosted service provider's infrastructure or both—as a single operating model.

02. Key Findings

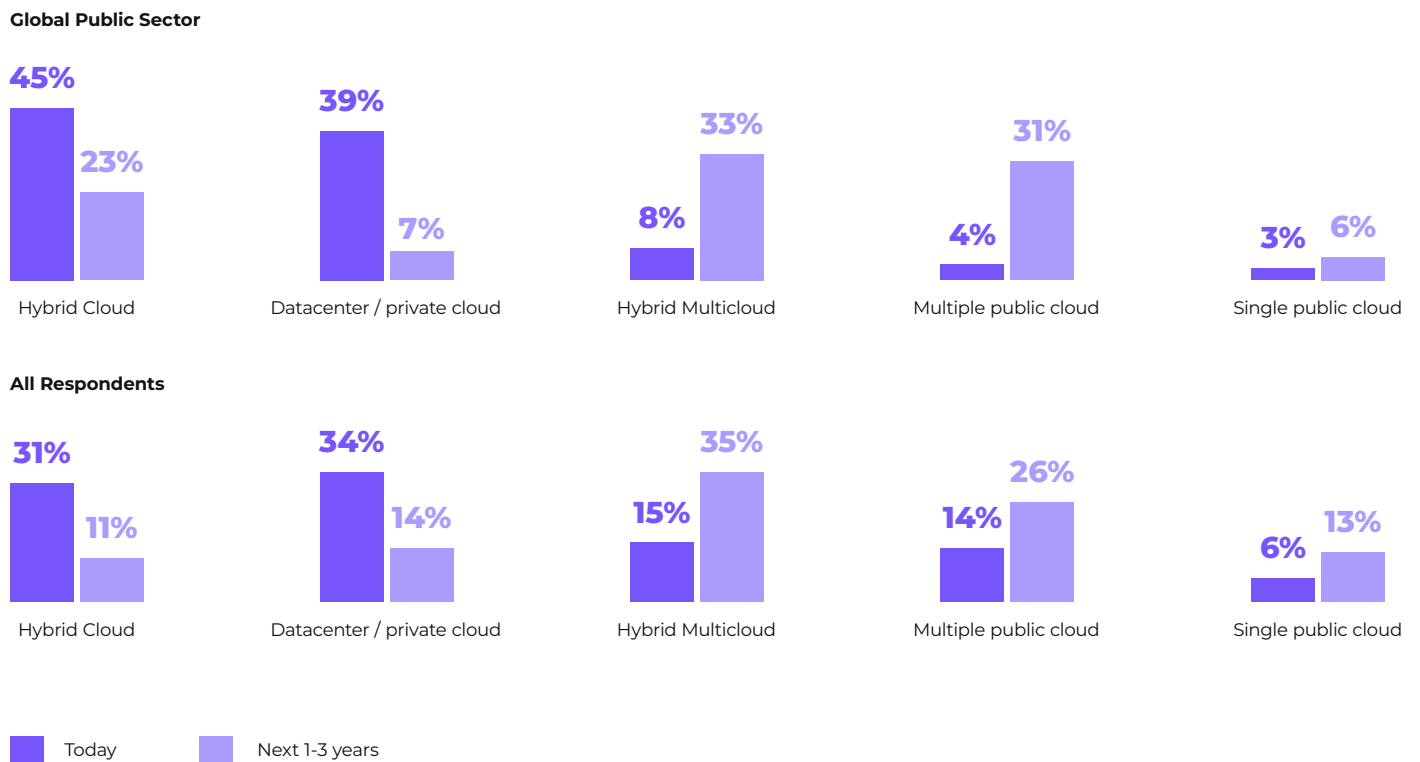
Hybrid multicloud deployments, on average, trail those of other industries.

Generally shaping up to be the dominant IT operating model, hybrid multicloud environments involve the use of private infrastructure, on-premises and/or hosted, in tandem with two or more public cloud platforms. This model holds the greatest growth potential, among public sector organizations and globally across industries. Driving adoption is the steady increase in “cloud-smart” approaches to IT, whereby enterprises leverage the best cloud environment for each workload or application.

The vast majority of public sector organizations (**85%**) and the full cross-industry response pool (**90%**) agreed that their organizations now subscribe to cloud-smart IT deployment strategies. The attraction is that hybrid multicloud environments give IT leaders a variety of cost, billing, and deployment options for optimizing application performance, security, time to market, and spending.

At this juncture, however, just **8%** of global public sector organizations reported using hybrid multiclouds. This figure is about half the deployment percentage reported by all ECI respondents (**15%**), as Figure 2 shows, and the lowest among all industries surveyed (Figure 3). The same percentage in the public sector reported hybrid multicloud usage last year.

Figure 2: IT Models in Use and Planned



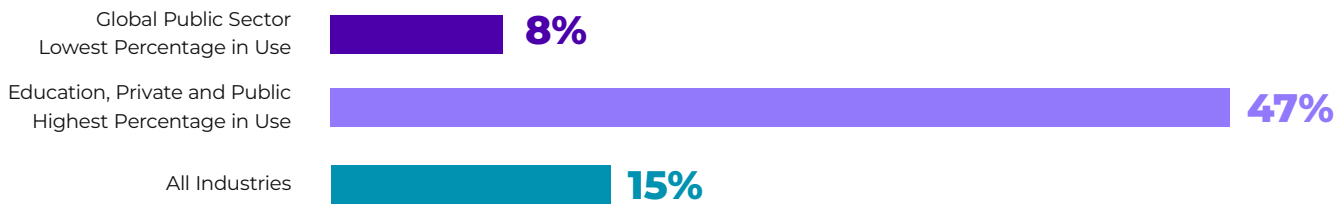
Single Response Allowed | Figures may not total 100% due to rounding



However, the public sector anticipates more than four-fold average growth in hybrid multicloud usage in the next three years, when it expects to reach **33%** penetration. The planned growth rate outpaces that of the full global response pool, which anticipates slightly more than a two-fold increase during the same time frame, albeit with the expectation of attaining slightly higher overall usage (**35%**). Public sector plans to use multiple public clouds as its mixed-IT model also outpace the global average in that this group expects usage to jump from just **4%** usage today to **31%** by 2027.

