April 2024 | Guide

# Nutanix Enterprise Cloud Index Report: Healthcare Industry Findings

NUTANIX

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# Hybrid Multicloud Accelerates with Focus on App Portability and AI

## 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 healthcare industry. It highlights current adoption levels and the technology plans, priorities, challenges, and experiences of IT professionals in healthcare companies around the world and how they compare to the full global response pool and other industries.

## Findings At-A-Glance

### 01. Growth Areas

The past year has seen dramatic growth in the adoption of multiple IT models in general and hybrid multicloud in particular across the healthcare sector.

### 02. Change Drivers

Driving the uptake of hybrid models are cloud-smart approaches to IT that leverage the best cloud environment for each application and optimize performance, security, time to market, and spending.

### 03. Buying Trends

AI support and application portability are currently the top-ranked infrastructure investment criteria in healthcare organizations, which have accordingly slotted the most budget dollars for IT modernization and AI in the coming year.

### 04. Application Mobility Drivers

Healthcare organizations move applications across infrastructures first and foremost to improve security postures and achieve regulatory compliance, and nearly all moved at least one application in the past year.

### 05. IT Priorities

Data visibility and management tools that improve decision-making, security, privacy, and sustainability are top concerns in healthcare IT departments.

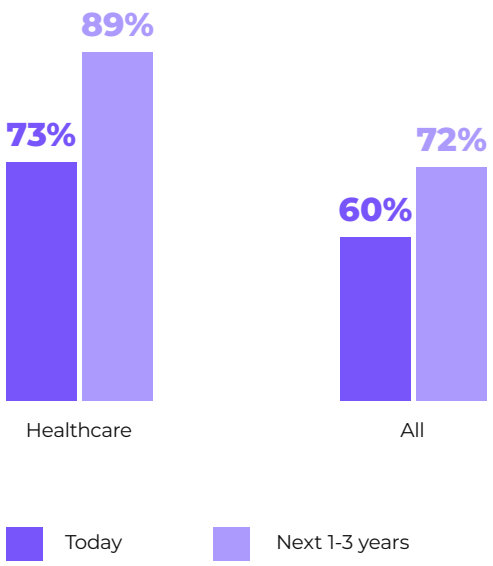
# 01. Key Findings

**Healthcare organizations have accelerated their use of multiple IT operating models, and both their current and planned mixed-IT deployments now surpass those of the global response pool.**

Whether they're using private datacenters and public clouds, multiple public clouds, or a combination of on-premises and hosted private infrastructure, nearly three-fourths **(73%)** of healthcare organizations reported using multiple IT models this year, compared to **53%** last year.

By comparison, **60%** of all global ECI respondents reported using more than one IT model (Figure 1), both this year and last. So while mixed-IT deployments in healthcare lagged the global average by 7 percentage points in 2023, they now outpace it by 13 points.

**Figure 1: Current and Planned Use of Multiple IT Environments**



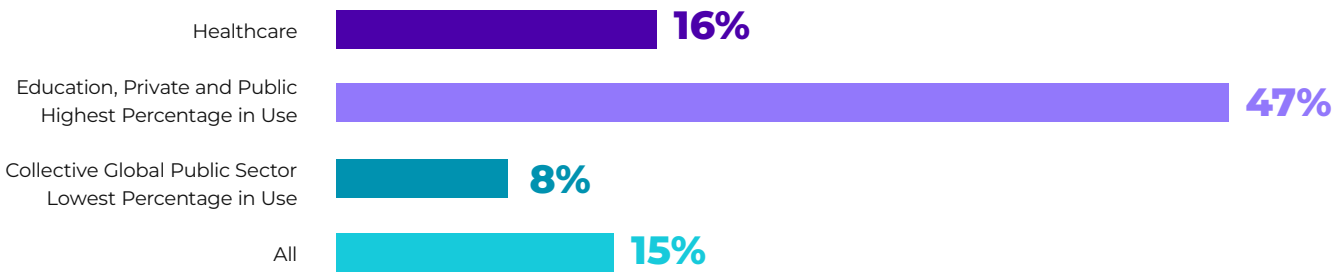

As the figure shows, healthcare ambitions for increasing mixed-IT usage in the next one to three years are also significantly greater. A jump from **73%** to **89%** usage penetration, or 16 percentage points, is expected among healthcare organizations. Comparatively, the global response pool expects to grow usage to **72%** in the same time frame, a margin of 17 percentage points less than the healthcare sector.

# 02. Key Findings

## Adoption of the hybrid multicloud operating model has surged among healthcare respondents pool.

Defined as private infrastructure combined with two or more public cloud platforms, hybrid multicloud is expected to experience the highest growth across all ECI respondent companies, and the healthcare sector is no exception. Since last year's survey, healthcare's adoption of this model has grown by 10 percentage points, from **6%** in 2023 to **16%** in 2024. As such, healthcare deployments are now marginally greater than the current global average of **15%** (Figure 2). Last year, by contrast, healthcare's percentage of deployments trailed the global pool by half and was among the lowest across industries.

