STATE OF THE MARKET REPORT

New Challenges in Health Data Management

Industry lags in adopting information technologies with the biggest potential benefits

healthcare innovation

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Executive Summary

No industry's data is more important or sensitive than that of the healthcare industry. Lives routinely depend on information that's accurate, complete, and available, and it must simultaneously be protected from breaches that violate patients' statutory right to privacy, open them to identity theft, or shut down systems and impede their care. It's understandable if the organizations that collect, protect, and use this information are cautious about trying new technologies for managing it.

However, this caution keeps many healthcare providers from embracing modern data management strategies that would allow them to operate at the greatest efficiency and address their challenges with controlling cost, maintaining and improving quality, and expanding access to care. Data properly managed and analyzed can yield transformative business and clinical insights for any aspect of most healthcare organizations. Achieving an advanced level of data management is a journey that only begins with collecting and securing data effectively. Once that basic objective is achieved, the journey can lead in any number of exciting and productive directions.

To understand where providers are in their data management journey, *Healthcare Innovation* surveyed a cross-section of industry players on behalf of Informatica, which provides intelligent data management through cloud technology enabled by artificial intelligence. Respondents were asked about their **overall business and information technology challenges** and about their organizations' degree of maturity and commitment in several specific data management areas, including the adoption and use of **cloud technology and artificial intelligence**. They were also queried about their level of sophistication and their primary concerns surrounding **data protection**.

Responses showed that many healthcare entities put their IT dollars in easy areas that don't provide the biggest bang for the buck. For example, though nine out of 10 survey respondents reported adopting **cloud** infrastructure to some degree, only one out of 10 is "all in" with 100% migration to the cloud. Three out of four cloud users report using the technology for data storage and archiving — the most basic form of cloud adoption — but fewer than half report using it for more complex

The U.S. Food and Drug Administration has approved almost 700 medical devices that incorporate AI.

applications like business intelligence and analytics. Possibly as a result, only one in four respondents reported being “very satisfied” with the return on their investment in cloud technologies.

Even though **artificial intelligence** occupies an increasingly significant place in the practice of medicine — to date, the U.S. Food and Drug Administration has approved **almost 700 medical devices** that incorporate AI — many providers hesitate to explore its potential. Nearly a third of respondents said their organization is not using AI at all. Among those that are, back-office automation was the most popular application, followed by clinical imaging. Almost three out of four respondents reported that their organization has hesitations about adopting AI. Not surprisingly, given the level of uptake noted above, about one in five reported actual reluctance.

Almost three out of four respondents reported that their organization has hesitations about adopting AI.

Possibly because of the popularity of back-office automation applications, which are designed to streamline operations and often reduce the administrative burden on staff, the most common perceived benefits of AI were greater productivity and organizational efficiency.

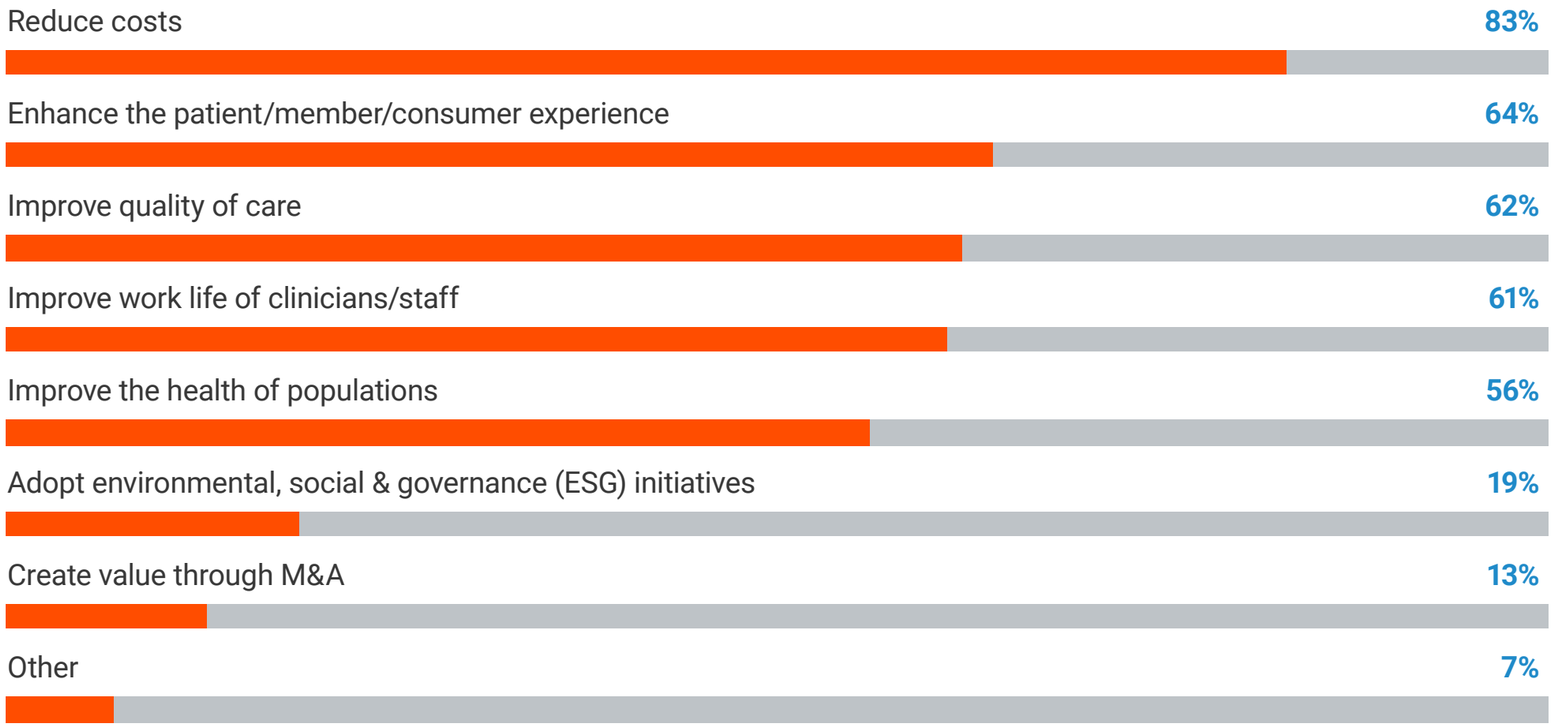
Respondents from hospitals with more than 500 beds, which have the largest IT budgets and the greatest breadth of internal resources, report significantly more interest in AI and significantly less concern about its adoption. Mid-size organizations are interested in investing in the technology but still have significant concerns about adoption.

Hacking and unauthorized disclosure of health data **hit new highs in 2023**, with incidents involving the information of more than 116 million people. But despite the strategic urgency of protecting their sensitive data, only a third of survey respondents felt their organizations were fully mature in even one aspect of **data protection**. Managing security risks and data breaches were the areas with the highest level of maturity.

Healthcare: A challenging environment

Survey respondents were asked to analyze the biggest challenges facing their industry. Given the public concern about high healthcare costs and the slim or non-existent margins faced by many healthcare providers, respondents confirmed that the biggest challenge facing the industry is reducing costs (83%), followed by enhancing the customer experience (64%), improving quality of care (62%), and improving the work life of staff (61%).

What are the biggest challenges currently facing the healthcare industry?