It should be noted that the greatest growth potential tends to lie in organizations and technologies with slower adoption rates, as they have their growth spurts still ahead of them. The aggregate global public sector, for example, has the farthest to go to catch up to hybrid multicloud deployments elsewhere (Figure 3), so it follows that its growth trajectory going forward is larger than in industries that were early adopters.

Figure 3: Comparative Hybrid Multicloud Usage Today*



*Percentage of respondents in each group currently using private IT infrastructure in combination with two or more public cloud platforms

As the figure shows, the combined private/public education sector reported the highest use of hybrid multicloud (**47%**) across all industries surveyed this year. The second highest was in the energy, gas/oil, and utilities industry (**37%**). At the other end of the scale, following the global public sector, the second-lowest adoption was in the manufacturing and production industry, with **10%** using the model.

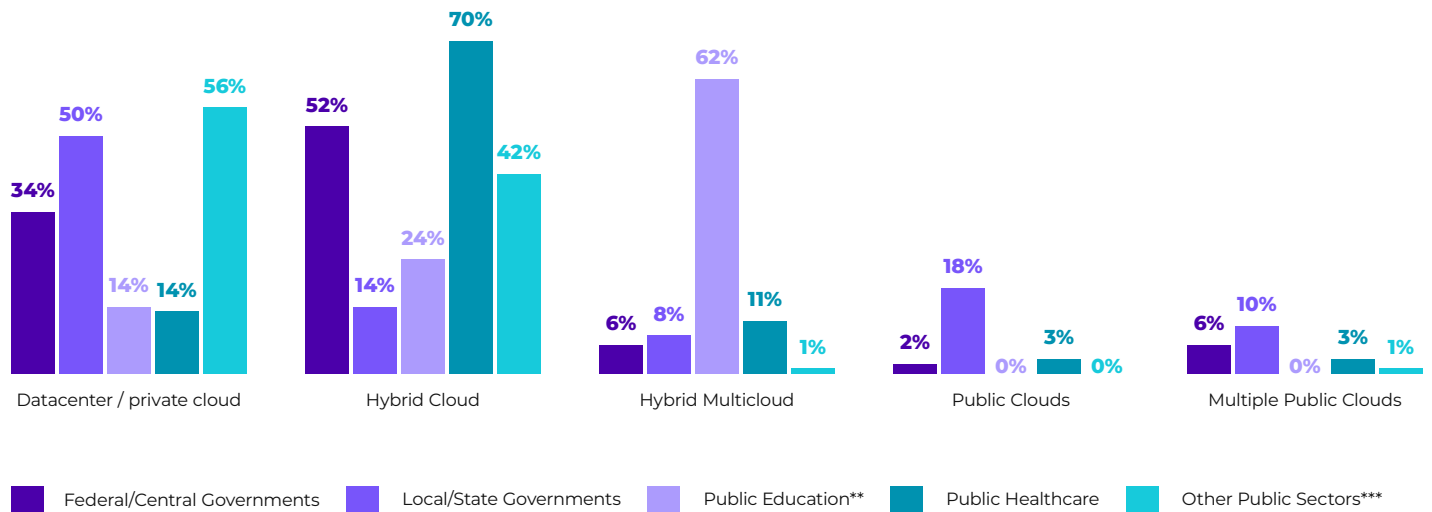
03. Key Findings

IT operating models in use vary among public service sub-sectors.

As noted in Figure 2, public sector hybrid multicloud deployments remained flat, with **8%** reporting use of the model both this year and last. The caveat is that these numbers reflect average usage across all global public service organizations surveyed, while adoption in individual sub-sectors fluctuates.

Most notably, public education appears to be the biggest adopter of hybrid multicloud within the public sector group and globally across all industries, with a reported **62%** penetration (Figure 4). A word of caution here, however: The response base in this sub-sector was small, so it is advisable to consider the high percentage as indicative of the general trend in that sub-group but not to interpret it as statistically definitive.

Figure 4: IT Models in Use Today Across Global Public Sector Entities



*Hosted, on-prem, or a combination

**Low response base; data reflects trends but not statistical validity

***Excluding healthcare, education, and government

Single Response Allowed | Figures may not total 100% due to rounding

The comparatively large uptake in education, whether private or public, can be at least partly attributed to the pandemic-era need to support sudden, widespread remote learning requirements. Public cloud offerings gave schools the ability to quickly tap into services that they could use to supplement their existing IT infrastructure, helping them leapfrog their way to hybrid models of private/public infrastructure. From there, adding a second public cloud platform takes the organization to the hybrid multicloud model.

Note that when private and public education responses are calculated together, the education sector penetration falls to **47%**, as was shown in Figure 3, indicating fewer deployments in the private educational institutions surveyed. However, even at **47%**, the private/public education sector reports the highest hybrid multicloud percentage of all nine industries surveyed, of which the global public sector is one, comprising the five sub-sectors shown in Figure 4.

Other public service entities bring the usage average way down. The U.S. federal government reports the lowest hybrid multicloud usage, both within the public sector and globally (**5%**), for example (not shown in the figure), and all global federal/central governments together, including the U.S. government, aren't much further along (**6%**).

At the same time, it should be noted that across government sub-sectors, instances of the hybrid cloud model—private infrastructure combined with a single public cloud—are far more common and the dominant model currently in use (**45%**). The data indicates that most public sector organizations have reached the hybrid cloud migratory step in their journeys to hybrid multicloud IT.