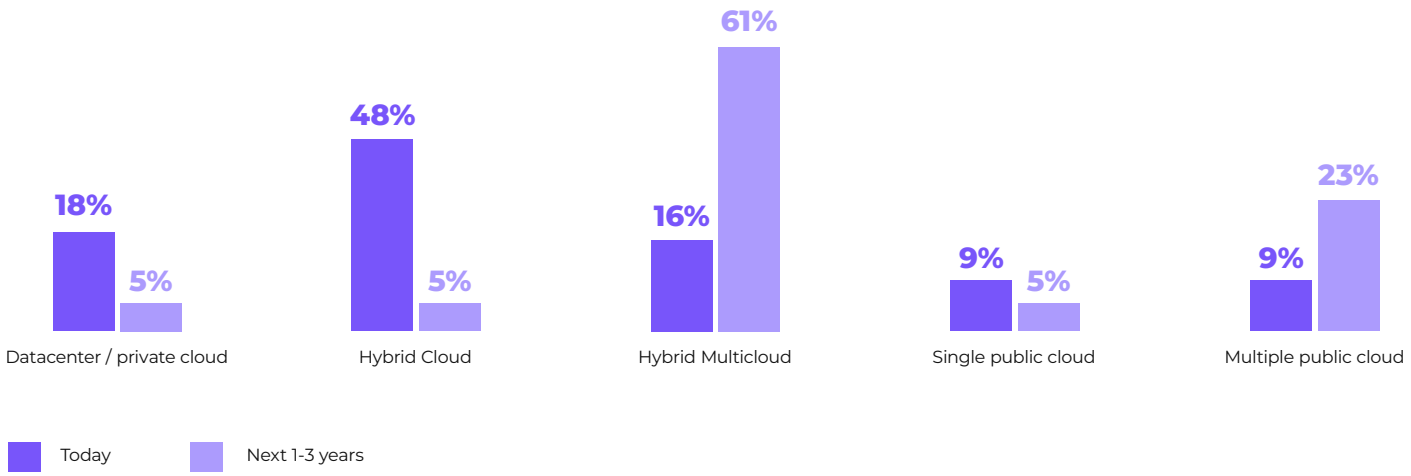
**Figure 2: Comparative Hybrid Multicloud Usage Today***




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

Hybrid multicloud is shaping up to become the dominant IT model in healthcare organizations over the next one to three years, followed by multiple public clouds (with no private infrastructure), as reflected in Figure 3. Deployments will come at the expense of decreasing reliance on datacenter/private cloud, hybrid cloud (private infrastructure plus a single public cloud platform), and single public cloud models, as the figure shows.

**Figure 3: Healthcare IT Operating Models in Use and Planned**




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

Healthcare's nearly four-fold anticipated leap to **61%** hybrid multicloud usage penetration by 2027 outpaces plans among global cross-industry respondents, who expect **35%** usage in the same time frame, up from **15%** today.

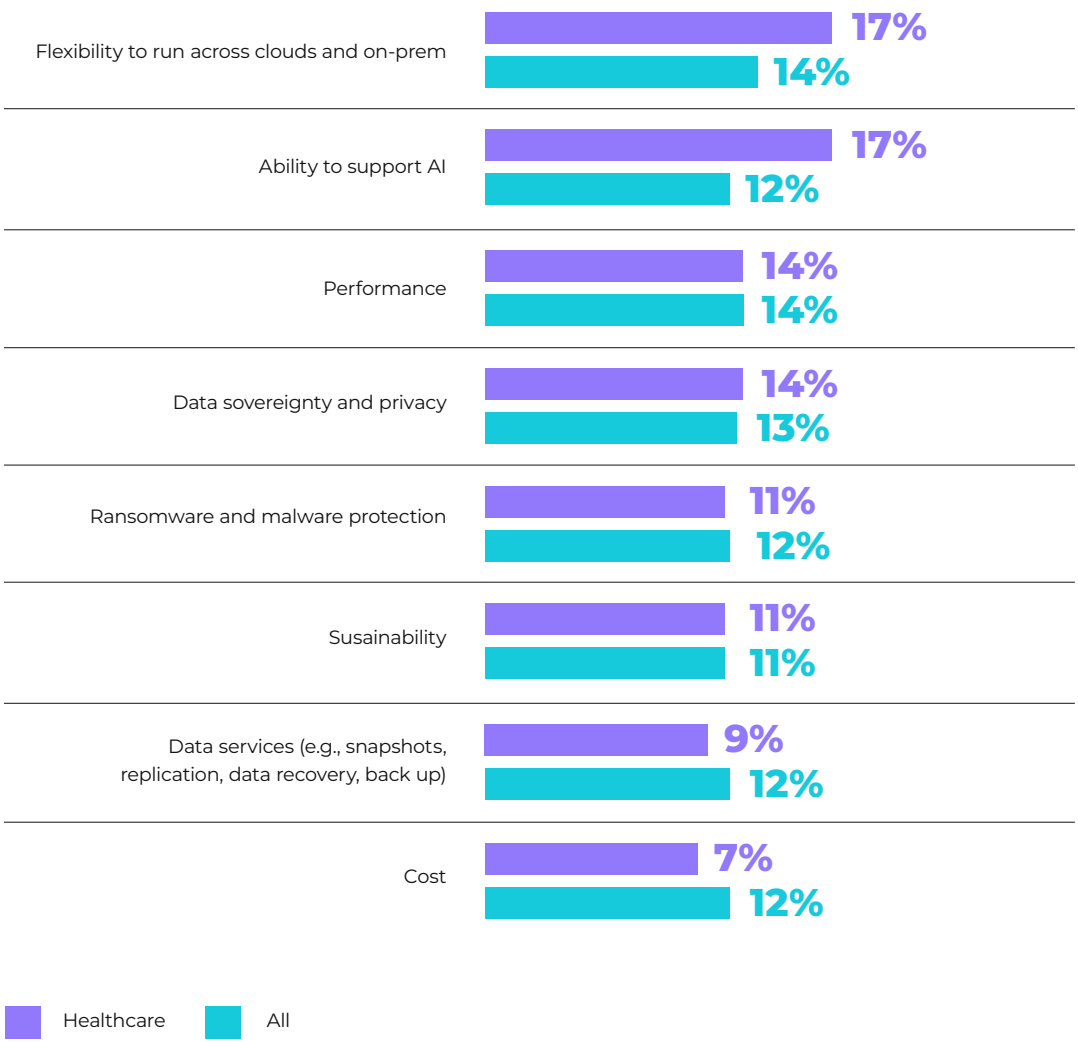
Driving the uptake of hybrid multicloud and other mixed operating models is the growing enterprise adoption of "cloud-smart" approaches to IT, whereby enterprises leverage the best cloud environment for each application. The vast majority of both healthcare organizations **(93%)** and global enterprise respondents **(90%)** agreed that their organizations now subscribe to cloud-smart deployment philosophies. The attraction is that hybrid multicloud environments give digital enterprises a variety of cost, billing, and deployment options for optimizing application performance, security, time to market, and spending.