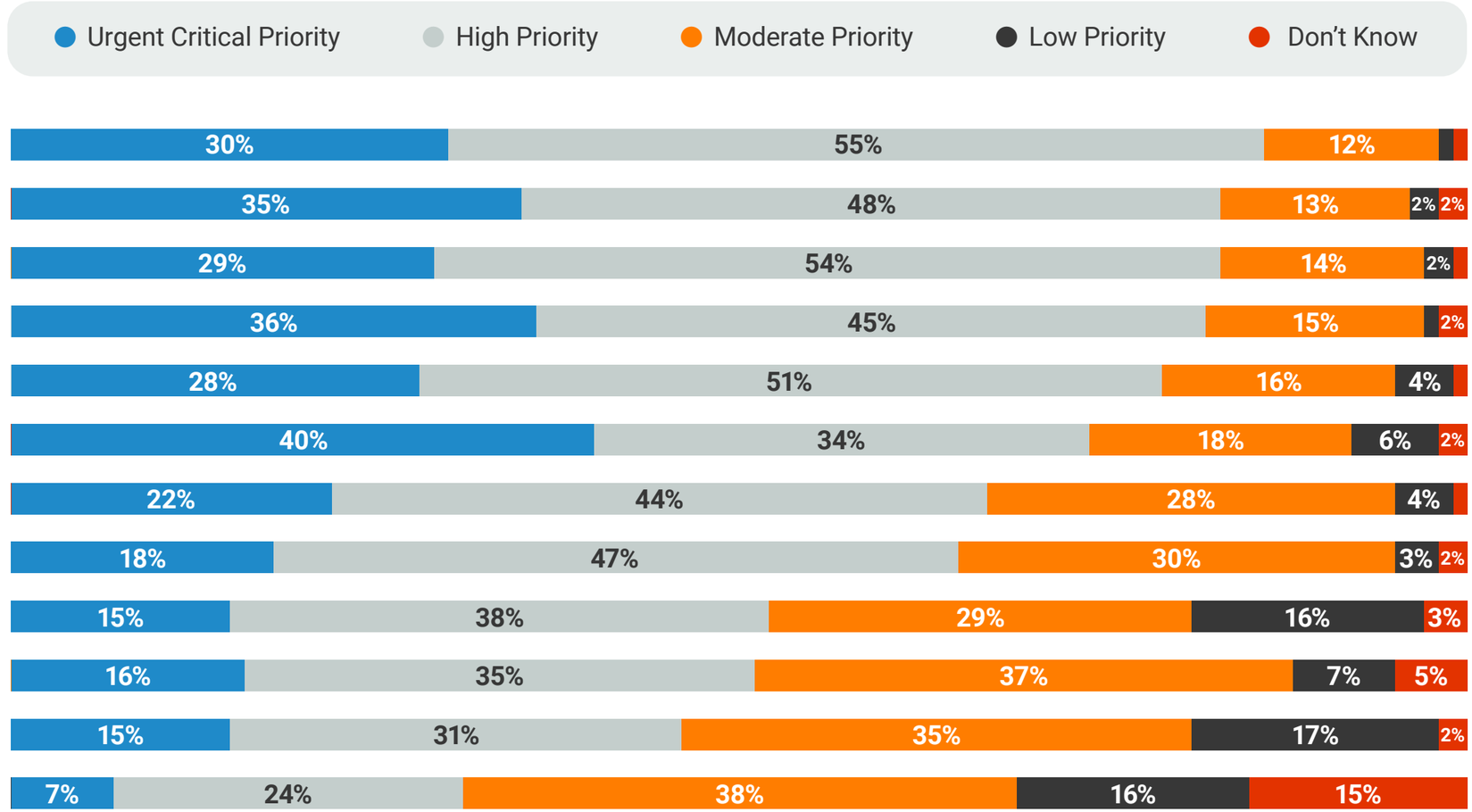


Base: All respondents (n=223). Multiple answers allowed.

The biggest challenge facing the industry identified by respondents was reducing costs (83%) followed by enhancing the customer experience (64%), improving quality of care (62%) and improving work life of staff (61%). Adopting ESG initiatives (19%) and creating value through M&A (13%) were not big concerns among the respondents.

Their business priorities reflected these challenges: More than four in five said that enhancing quality care was a top business priority at their organization, and about a third identified it as “urgent/critical.” Improving patient experience was identified as “urgent/critical” by 35%. Two in five respondents said that addressing labor shortages was an urgent critical priority.

What business priority does your organization currently put on the following challenges?



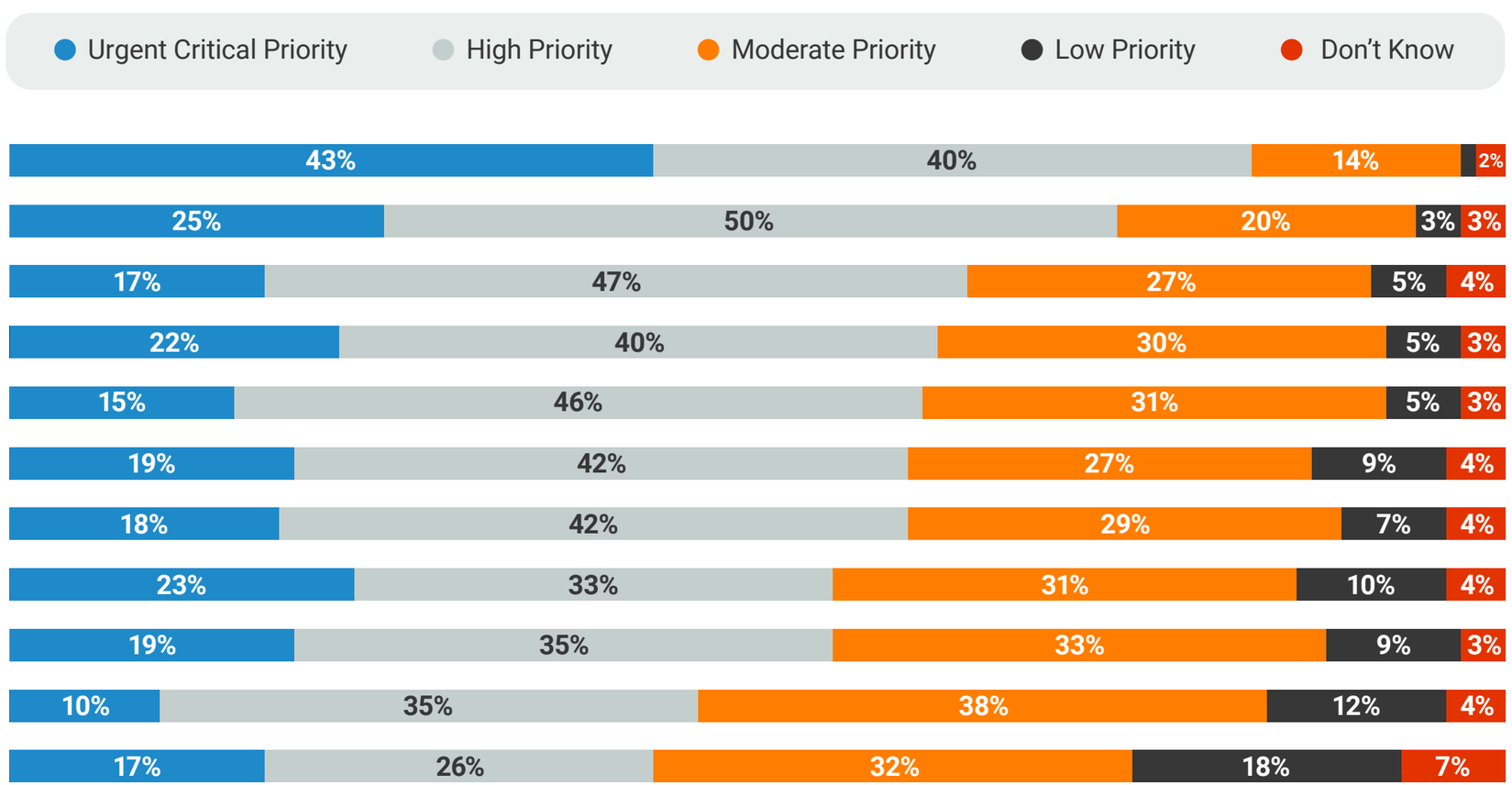
Base: All respondents (n=210).