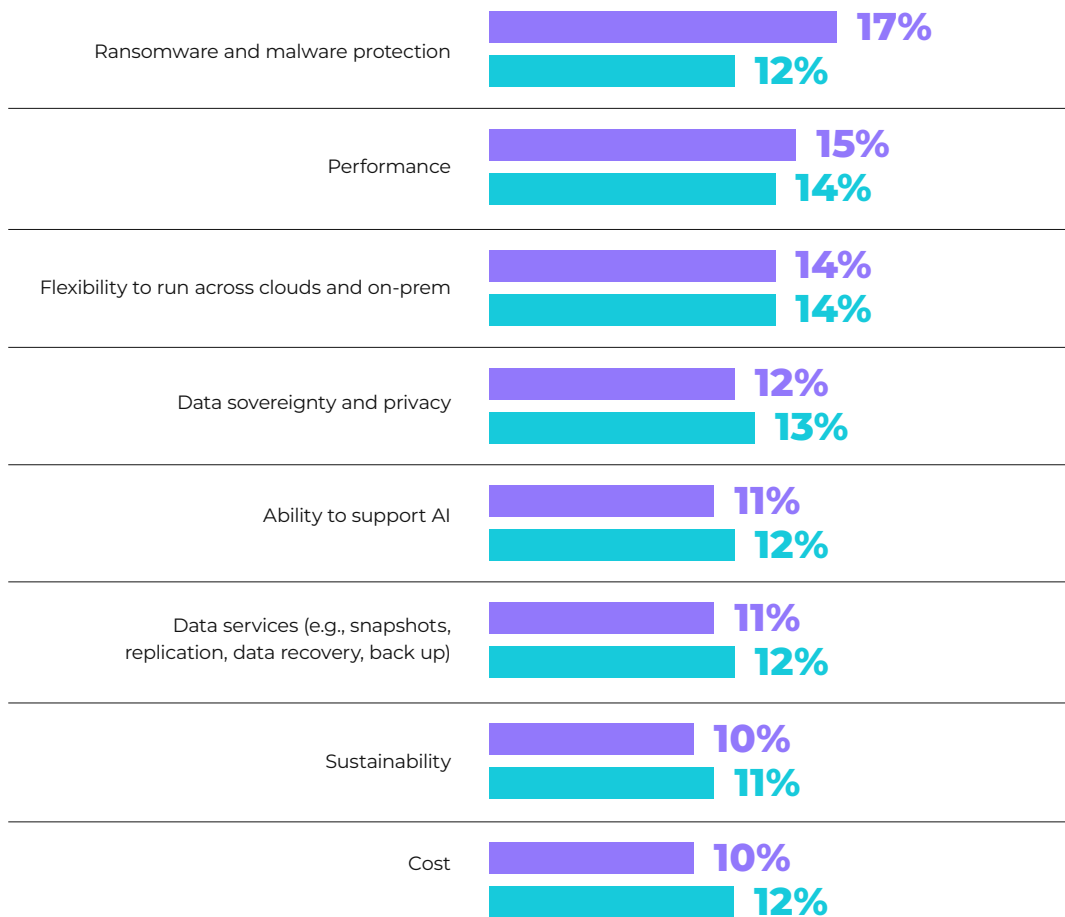
Hybrid cloud usage is in the double digits in all public sub-sectors, including **70%** in public healthcare organizations, **52%** in aggregate federal/central governments surveyed, and **60%** in the U.S. federal government. Hybrid cloud is one step away from hybrid multicloud, which introduces a second (or more) public cloud platform(s) into the mix.

04. Key Findings

When public sector organizations are investing in IT infrastructure, protection from ransomware is the prevailing purchase criterion.

ECI respondents were asked to name the single most important factor driving their IT infrastructure purchasing decisions. While a diverse array of answers reflected a wide spectrum of business and IT priorities (Figure 5), those in the public sector most often chose the infrastructure's ability to protect against ransomware and other malware as their single top priority (17%). This factor was followed by the infrastructure's performance/response-time potential (15%) and its ability to allow IT to flexibly move workloads across private and public cloud platforms (14%).

Figure 5: Top-Ranking Infrastructure Decision Criteria



Public Sector All Industries

Single Response Allowed | Figures may not total 100% due to rounding

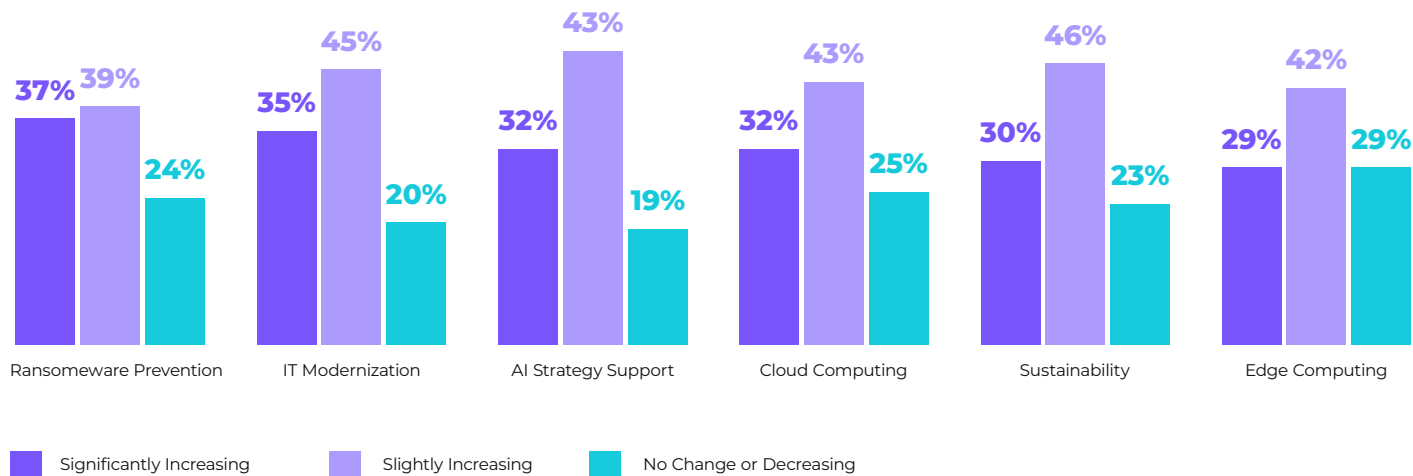


The criteria chosen are interrelated. For example, the most common reason for moving applications across infrastructure in the past year, within both the public sector and the larger cross-industry response pool, was to improve security posture and/or compliance with regulatory mandates, many of which address data privacy and are prone to change. It follows, then, that data security, including protection against ransomware, and the flexibility to move applications without compromising performance led the charge as top purchasing criteria.