# 03. Key Findings

**When healthcare organizations are investing in IT infrastructure, workload portability and AI support are top of mind—and next year's budgets reflect these priorities.**

ECI respondents were asked to name the single most important factor driving their IT infrastructure purchasing decisions. While there was a diverse array of answers that reflected a wide spectrum of corporate priorities (Figure 4), those in the healthcare sector most often chose support for AI and the flexibility to move workloads back and forth across private and public cloud infrastructure; **17%** ranked each of these factors as their number one priority. These considerations were followed in importance by the performance potential of the infrastructure **(14%)** and how well it lends itself to successful data sovereignty and privacy management **(14%).**

**Figure 4: Top-Ranking Infrastructure Decision Criteria**

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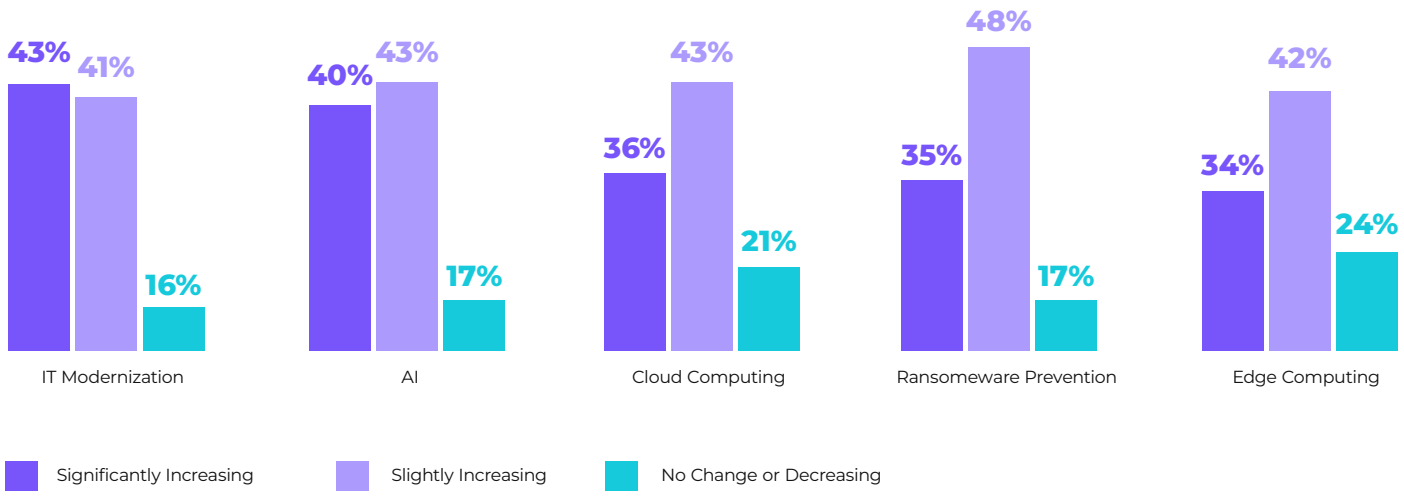
Containerization, which involves virtualizing software applications so they can run in any IT or cloud environment, is a core tenet of a hybrid multicloud strategy that eases the portability of applications across disparate infrastructures. As such, it follows that container deployments figured prominently in nearly all respondents' cloud strategies. For example, **58%** of healthcare respondents said that they had containerized **50%** or more of their applications, and another **36%** said that they had containerized between **25%** and **49%**. Only **1%** said that none of their applications were containerized.