More than four in five respondents (85%) said that enhancing quality care was a top business priority (urgent critical priority + high priority) at their organization.
Two in five respondents (40%) said that addressing labor shortages was an urgent critical priority while increasing telehealth capabilities was viewed as a low priority (17%).

Health IT: Often reactive, not proactive

Respondents were queried about their data management priorities and where they are putting their information technology dollars. Most are still focusing first on their basic obligations. The top priority for four in five respondents is securing/protecting health data, followed by the closely related issue of meeting regulatory compliance demands (75%). While we'll see later that many have embarked on artificial intelligence initiatives, only one in five respondents consider AI a top priority.

What IT priority does your organization currently put on the following challenges?

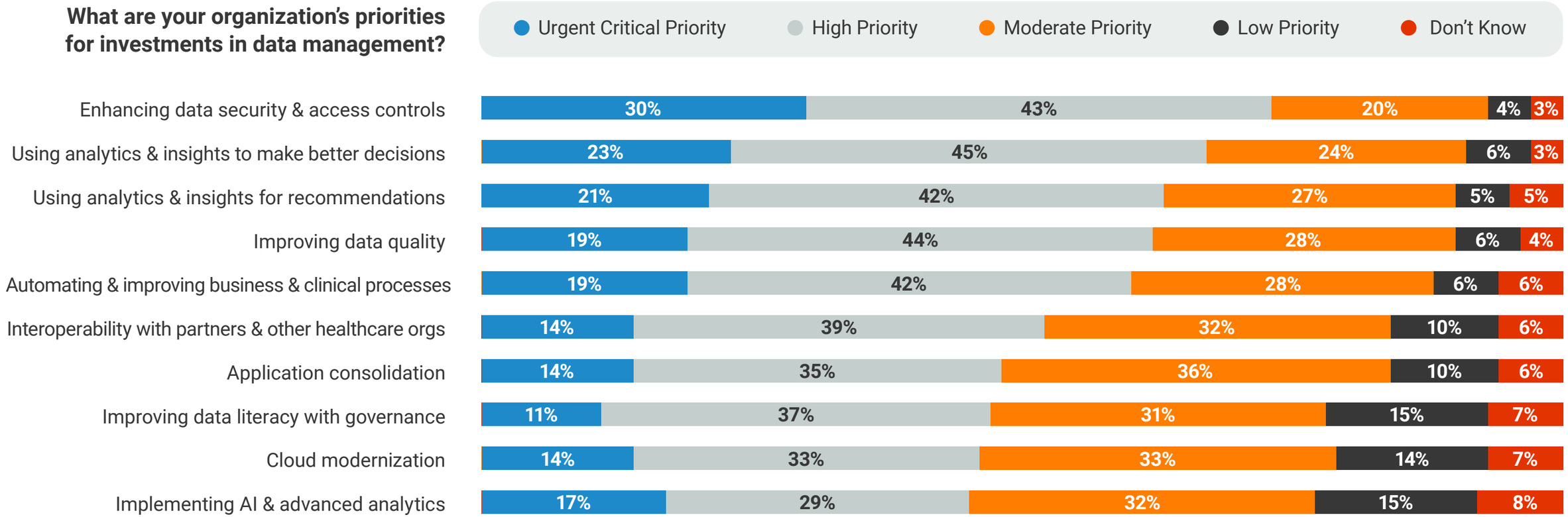


Base: All respondents (n=204).

Four in five respondents (83%) said that securing/protecting healthcare data was a top IT priority (urgent critical priority + high priority) at their organization followed by meeting regulatory compliance demands (75%). Introducing and/or improving AI-driven initiatives was viewed as a low priority (18%).

The money naturally follows the priorities. Securing and protecting data is a top investment target for three out of four respondents. The “second tier” priorities reflect the value providers put on effective data use, even if they are still far from achieving that value. Those priorities include using analytics to make better business decisions (68%) and improve clinical decision-making (65%). Not far behind is improving the quality of data (63%), a key step for unlocking its value.

What are your organization’s priorities for investments in data management?



Base: All respondents (n=199).

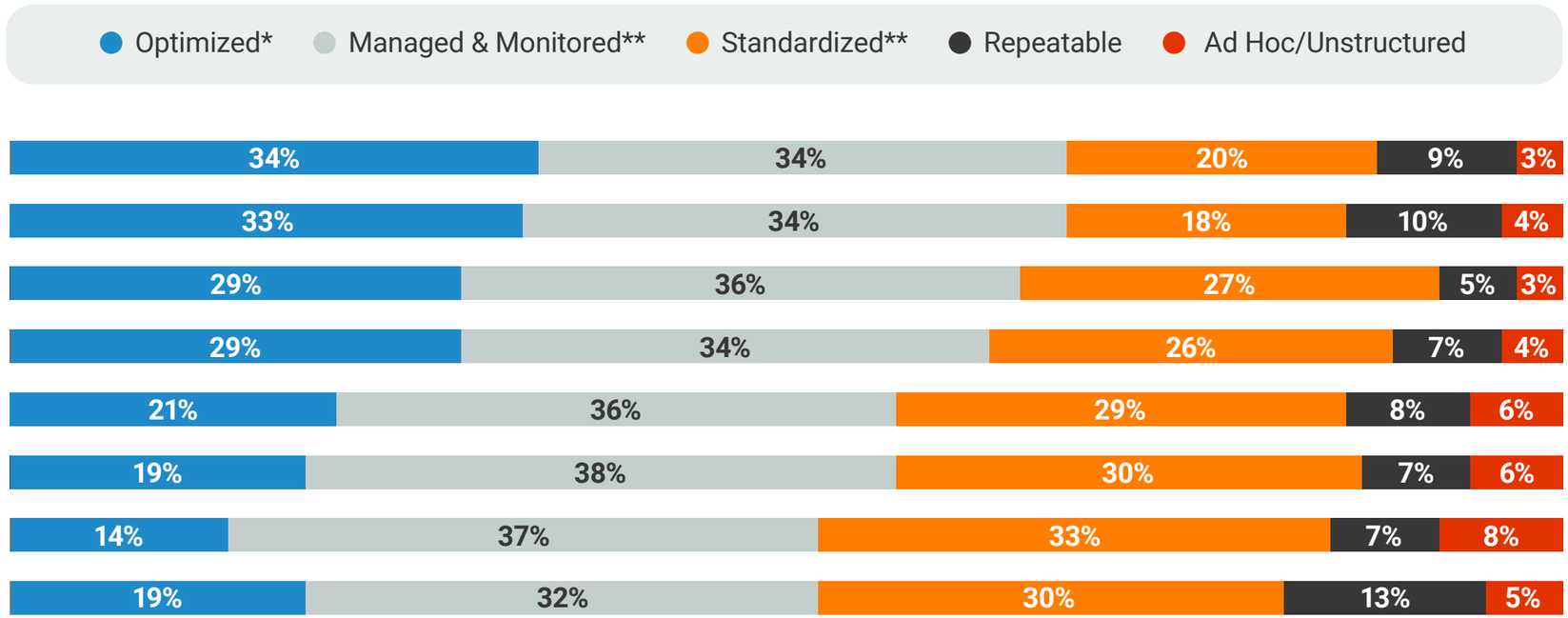
Nearly three-quarters (73%) said that enhancing data security and access controls was a top data management investment priority (urgent critical priority + high priority) followed by using analytics and insights to make better data driven decisions (68%).

Data protection: A slow journey to maturity

Given the urgent business need and the chronic threat of hacking and ransomware attacks, the survey asked respondents to rate the maturity of their data protection strategy. No area was considered fully mature (that is, optimized and continuously analyzed and improved) by more than a third of respondents. The vast majority have matured beyond the "ad hoc" approach on all aspects of data protection and are progressing through standardizing their systems and managing and monitoring them.

The highest levels of maturity were evident in areas that respond to immediate threats or involve HIPAA or other regulatory compliance. Managing data breaches and managing security risks were most likely to be fully mature areas, at 33% and 34%, respectively. Another 34% of respondents said they've achieved the next lower level of maturity, managing and monitoring across their systems, for both areas. Ensuring legal compliance and defining and implementing privacy procedures were also relatively mature areas.