Accordingly, the greatest allocation of IT budget dollars in the coming year is for solutions that help protect against ransomware (Figure 6) and ease application portability and multicloud management. When asked what technologies/solutions would get “significant” investment increases in the coming year, protection against ransomware was mentioned most often (37%), followed by IT modernization (35%), which is the process of updating IT infrastructure, tools, practices, and systems to capitalize on emerging technologies.

When combining “significant” and “slight” investment increases, however, 80% of public sector respondents mentioned both IT modernization and support for the organization’s AI strategy, while slightly fewer (76%) mentioned ransomware prevention. Note, though, that IT modernization and ransomware prevention are not necessarily mutually exclusive; modernization strategies can (and likely will) embrace measures for combating ransomware and other cyber threats.

Figure 6: Top Public Sector IT Investment Plans for the Next 12 Months



Multiple Response Allowed



Modernization can also include the acquisition and deployment of unified management tools and processes that work consistently across disparate IT infrastructures, in support of mixed IT models. Moreover, it could involve deploying containerized solutions, which virtualize software applications so they can run the same way on any underlying cloud platform, private or public. As such, containerization is a core tenet of hybrid multicloud strategies in that it eases the portability of applications across infrastructures as IT, business, security, mission, and compliance requirements change.

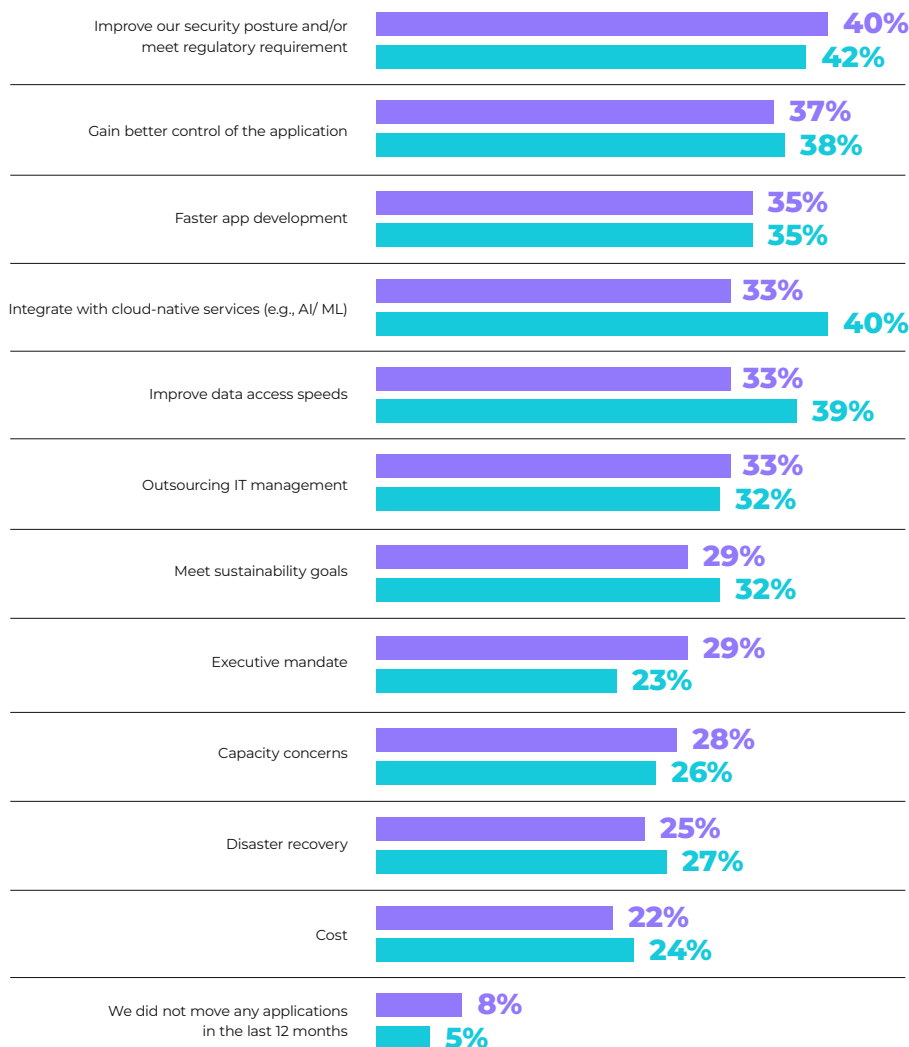
It's no surprise, then, that containerization figured prominently in nearly all 6th Annual respondents' cloud strategies. For example, **64%** of public sector respondents said that they had containerized **50%** or more of their applications. Another **22%** said that between a quarter and half of their applications were containerized. Only **1%** said they had containerized none of their applications.

05. Key Findings

Security and compliance are the biggest drivers of application relocation and the top priority for CIO/CTOs, as public sector organizations recover from high rates of ransomware attacks.

The vast majority of ECI respondents—**92%** in the public sector group and **95%** globally—said they had moved one or more applications to a different IT environment in the past 12 months (Figure 7). The ramp-up of moving workloads to best support each application's requirements as part of cloud-smart IT, mentioned earlier, is creating the need for simple and flexible inter-cloud portability. Shifting security-related requirements, in particular, are largely fueling the movement of applications, as indicated in the figure.