The top priorities for IT budget dollars in the coming year are IT modernization—the process of updating IT infrastructure, practices, and systems to take advantage of emerging technologies—and AI. These planned investments are in line with healthcare's identification of application portability and AI support as the top functional requirements in that they help healthcare organizations (Figure 5) meet those requirements with tools that enable cohesive deployments, flexible workload migration, and unified data management across disparate infrastructure.

**Figure 5: Top Healthcare IT Investment Plans for the Next 12 Months**

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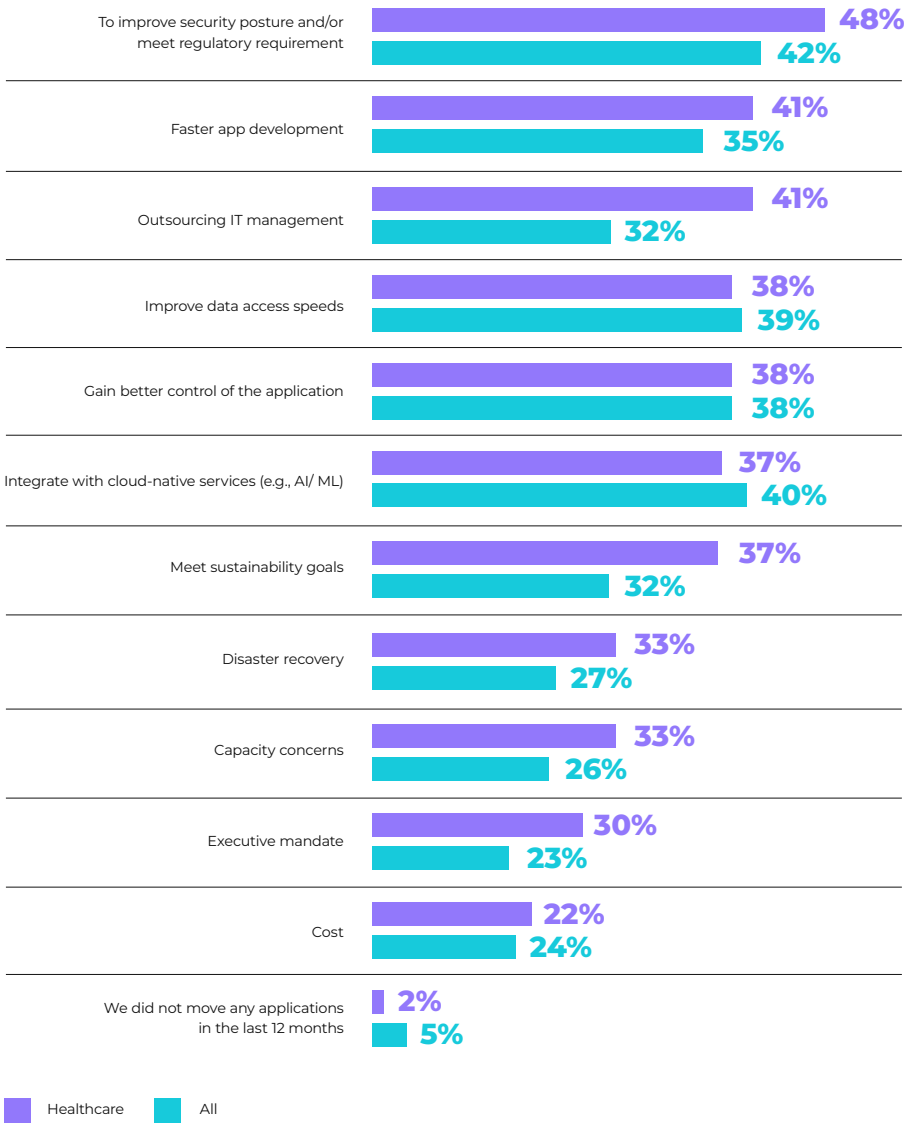
# 04. Key Findings

## Security and compliance fluctuations and concerns are the biggest reasons enterprises relocate their applications to a different infrastructure.

Nearly all respondents—**98%** in the healthcare group and **95%** globally—said they had moved one or more applications in the past 12 months (Figure 6), driving the need in their organizations for simple and flexible inter-cloud workload and application portability. Application movement in healthcare and across industries globally is being fueled largely by shifting security-related requirements, as the figure indicates.

**Figure 6: Reasons for Moving Applications to Different Infrastructure**

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Nearly half **(48%)** of healthcare 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 to improve their security posture or to better meet regulatory requirements. 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 change throughout enterprise IT in order to comply.

In addition, the instances of dreaded ransomware attacks continue to rise, increasing by about **73%** from 2022 to 2023, according to The SANS Institute, causing enterprises to continually rethink how best to protect themselves.

In fact, **90%** of ECI healthcare respondents said they had experienced a ransomware attack in the past three years, and **93%** agreed that they'd like to improve their ability to protect against such attacks. Nearly half **(49%)** said it took their organizations a few days or a few weeks to fully restore operations following the attack(s). Another **11%** said that while operations were mostly restored within a few days or weeks, the impact(s) of the attack on the enterprise lasted beyond the restoration of daily operations.