How would you describe your organization's maturity in terms of data protection?



Base: All respondents (n=182).

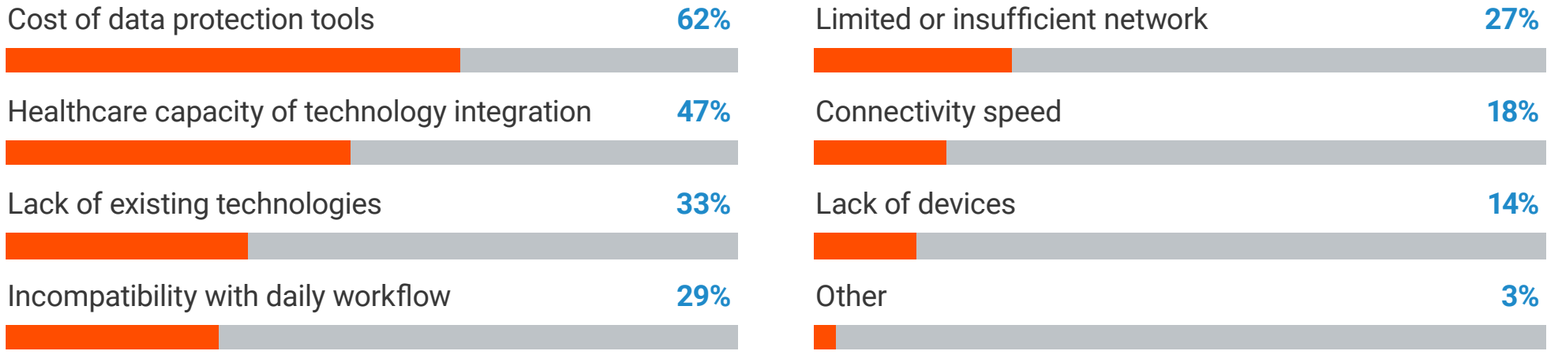
The largest areas for data protection maturity (optimized + managed) were managing security risks (68%), managing data breaches (67%) and legal compliance (65%). The areas with the least amount of maturity (repeatable + ad hoc) were training and awareness (18%) and handling data subject requests (15%).

**Continuously analyzed and improved. **across platforms.*

Fewer than one in five respondents think that their organization is fully mature regarding training and awareness for data protection. This maturity gap is extremely concerning given the large proportion of line employees charged with handling protected health information. Phishing attacks are the single most common vector for healthcare data breaches, targeting unwary system users. Training and awareness are one of the few effective defenses against them.

Several organizational barriers impede the development of mature data protection. Three in five respondents felt that the cost of data protection tools was a barrier to enhancing data security and protection. Almost half said that the capacity of technology integration was also a barrier.

What barriers do you feel keep organizations from enhancing data security and protection?

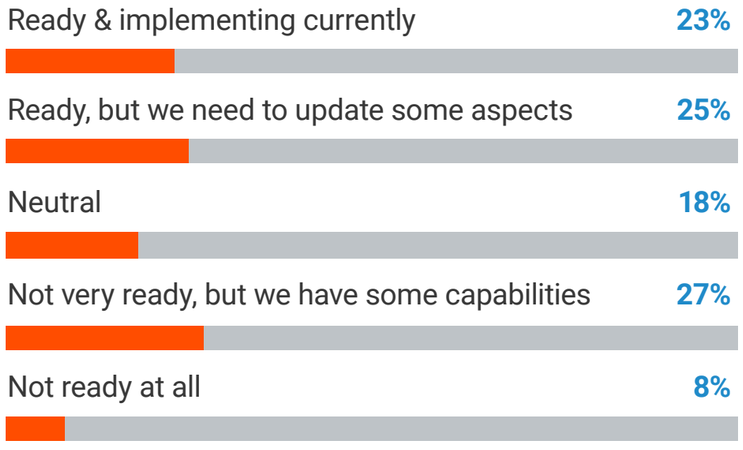


Base: All respondents (n=177).

Three in five respondents (62%) felt that the cost of data protection tools was a barrier to enhancing data security and protection. Almost half (47%) said that the capacity of technology integration was also a barrier.

While advanced technology could help, only one in four respondents said their organizations are currently implementing cutting-edge data protection using the cloud and artificial intelligence. About one-third said they are “not very ready” or “not ready at all” to use these tools for data protection.

Overall, how equipped do you feel your organization is to implement cutting-edge technologies through the cloud and AI-enabled products?



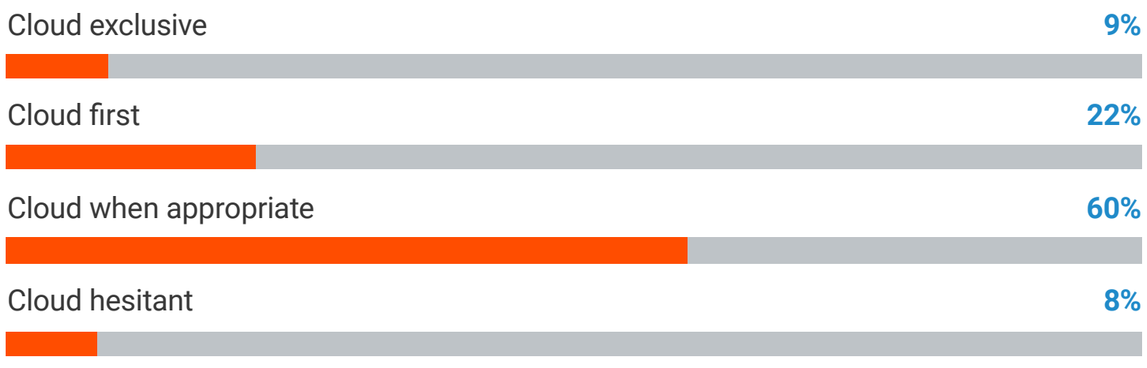
Base: All respondents (n=183).

Nearly half of respondents (48%) felt that their organization was ready (ready & implementing + ready & updating) to implement cutting-edge technologies through the cloud and AI products. More than a third (35%) said their organization was not ready (not very ready + not ready at all).

The cloud: An underused resource

While cloud-based IT architecture offers significant advantages in cost, flexibility, and security over traditional in-house architectures, survey responses show that the healthcare industry still has a way to go to reap those advantages. Only one in 10 respondents were cloud-exclusive and fully migrated. At the other end of the spectrum, about one in 10 had no plans to adopt cloud technology.

How would you describe your organization's current attitude toward the adoption of cloud technologies?

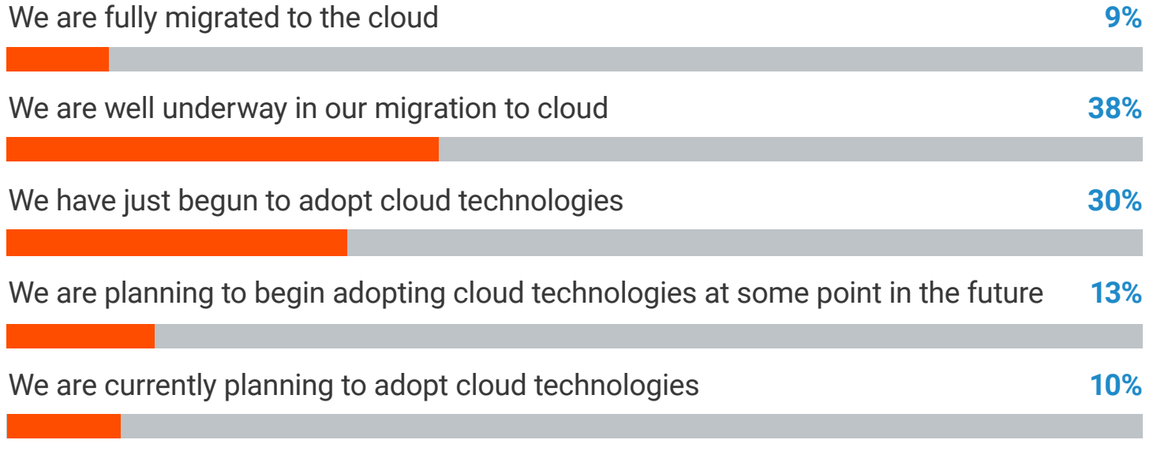


Base: All respondents (n=196).