Figure 7: Reasons for Moving Applications to a Different Environment in the Past Year



Public Sector All Industries

Multiple Response Allowed



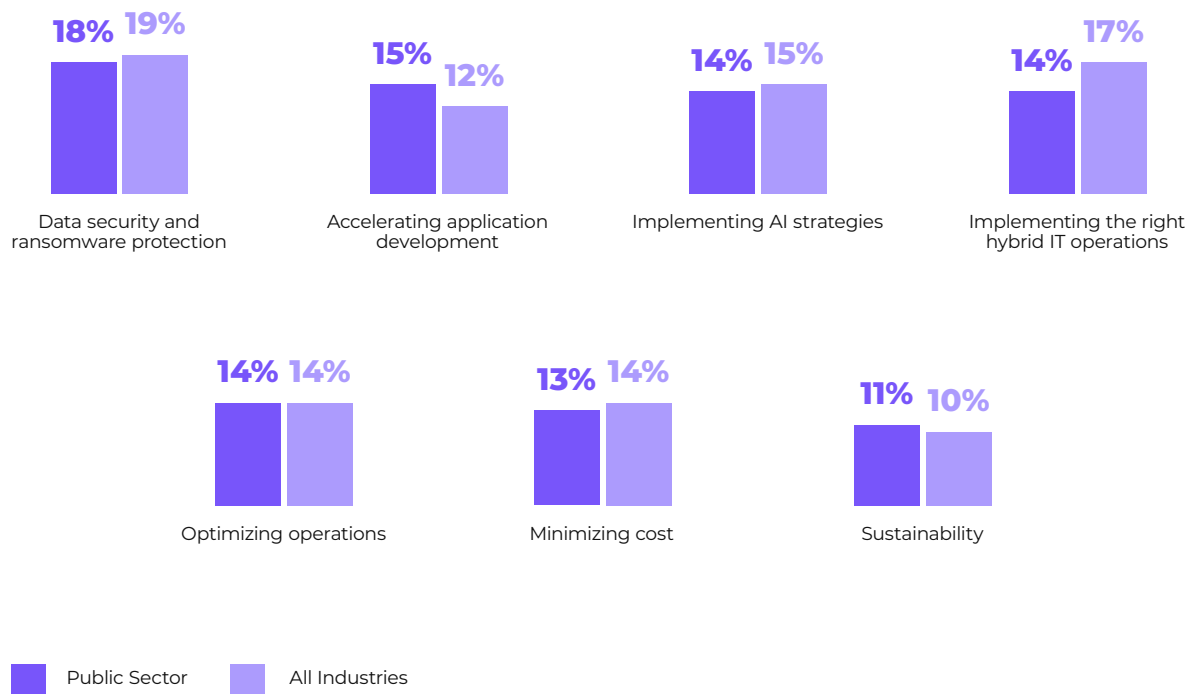
Four in 10 public sector respondents and **42%** of global respondents who reported having moved one or more applications to a different infrastructure during the past year said they did so for security/compliance reasons. Regulatory mandates for privacy, such as Europe's General Data Protection Regulation (GDPR), contain strict rules about where customer data can be stored, and they tend to change frequently—in turn, driving workload location shifts throughout enterprise IT in order to comply.

In addition, ransomware attacks continue to rise, increasing by about **73%** from 2022 to 2023, according to the SANS Institute, and causing enterprises to persistently rethink how best to protect themselves. In fact, **95%** of public sector respondents said they had experienced an attack in the past three years, and **93%** agreed that they'd like to improve their protection against such attacks.

While **28%** said they had fully restored operations following an attack within a few hours, **37%** said it took them a few days or a few weeks to do so. Another **25%** said that the impact(s) of the attack(s) continued to be felt for "longer than a few weeks" following restoration of daily operations.

It's no wonder, then, that data security/ransomware prevention was mentioned most often as the number one priority of CIO/CTO/leadership. (Figure 8).

Figure 8: Top-Ranked CIO/CTO/Leadership Priorities



Single Response Allowed | Figures may not total 100% due to rounding

06. Key Findings

AI use is ramping up, though issues persist concerning data privacy and best practices.

Though AI support ranked fairly low on public sector infrastructure purchasing criteria (Figure 5), respondents expressed high levels of interest in the technology elsewhere. For example, public sector respondents gave AI strategy implementation the same CIO/CTO priority ranking as hybrid IT and operations optimization (14%), reflected in Figure 8. Security and app development acceleration were the two priorities mentioned more often.

In addition, 80% of the public sector said they expect to increase their investments in AI technology in the next year. About a third (32%) said that those investment increases would be “significant.” Moreover, a third (33%) also said integrating with cloud-native services such as AI was a reason that they moved one or more application(s) to a different infrastructure during the past year.

AI Use Cases

Respondents mentioned a variety of AI applications in use or under consideration in their organizations.

The senior IT manager in one federal government agency reported that “AI has already been very successful in particular areas such as cybersecurity, weather, climate, and various aspects of agriculture.” Another, a senior IT manager in a U.S. federal government agency, said, “Across the board, the U.S. government [is] looking to develop AI and smart technologies for the delivery of public services. Sustainable land management and energy efficiency are my areas of interest.”

An IT professional in the platform engineering/DevOps group of a federal government with 500 to 1,000 employees explained that “AI and data analytics are the tools to deliver more value. They can make sense very quickly of data, demographics, [and] historic and future trends, and this allows policy and decision-makers to make smarter decisions.”

Similarly, a mid-level manager in the DevOps group of a federal government with more than 5,000 employees expressed interest in “AI applications to assist decision-making in sustainability, food safety, food waste and loss.” Another, who works in IT for a local government, said, “AI can help us plan the layout of local towns to make them more aesthetically pleasing, and roads can be planned to avoid traffic jams.”

Deployment Obstacles

Despite the AI enthusiasm, **86%** of the public sector said they consider running AI to be a challenge: **38%** described it as a “significant” one, while **48%** considered it a “moderate” one. They provided a few examples.

“While adoption of AI by our government is growing, the success of specific AI tools has been inconsistent and erratic, producing inaccurate or biased results,” said one respondent. Another said that U.S. federal government approaches to deploying AI so far are “proving to be very piecemeal,” despite a select committee having been set up to coordinate and advise on consistent adoption best practices.

“AI has the potential to completely disrupt what we are doing,” said a C-level U.S. federal IT decision maker. However, “for some of us, the use of facial recognition and biometric processes has been controversial. Congress has to rule on exceptions whereby these technologies can or cannot be used.”