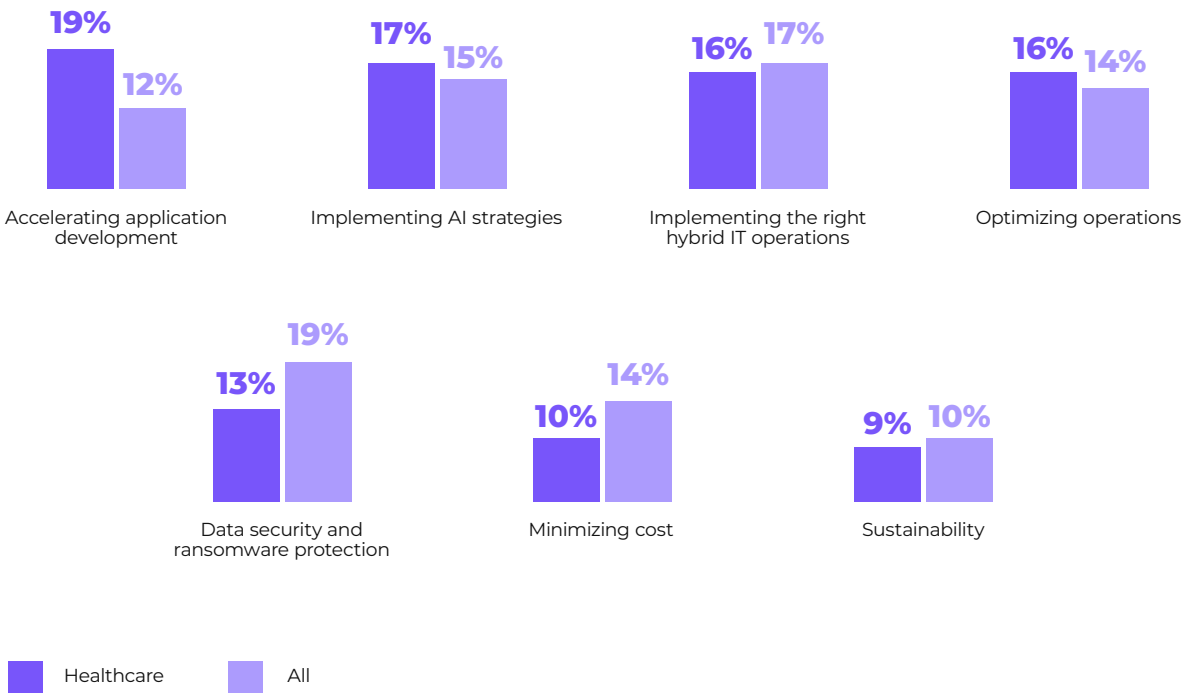
Meeting sustainability goals, which tied with security last year as the top driver behind application movement at **40%**, dropped slightly in the rankings this year, as Figure 6 shows. Sustainability now falls behind considerations such as faster application development, outsourcing, and improving data access speeds as reasons for relocating applications. Globally, integrating with cloud-native services such as AI ranked second as a mobility motivator, while this factor ranked fourth among healthcare respondents.

# 05. Key Findings

## AI has broad applicability in the healthcare sector, and respondents consider it both a priority and a challenge.

As noted in Finding 3, support for AI tied as the top IT infrastructure purchase criterion among healthcare organizations. In addition, implementing AI strategies came in second when healthcare respondents ranked what they considered the biggest priority for their organizations' CIO/CTOs and leadership **(17%)**, as depicted in Figure 7. And **84%** of healthcare organizations said they were increasing investments in AI strategy in the coming year. The same group, however, largely considered running AI to be a challenge **(82%)**, with **33%** describing it as a "significant" one.

**Figure 7: CIO/CTO/Leadership Priorities**

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Why the interest in AI? Respondents mentioned a variety of applications they've already deployed or are considering, which range from using automation to improve cybersecurity and supply chain management to overall improved healthcare delivery and stronger surgical outcomes. For example, the technology is "widely used in our organization not only to improve the accuracy of diagnoses but also to assist us in helping patients better manage chronic diseases… and improve our treatment efficiency," said a mid-level IT manager in a public healthcare organization with 500 to 999 employees.

Another in a public organization with 3000 to 5000 employees commented that "AI can provide real-time visibility into our supply chain, helping [us] to make quicker decisions and react to disruptions effectively."

And AI boosts customer service in healthcare as it does in other industries. "AI-powered chatbots and virtual assistants provide all-time customer support, answer common questions, and handle routine inquiries, improving our customer service while reducing labor costs," said a board-level IT decision-maker in a large private healthcare organization of more than 5000 employees.

An IT senior manager in a public healthcare company with 500 to 999 employees, sees his organization applying AI to cybersecurity. "AI will be our guardian angel, protecting our company from fraud and data breaches," he predicted.