Three in five respondents (60%) said that their organization's attitude towards the cloud was to use when appropriate. More than a third of respondents (38%) were well underway in their cloud migration journey. One in ten respondents (9%) were cloud exclusive and fully migrated.

Three in five respondents said that their organization's attitude towards the cloud was to "use when appropriate." Over a third of respondents (38%) were well underway in their cloud migration journey.

Where is your organization currently in the cloud migration journey?

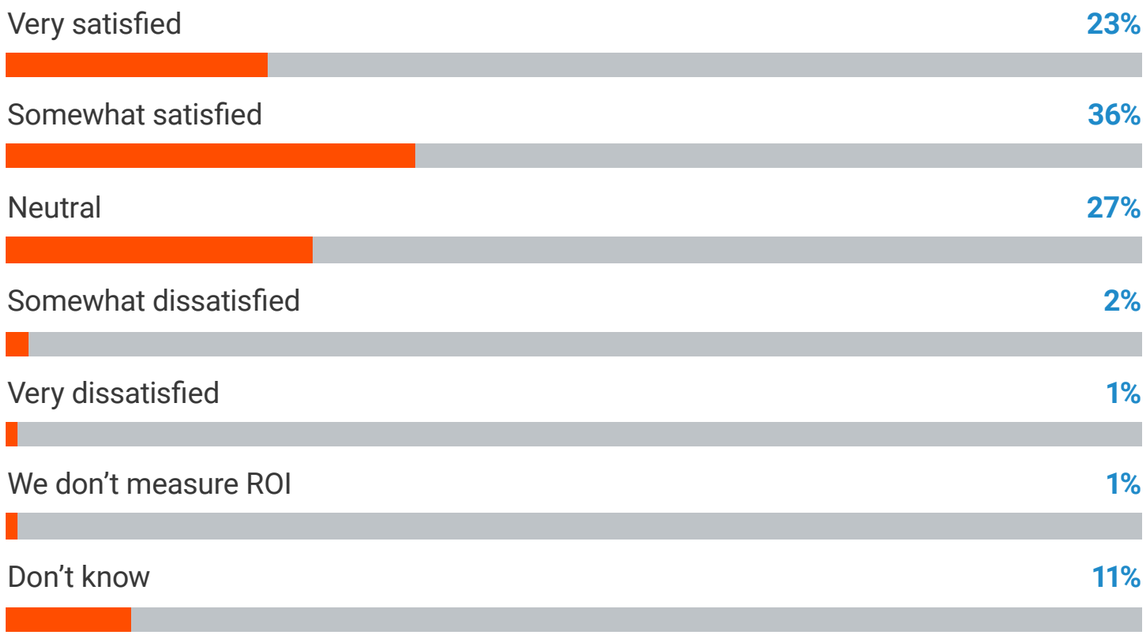


Base: All respondents (n=193).

Three in five respondents (60%) said that their organization's attitude towards the cloud was to use when appropriate. More than a third of respondents (38%) were well underway in their cloud migration journey. One in ten respondents (9%) were cloud exclusive and fully migrated.

Almost three in four respondents (72%) have migrated data storage/archive/backups to the cloud, indicating they have achieved the earliest stages of cloud adoption. By contrast, fewer than half reported migrating strategic applications to the cloud, including CRM, business analytics, patient analytics, HR, and ERP. Only one in four were using the cloud for the Internet of Things.

Overall, how satisfied are you with the ROI on the investments your organization has made in the cloud?

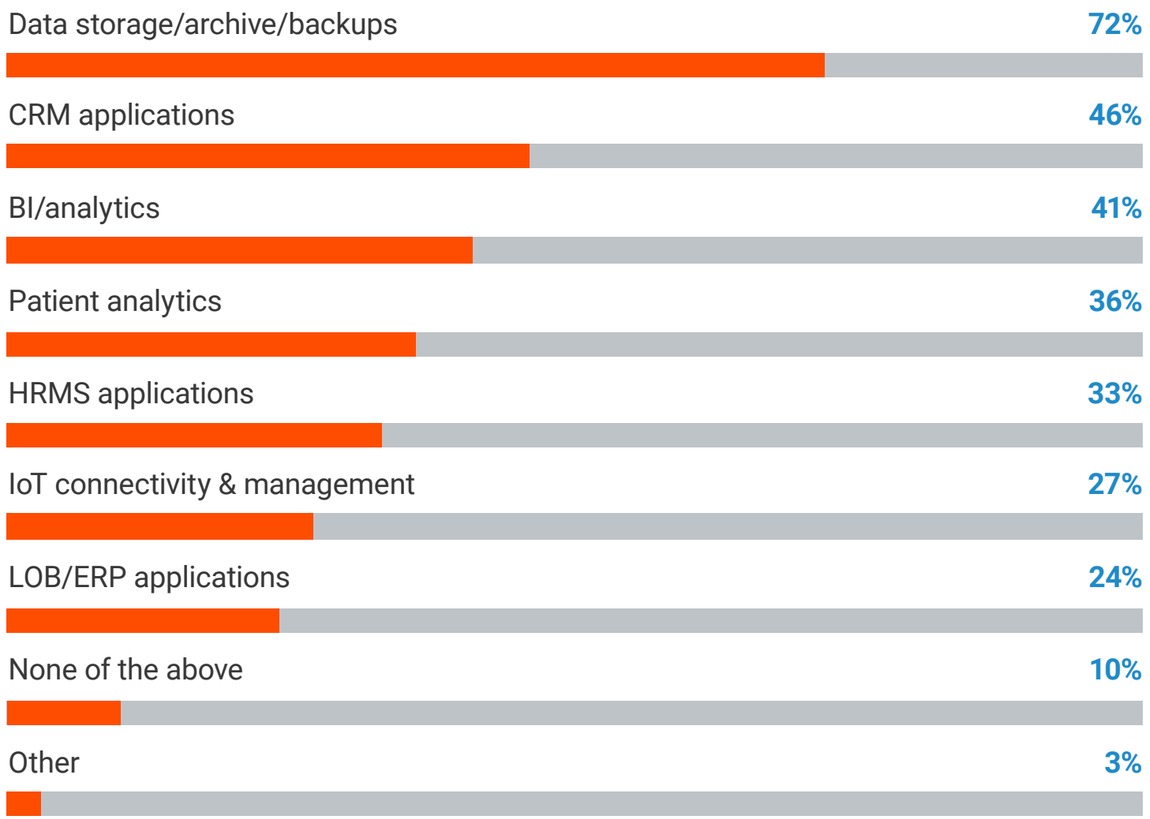


Base: Respondents who have migrated (n=177).

Almost three in four respondents (72%) have migrated data storage/archive/backups to the cloud. More than half of respondents (59%) were satisfied (very satisfied + somewhat satisfied) with the ROI of their organizations' investments in the cloud.

While a mere 3% of respondents were dissatisfied with the return on their cloud investments, only one in four respondents reported being "very satisfied." About three out of five were "somewhat satisfied" or "neutral," and another 11% "didn't know," suggesting that respondents may be having trouble figuring out how to measure their return on these investments.

What applications or services have you migrated to the cloud?