Ethics and privacy issues related to the use of biometrics are among the reasons **93%** of public sector respondents agreed that data privacy due to AI was a concern for their organizations, as did **88%** of the global response pool.



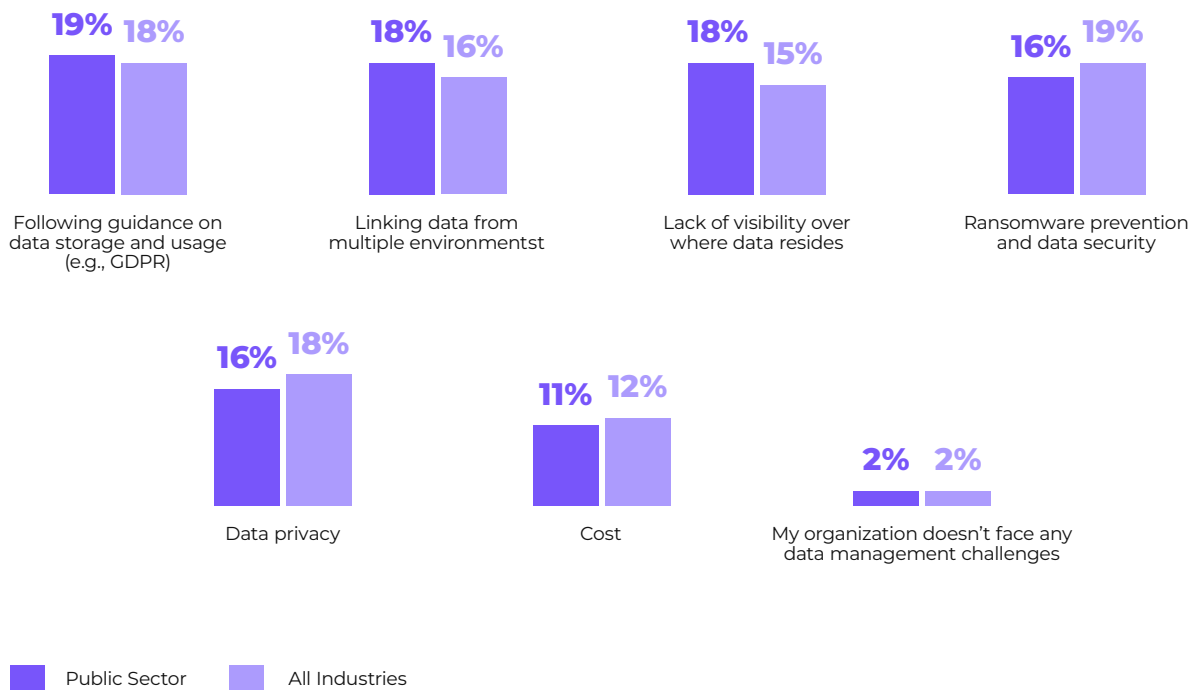
07. Key Findings

Top challenges involve multi-environment storage, operations, security, and sustainability.

Managing multiple IT environments creates operational challenges (Figures 9 and 10) often related to interoperability and data management across infrastructures with dissimilar underlying technologies. When asked to name their number one data management challenge today, the greatest percentage in the public sector identified complying with data storage/usage guidelines (19%) as the top factor. Increasingly, data storage strategies are driven by privacy regulations about where customer data can be stored.

The next biggest challenge was a tie between linking data from multiple environments and maintaining visibility into where data resides across cloud borders, with 18% citing each as their number one data management challenge (Figure 9).

Figure 9: Biggest Data Management Challenge in Your Organization



Single Response Allowed | Figures may not total 100% due to rounding



At issue is that mixed IT environments, such as hybrid cloud, hybrid multicloud and multiple public cloud models, involve different cloud platforms and provider solutions. This situation drives the need for integrated, universal data management and monitoring tools that mask the differences in underlying native technologies and complexities and operate consistently across infrastructures.

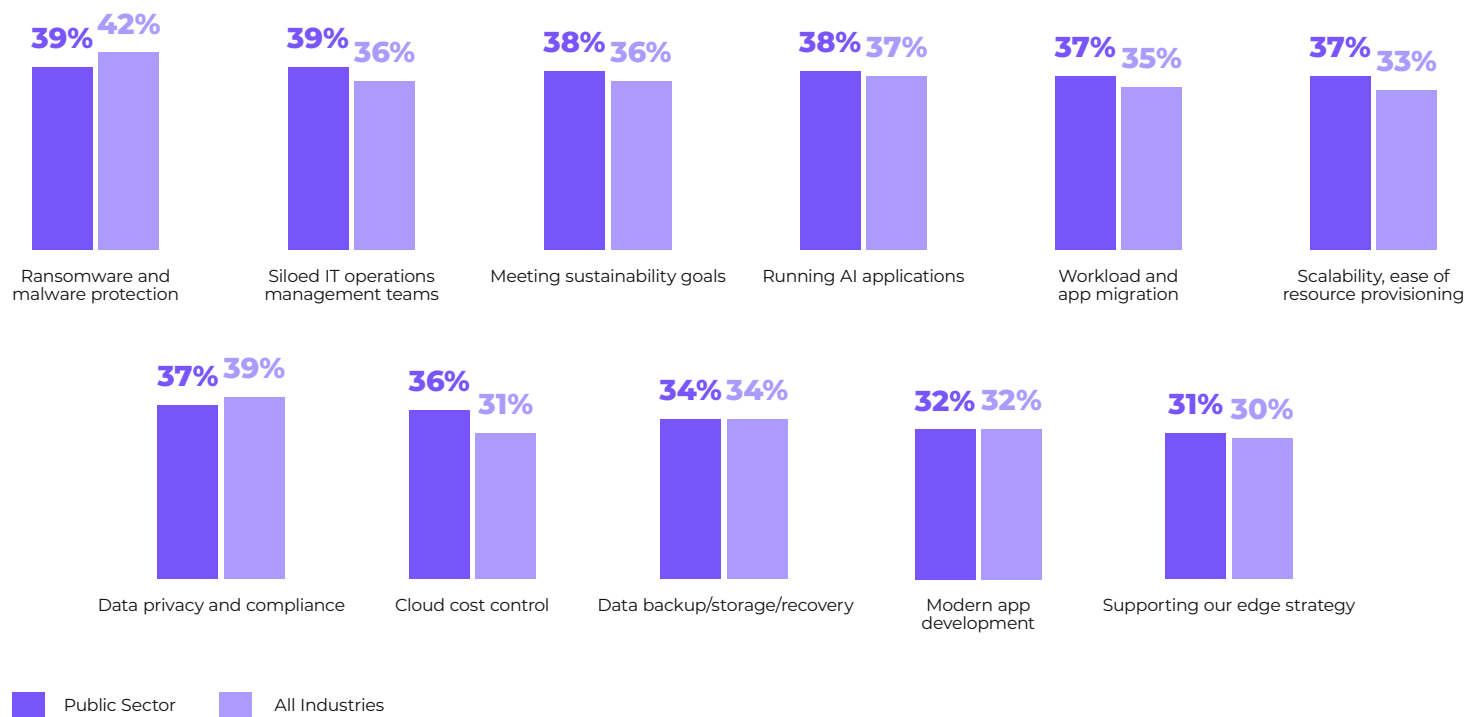
Cloud-agnostic tools help ensure interoperability among heterogeneous platforms, as well as consistency in IT operations, security policy-setting and usage enforcement. These capabilities help enterprises avoid costly security breaches, data loss, resource overprovisioning, and redundant operations while streamlining the IT skillsets required to run the hybrid infrastructure.