While security and AI are both significant priorities, they're not mutually exclusive, the ECI data shows, in that AI creates new security challenges of its own. Among these are privacy concerns due to the amount of data—including customer data—that AI algorithms must collect and retain to work and become progressively "smarter." There's also the risk of bad actors using AI tools to commit malicious acts such as data poisoning, automated malware, and fraud or scams that rely on impersonating an individual or organization.

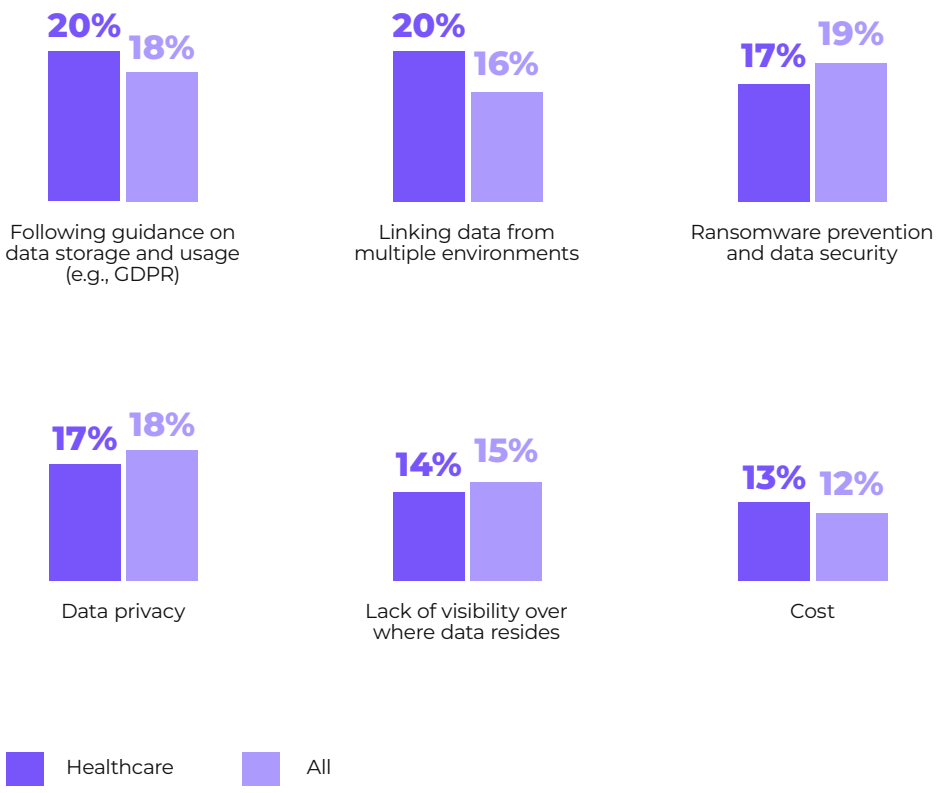
These are among the reasons that **85%** of healthcare respondents agreed that data privacy due to AI was a concern for their organization, as did **88%** of the global response pool.

# 06. Key Findings

## The top-ranked challenges in healthcare IT departments are related to multi-environment operations, security, and sustainability.

Managing multiple IT environments creates a number of operational challenges (Figures 8 and 9) that are often related to interoperability and operational consistency. When asked to name their number one data management challenge today, an equal percentage of healthcare respondents identified complying with data storage/usage guidelines and linking data across disparate environments **(20%)** as the top factor. Other data security issues, including combatting ransomware and ensuring data privacy, were each cited by the next greatest number of respondents **(17%).**