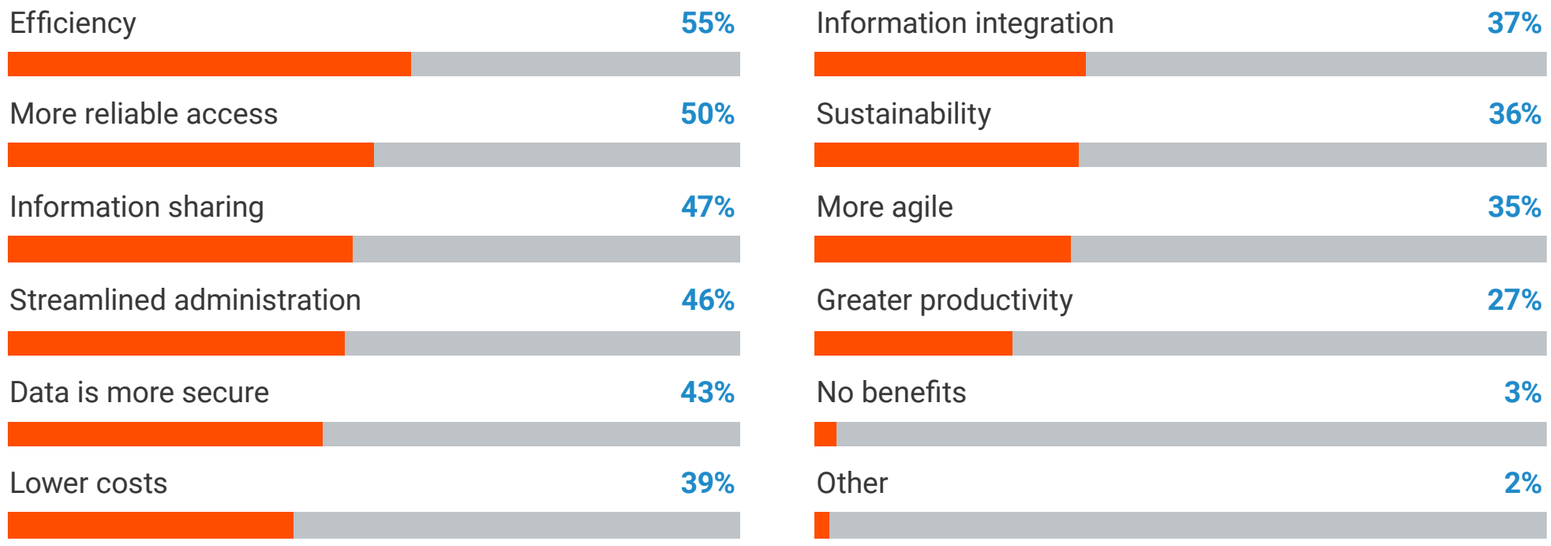
Base: All respondents (n=196). Multiple answers allowed.

Almost three in four respondents (72%) have migrated data storage/archive/backups to the cloud. More than half of respondents (59%) were satisfied (very satisfied + somewhat satisfied) with the ROI of their organizations' investments in the cloud.

However, respondents who show the most maturity in their cloud adoption by using it for strategic applications, including HR, ERP, and the Internet of Things, also reported significantly greater satisfaction with their investments.

According to the respondents, the top two benefits of cloud usage were efficiency (55%) and reliable access (50%). But anxieties remain: More than half of the respondents said their organizations hesitated on cloud adoption because of data security concerns (53%). The same number reported lacking IT people with the right skills (53%).

In your opinion, what benefits are gained from using the cloud?



Base: All respondents (n=195). Multiple answers allowed.

According to the respondents, the top two benefits of cloud usage were efficiency (55%) and reliable access (50%). 3% of respondents saw no benefits gained from using the cloud.

In your opinion, why are organizations hesitant to adopt the cloud in the healthcare industry?

Data security concerns	53%
Lack of IT people with the right skills	53%
Concerns about privacy of PII & PHI	49%
Loss of control	42%
High cost	38%
Regulatory concerns	35%
Vendor lock-in	35%
Don't like subscription pricing model	26%
Lack of time to understand technologies	22%
Low maturity of cloud solutions	16%
None of the above	3%
Other	2%

Base: All respondents (n=195). Multiple answers allowed.

More than half of the respondents felt that data security concerns (53%) and lack of IT people with the right skills (53%) were the top reasons that healthcare organizations were hesitant to adopt the cloud.

Artificial intelligence: Proceeding with caution

The healthcare industry overall is still early in adopting applications enabled by artificial intelligence. Two out of five respondents said their organization was using AI for back-office automation. A third of respondents were using AI for clinical imaging — the most commonly available clinical application, which is built into the latest versions of many imaging systems. About the same proportion were using AI for human resource automation, an area that does not intersect with patient care and thus represents a low-risk, high-reward way to try out AI capabilities.

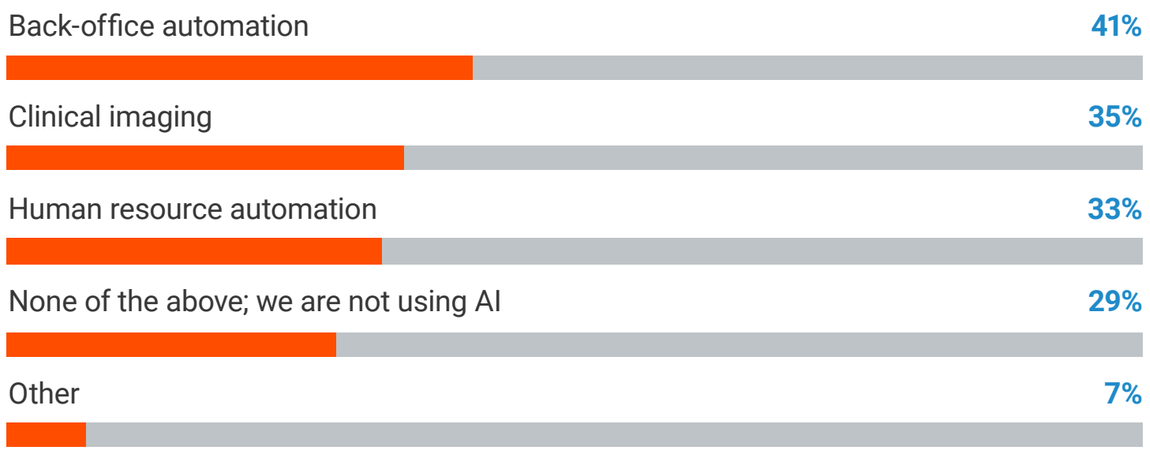
The other responses reflected adoption in a few projects (34%) or experimentation (37%). About a third of respondents said they are not using AI at all.

Only one in five respondents reported that their organization is "all in" and fully embracing AI. These tend to be larger organizations with larger IT budgets and staffs. It's likely that some of them are academic institutions developing applications as part of their research activities. Accordingly, the smallest providers (under 100 beds) were also the least interested in adopting AI, probably at least partly because of a lack of in-house resources for doing so.

"AI technology has significantly improved specific medical interpretation functions, including such areas as x-ray interpretation, and colonoscopy polyp identification."

"Our practice has been experimenting with AI tech for scribe and transcription services. We have seen a tremendous uptick in productivity and efficiency. Long term, this will save us on labor/benefit costs and will replace live scribes. Additionally, the providers can tend to more patients in a single day."

Thinking about AI technologies, in what specific ways is your organization currently using AI?