Interoperability Improvement

The public sector indicated a marked improvement in the interoperability among their disparate infrastructures over last year. More than half (**53%**) reported that all their IT environments were fully interoperable, up from 40% last year, and four percentage points ahead of the global 6th Annual ECI average (**49%**). It's likely that the jump can be largely attributed to industry progress with containerization, increasing availability of integrated multicloud tools, and the public sector's comparatively rapid deployment of these technologies.

When the IT challenge question was expanded to include more general IT functions with multiple responses allowed, the factor the public sector mentioned most often as a "significant" challenge was protecting against ransomware and malware (**39%**) and the difficulties arising from having IT operations and management teams operating independently (**39%**) in a so-called "siloe" fashion (Figure 10).

Figure 10: IT Functions Considered a 'Significant' Challenge



Multiple Response Allowed

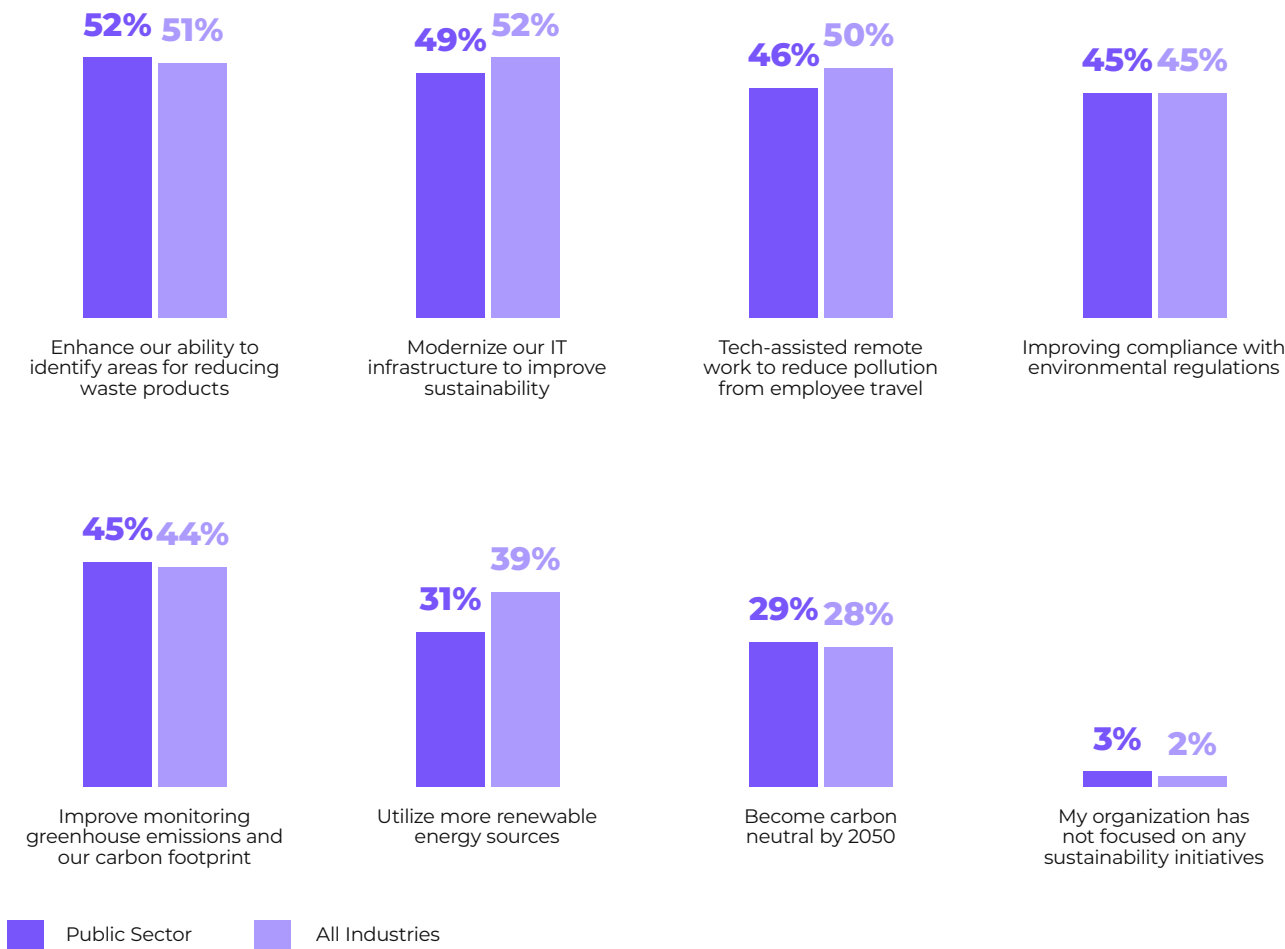


Sustainability Status

Meeting sustainability goals tied with running AI applications as a “significant” challenge. Sustainability strategies tend to be multifaceted and touch many parts of an organization, of which IT is one. As IT is a huge consumer of power, it’s often the first department to adopt concrete sustainability and conservation measures.