**Figure 8: Biggest Data Management Challenge in Your Organization**

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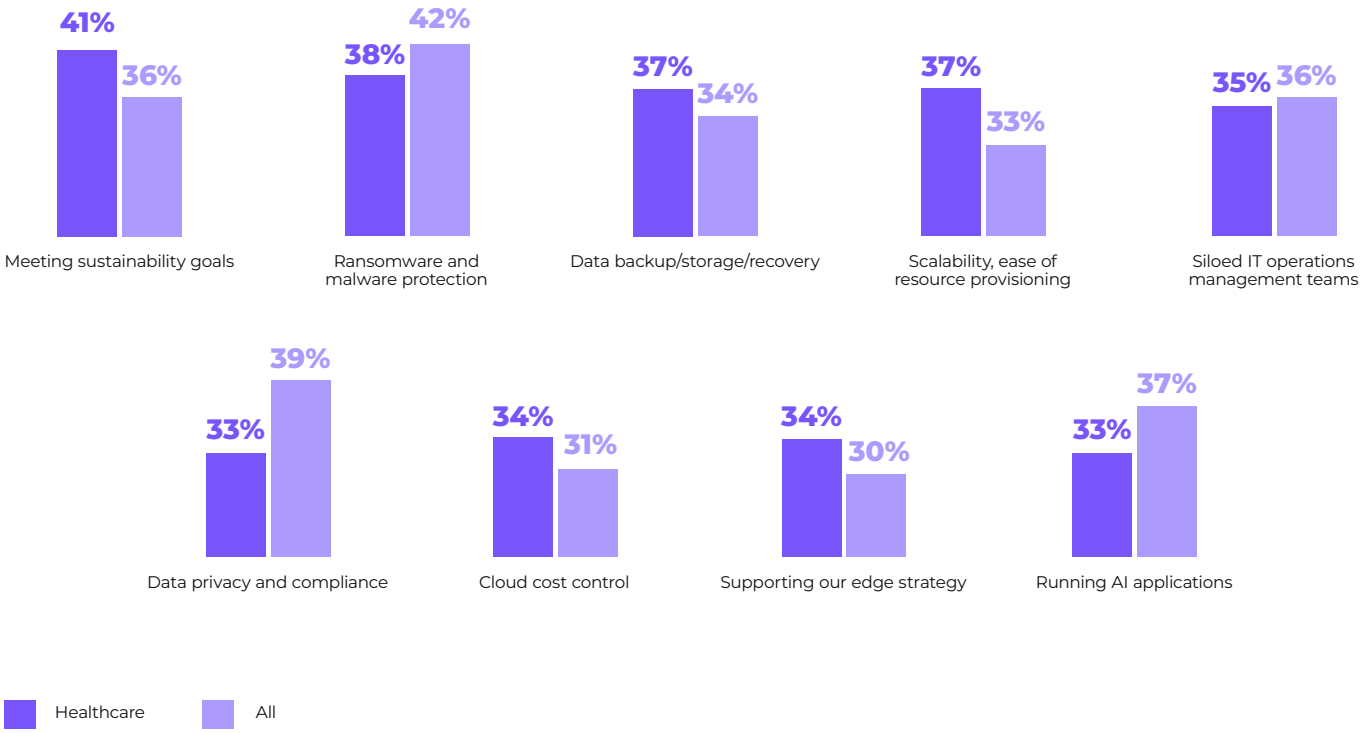
At issue is that mixed IT environments, such as hybrid cloud, hybrid multicloud, and multiple public cloud models, involve different cloud platforms and provider solutions, driving a requirement for integrated, universal data management and monitoring tools. Cloud-agnostic tools help ensure interoperability among heterogeneous platforms, as well as consistency in operations and security policy-setting and enforcement, regardless of the underlying infrastructure technology. Unification of environments in this way helps enterprises avoid costly security breaches, data loss, resource overprovisioning, and redundant operations while streamlining the IT skillsets required for managing the infrastructure.

When asked about interoperability among their disparate infrastructures, there was marked improvement over last year in the healthcare sector. More than half **(57%)** of healthcare ECI respondents this year reported that all their IT environments were fully interoperable, up from 40% last year, and 8 percentage points ahead of the global 6th Annual ECI average **(49%)**. It's likely that the jump can be largely attributed to continual industry progress in the availability of integrated multicloud tools and the healthcare sector's comparatively rapid deployment of them.

When the IT challenge question was expanded to include more general IT functions with multiple responses allowed, the factor healthcare respondents mentioned most often as a "significant" challenge was meeting sustainability goals **(41%)**, followed by protecting against ransomware and other malware **(38%)**, as shown in Figure 9.

**Figure 9: IT Functions Considered a 'Significant' Challenge**

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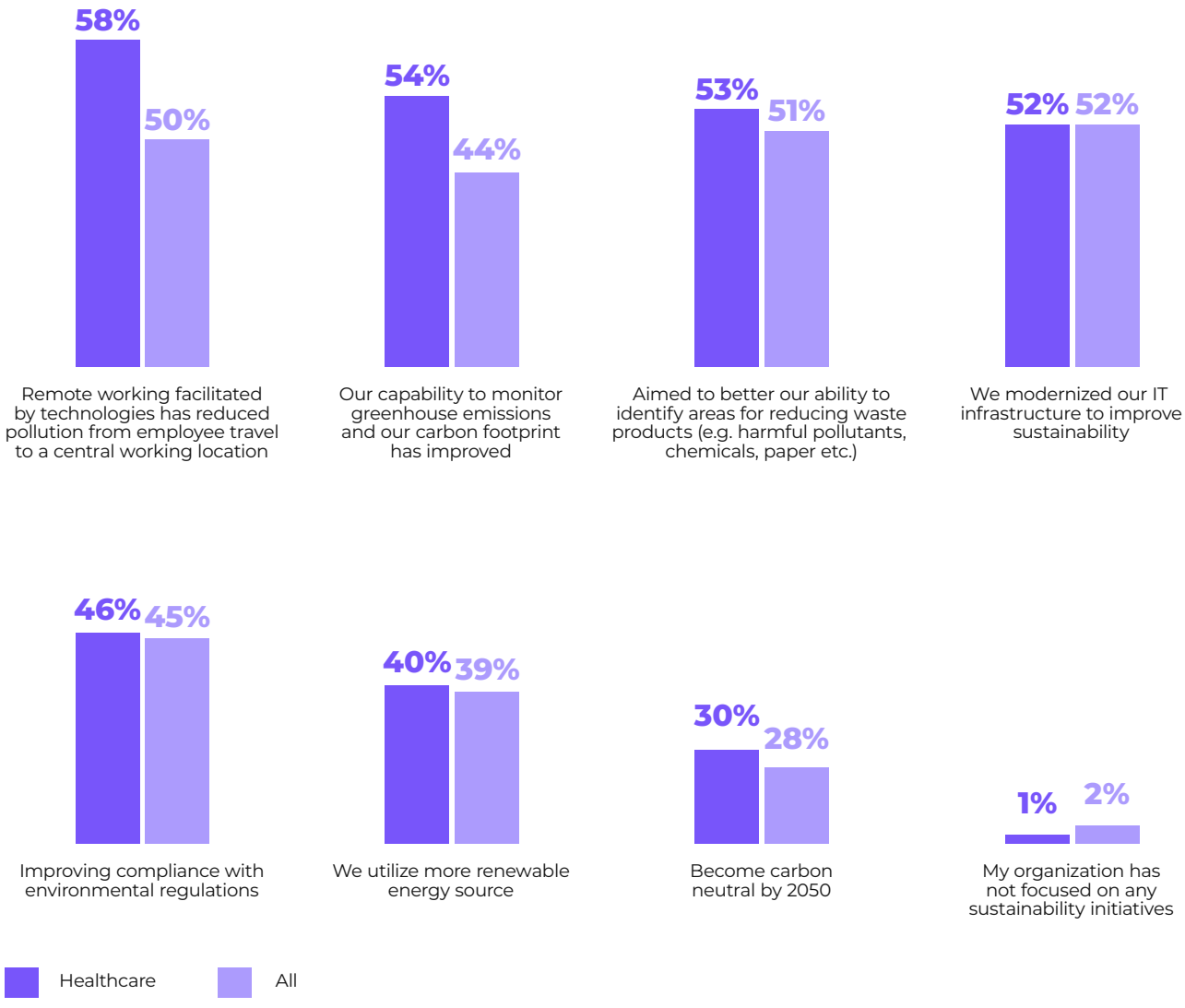
Sustainability strategies tend to have many facets and touch many parts of an organization, of which IT is one. As IT is a huge consumer of power, it's often the first department to adopt concrete sustainability and conservation measures. ECI healthcare respondents indicated that during the past year, remote work to reduce travel-related pollution was the greatest focus of their sustainability efforts, followed by monitoring greenhouse emissions for reductions in carbon footprint (Figure 10).