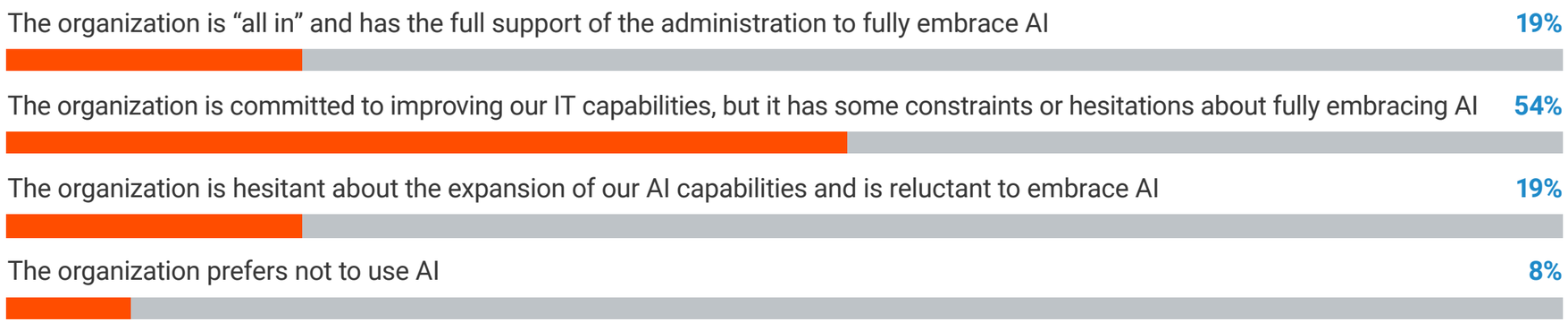


Base: All respondents (n=191). Multiple answers allowed.

Two out of five respondents (41%) said that their organization was using artificial intelligence for back-office automation while nearly a third (29%) said that their organization was not using AI at all.

More than half of respondents said that their organization's attitude towards the adoption of AI was that they were committed to improving IT capabilities but had some hesitations about AI. As noted above, the level of comfort with AI correlates closely with organization size. Mid-size organizations are interested in AI but have significantly greater hesitancy about it than large organizations.

How would you describe your organization's current attitude toward the adoption of AI technologies?



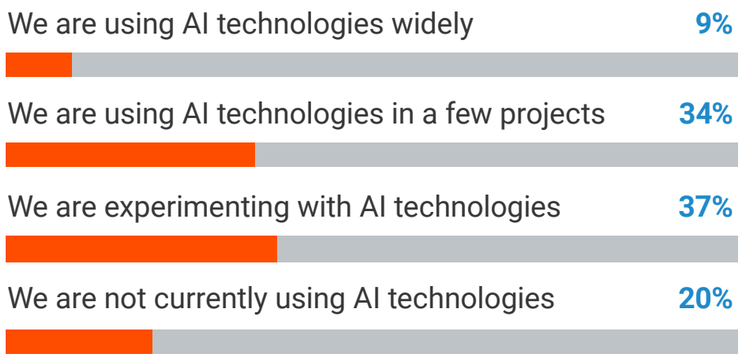
Base: All respondents (n=192).

More than half (54%) said that their organization's attitude towards the adoption of AI was that they were committed to improving IT capabilities but have some hesitations to fully embrace AI. One in five respondents (19%) reported that their organization is "all in" and fully embracing AI.

The satisfaction picture is mixed. Only 16% of respondents reported being “very satisfied” with the return on their AI investments. As with cloud technologies, actual dissatisfaction was low, but three out of four respondents were somewhat satisfied or neutral or “didn’t know,” suggesting difficulty in measuring ROI.

“AI allows for nurse/physician documentation to be completed quicker allowing for more time to be designated toward patient care.”

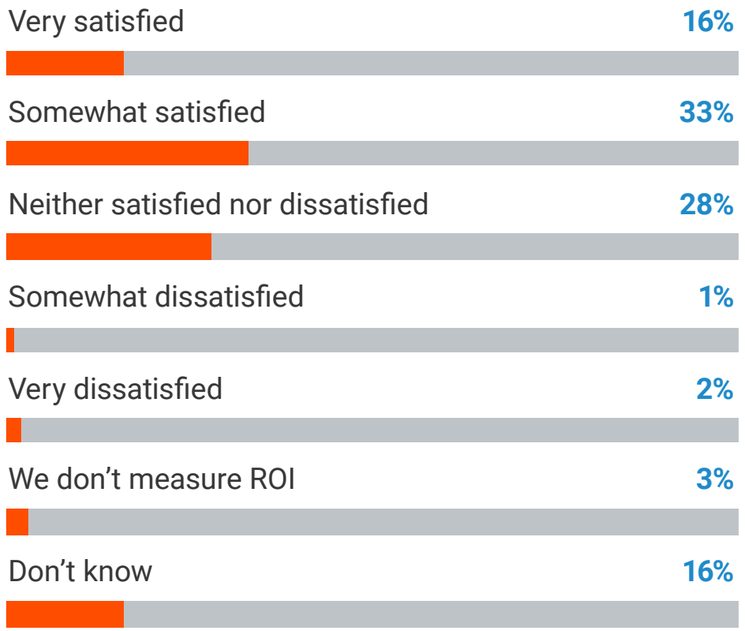
Where is your organization currently in the AI integration journey?



Base: All respondents (n=193).

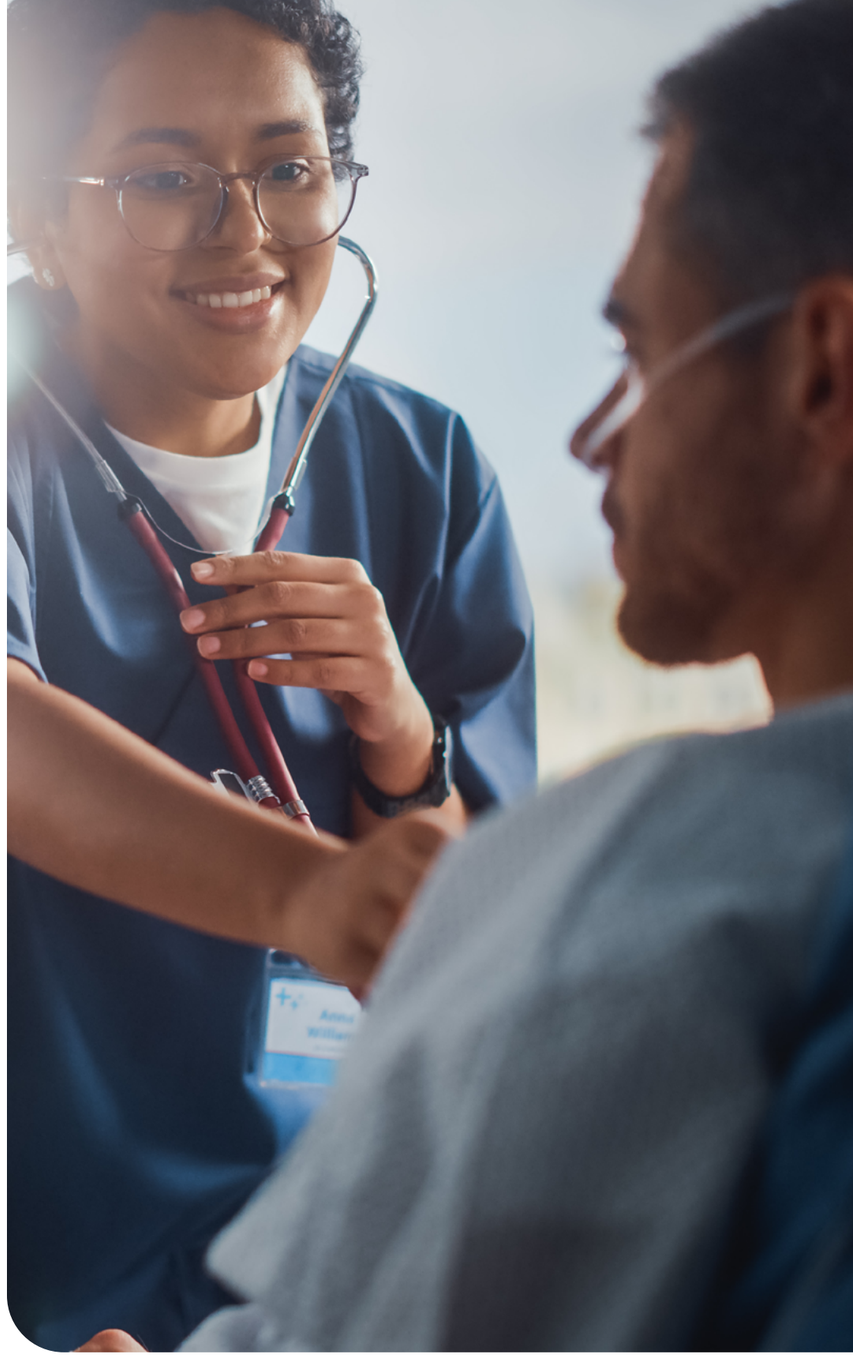
Nearly two in five respondents (37%) said that their organization was experimenting with AI technologies, while a third (34%) were using AI technologies in a few projects. Overall, nearly half of respondents using AI (49%) were satisfied (very satisfied + somewhat satisfied) with the ROI on their investments in AI.