Among ECI public sector respondents, the most common focus of sustainability efforts during the past year was identifying areas for reducing waste (52%), followed by modernizing IT infrastructure (49%), as Figure 11 shows. Just 3% of public sector respondents and 2% of all respondents said they had not focused on any sustainability initiatives in the past year.

Figure 11: Focus of Sustainability Initiatives in the Past 12 Months



Multiple Response Allowed



Summary and Outlook

Infrastructure Trends

The use of mixed-IT infrastructure among global public sector organizations has remained flat, with **57%** reporting the use of more than one infrastructure model this year and last. Similarly, use of the hybrid multicloud model—expected to dominate across all industries within a few years—remained at just **8%** usage both years. Public sector organizations, however, expect substantial increases in mixed environments in general and hybrid multicloud in particular over the next three years. General mixed-model usage is expected to jump 30 percentage points to **87%**, and hybrid multicloud use is expected to grow four-fold, from **8%** today to **33%**, during that time.

A far larger number in the public sector (**45%**) said they were running hybrid clouds—private infrastructure combined with a single public cloud platform—which is a single step away from the hybrid multicloud model. Moreover, a healthy percentage of public sector respondents (**31%**) said they expected to be running multiple public cloud platforms as their IT operating model within three years.

Diminishing Emphasis on Cost

Cost continues to become less of an IT priority among public sector and global respondents. Public sector respondents ranked cost last as an infrastructure buying decision criterion, as a factor in justifying the movement of an application to a different infrastructure, and as a CIO/CTO priority.

One explanation is that as the value and volume of corporate data continue to skyrocket, data management, security, synchronization, and backup/recovery concerns are edging out cost as an area of focus. Data is now a strategic asset that must stay up-to-date, secure and readily available, allowing little room for scrimping.

Drivers, Challenges, and Investment Priorities

Increased infrastructure diversity and a heightened emphasis on data security are driving all IT pros to seek consistent, hybrid operations that transcend private and public infrastructure. This is evident in public sector respondents' stated buying decision criteria and plans for IT investment in the coming year.

The top infrastructure priorities in the public sector largely involved improving data security. Enhanced protection against ransomware/malware, for example, constituted the number one IT purchasing criterion, the greatest investment increase forecast for the coming year, and the most important perceived priority for CIO/CTO organizations. Improving protection against ransomware attacks was also the top reason the public sector moved an application(s) to a different infrastructure in the past year.

Security-related tasks were also perceived to be a significant challenge: Following guidance on data storage and usage, particularly as it pertains to complying with privacy regulations such as Europe's GDPR, was named the number one data challenge by the greatest percentage in the public sector (19%). Ransomware/malware protection was most often ranked as a "significant" challenge (39%), along with the management inconsistencies and duplication of effort created by siloed teams (39%).

Budget increases for IT modernization were second only to those earmarked for beefing up ransomware prevention. As modernization embraces many facets of IT, it can include security measures that enhance protection against cyberattacks, including ransomware.

Modernization lets organizations capitalize on new and emerging technologies, such as application containers and unified, cloud-independent management tools, that deliver the needed flexibility to move workloads and security policies seamlessly across environments in the spirit of cloud-smart approaches to IT.

Sustainability Perceptions and Progress

Sustainability garnered mixed reactions among 6th Annual ECI respondents. Overall, respondents reported far more progress with sustainability initiatives compared to last year, with **88%** of the full response pool and **87%** of those in the public sector agreeing that sustainability is an organizational priority.

In the public sector, the largest sustainability focus during the past year was on improving areas for reducing waste (**52%**). In addition, nearly half (**49%**) said they had modernized their IT infrastructure(s) specifically to help meet sustainability goals.

At the same time, sustainability ranked relatively low among IT-specific priorities and investments. For example, it fell last on respondents' perceived priorities for their CIO/CTO organizations and tied with cost as the lowest-ranking decision criterion in IT purchase evaluations. It ranked high as a "significant" IT challenge and garnered the second-lowest percentage (30%) of mentions in terms of which IT areas would get "significant" investment increases in the coming year, following edge computing (29%).

Learn more at nutanix.com/enterprise-cloud-index

Recommendations for Coping with Complexity

The growing pervasiveness of mixed-IT models and hybrid multicloud implies that applications and data will continue to favor diversity and movement. Accordingly, IT organizations in the public sector and elsewhere should modernize their IT environments with an eye toward facilitating and easing application portability, cloud interoperability and unified operations across all infrastructures.

Designing an IT modernization roadmap with cross-cloud data visibility, unified security policy-setting and compliance, flexible workload movement, and integrated management will drive hybrid multicloud operational success. Containerization aids in application migration and mobility, and deployments are well under way among ECI respondents.

Moreover, management tools that operate consistently, regardless of where data and applications run and leverage AI-driven automation, are increasingly available to facilitate the "any application, any infrastructure" requirements of cloud-smart IT.

NUTANIX

info@nutanix.com | www.nutanix.com | [@nutanix](https://twitter.com/nutanix)

©2024 Nutanix, Inc. All rights reserved. Nutanix, the Nutanix logo and all product and service names mentioned herein are registered trademarks or trademarks of Nutanix, Inc. in the United States and other countries. All other brand names mentioned herein are for identification purposes only and may be the trademarks of their respective holder(s).
6thAnnualPublicSectorECI-Report-FY24Q3 04/10/2024