Only **1%** of healthcare respondents and **2%** of all respondents said they had not focused on any sustainability initiatives in the past year.

**Figure 10: Focus of Sustainability Initiatives in the Past 12 Months**

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# Summary and Outlook

## Infrastructure Trends

6th Annual ECI findings indicate a notable increase in the use of mixed-IT infrastructure that spans private datacenters, public clouds, and edge locations. Mixed deployments among healthcare organizations jumped from **53%** usage penetration last year to **73%** this year to surpass the global deployment average. Similarly, use of the hybrid multicloud model—one type of mixed-IT infrastructure—jumped 10 percentage points from last year to again bypass the global average. By contrast, healthcare last year trailed the averages, both in general mixed-IT and hybrid multicloud deployments, where it ranked among the lowest of all industries responding.

## Investment Priorities

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

The top infrastructure priorities for this group are application portability and AI support. Simple and fast portability capabilities become important as cloud-smart philosophies drive healthcare organizations to shift workloads around dynamically. These changes allow the organization to take advantage of unique vendor capabilities or better pricing, for example, and to quickly respond to changes in security policies and compliance requirements surrounding data privacy. It follows, then, that IT modernization is the top investment area for healthcare in the coming year. Modernization, for example, lets organizations capitalize on 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.

## Sustainability Progress

Overall, 6th Annual ECI respondents reported far more progress with sustainability initiatives compared to last year. Interestingly, while healthcare respondents cited meeting sustainability goals most often as a variable that they considered to be a significant challenge, they also ranked sustainability last on their lists of the priorities they felt their CIO/CTO/business leadership should be undertaking. At the top of those lists were accelerated application development as number one and implementing AI strategies as number 2.

Among healthcare organizations, the largest sustainability focus during the past year was on remote working programs that, facilitated by technology, have reduced employee travel to a central working location and cut back on the pollution associated with that travel.

## The Dwindling Cost Factor

Cost continues to become less of a priority, both among healthcare and global respondents, as has been the trend for the past few years. For example, healthcare respondents ranked cost last both as an infrastructure buying decision criterion and as a factor in justifying the movement of an application(s) from one infrastructure to another. And when it came to CIO/CTO/leadership priorities, minimizing cost was the second least important factor among healthcare organizations after sustainability. One explanation is that as the value and volume of corporate data continue to skyrocket, the need for strong data management, security, protection, synchronization, and backup/recovery concerns is edging out cost as a priority. Data is now a business asset that must stay up-to-date, secure, and readily available for continued operations, analytics, and monetization.

## Coping with Complexity

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

Designing an IT modernization roadmap that accounts for comprehensive, cross-cloud data visibility, flexible workload movement, and integrated management will be a key success factor for hybrid multicloud operations. Containerization, for example, is one technology that aids in application migration and mobility, and deployments are well under way among healthcare ECI respondents. In addition, management tools that operate consistently regardless of where data and applications run and AI-driven operational automation will help facilitate enterprise "any application, any infrastructure" goals.

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

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6thAnnualECI-Report-Vertical-HealthcareGuide-FY24Q3 03/28/2024