Overall, how satisfied are you with the ROI on the investments your organization has made in AI technologies?



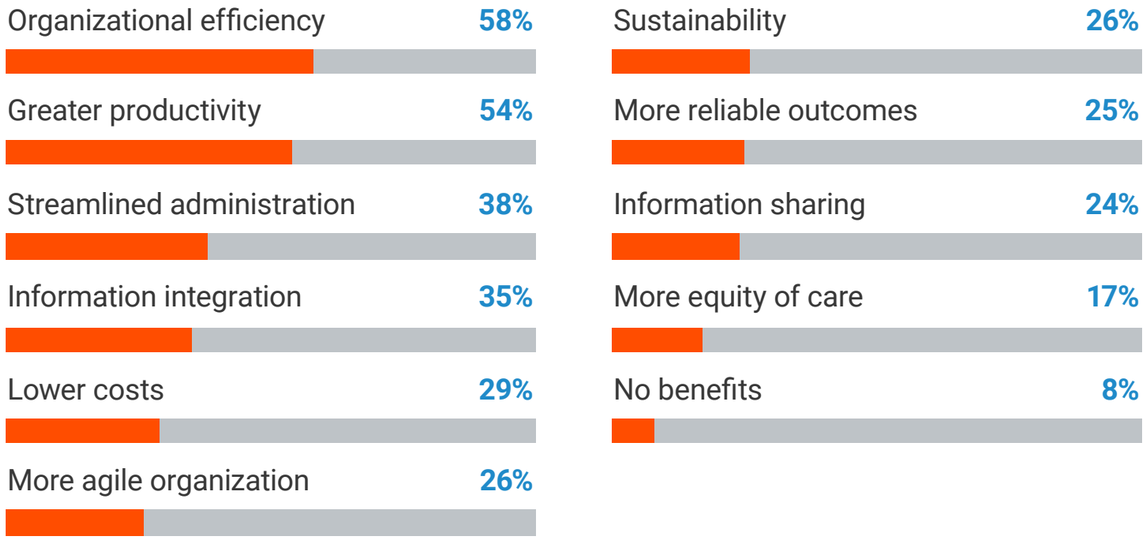
Base: Respondents who are using AI (n=153).

Nearly two in five respondents (37%) said that their organization was experimenting with AI technologies, while a third (34%) were using AI technologies in a few projects. Overall, nearly half of respondents using AI (49%) were satisfied (very satisfied + somewhat satisfied) with the ROI on their investments in AI.



More than half of respondents identified organizational efficiency (58%) and greater productivity (54%) as the top benefits gained from using AI technologies.

In your opinion, what benefits are gained from using AI technologies?

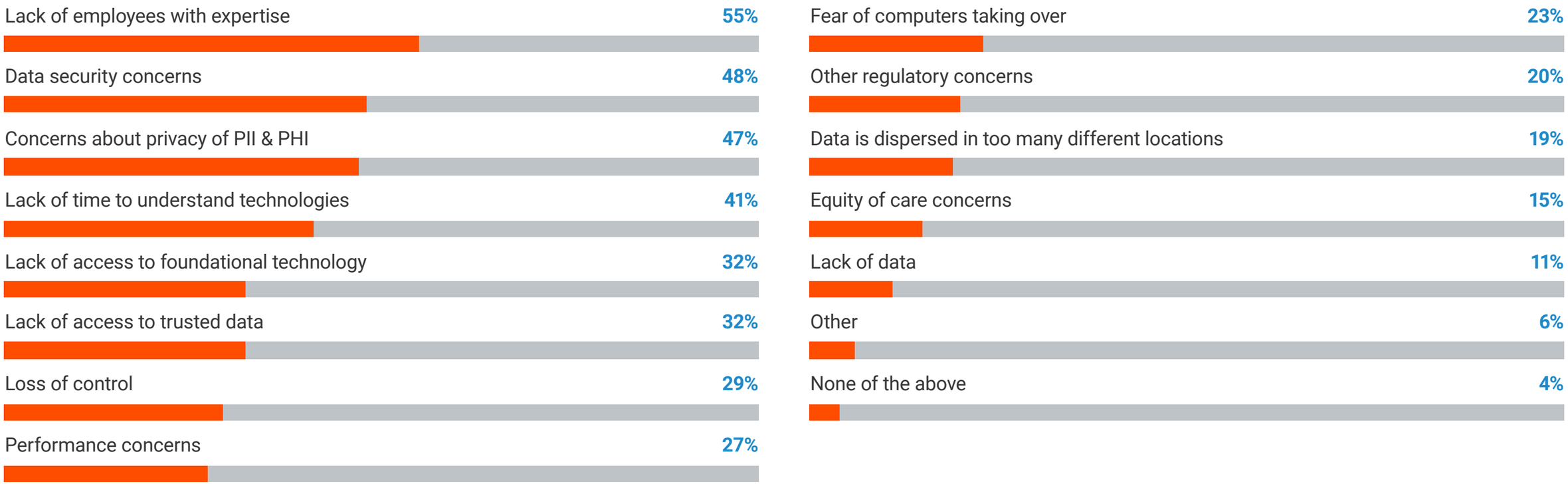


Base: All respondents (n=191). Multiple answers allowed.

More than half of respondents identified organizational efficiency (58%) and greater productivity (54%) as the top benefits gained from using AI technologies. 8% said that they did not see any benefits from using AI.

More than half of respondents said a lack of employees with expertise (55%) was their top reason for being hesitant to adopt AI-based technologies. Data security concerns (48%) and concerns about privacy (47%) were other top reasons.

In your opinion, why are organizations hesitant to adopt AI technologies in the healthcare industry?



Base: All respondents (n=190). Multiple answers allowed.

A lack of employees with expertise (55%) was said to be the top reason why healthcare organizations could be hesitant to adopt AI technologies. Data security concerns (48%) and concerns about privacy of PII and PHI (47%) were the other top reasons provided.

Conclusion: Opportunities in Data Management

Cost pressures, shortages of skilled IT labor, and understandable caution about entrusting its data to unfamiliar technologies have long impeded the healthcare industry in its quest for effective data management. The responses to this survey reflect the gap between today's data management reality and what could be achieved by embracing more advanced technologies. The good news is that these advanced technologies offer the industry unprecedented opportunities for both protecting its invaluable data and using it to improve patient care, reduce staff burnout, and support the best decisions for long-term viability.

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About the Survey

On November 16, 2023, Endeavor Business Intelligence emailed invitations to participate in an online survey to members of our Healthcare Innovation database. By December 15, 2023, Endeavor Business Intelligence had received 183 qualified responses to the survey.

Nearly a quarter (24%) of all respondents identified as a senior executive, followed by a director (22%) and manager (20%). Nearly one in three respondents (31%) were part of their organization's executive leadership, while nearly a quarter (23%) worked in an IT role.

Almost half (43%) were working at a hospital or in a hospital system. Of hospital respondents, 44% worked in a facility with more than 500 beds. Of respondents who worked for hospitals or pharmacy companies, 84% reported organizational revenue of more than $100 million annually, while 12% worked in organizations with annual revenues of $10 billion or more.