KPMG global tech report: Healthcare insights

Beyond the hype: Balancing speed, security and value

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Executive summary

Healthcare systems and organisations are on the precipice of a technology revolution, in being able to leverage advanced technologies and tools to streamline operations, reduce costs and, above all, enhance patient experiences. However, the sector faces several challenges, including workforce and technology skills shortages, data privacy and security concerns, and keeping up with the relentless pace of technological change.

By examining the perspectives of 122 healthcare technology leaders from around the world (based on a comprehensive survey of 2,450 global technology leaders including chief digital officers, CIOs, CTOs, CISOs, chief AI officers and other executives) this report provides valuable insights into how healthcare organisations are navigating the complexities of digital transformation. With technology, a key sectoral transformation pillar, we feel it is helpful for leaders in the sector to have insights on how other healthcare technology leaders are targeting their investments and deriving value.

Our research finds healthcare organisations are using artificial intelligence (AI) and development, security, and operations (DevSecOps) frameworks in the battle against capacity constraints that are holding back digital innovation. While healthcare matches or surpasses other sectors in many IT disciplines, achievements in the sector are mainly confined to isolated functional areas, rather than spanning entire organisations or ecosystems. As tech innovation opens potential in healthcare, there should be a balance between keeping up, and applying a strategic approach to extracting genuine value from tech. It's essential to make evidence-based decisions to navigate through the hype to find solutions that are resilient, and scaling new tools, such as AI, safely and responsibly.

To better understand how healthcare organisations are navigating the complexities of digital transformation, targeting their tech investments, and deriving value, this report explores the perspectives of

122 healthcare technology function leaders from around the world

Key findings

What is on the minds of healthcare technology function leaders?

Top three factors slowing down digital transformation in healthcare

1. Cyber security or privacy concerns
2. Transformation fatigue
3. Immature data management strategies

Tech foundations

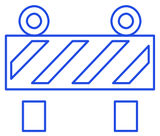
73% cite capacity constraints as the top factor making their organisations feel less confident about investing in new technology.

57% admit that flaws in their organisations' enterprise IT systems disrupt business as usual on a weekly basis.

Healthcare is the least likely of all industries surveyed to target tech investments towards the strongest service pain points flagged by customers and employees.

Data and AI

Compared with a year ago, more healthcare organisations are developing and testing strategies or already have a strategic vision for their data and analytics capabilities.



Unfortunately, a lack of funding or implementation appears to be holding the sector back from actively realising these strategies.

Healthcare is the sector least likely to be using AI to boost operational efficiency. This is another missed opportunity, as there are still many repetitive tasks that could be automated in clinical settings and helping to alleviate workforce pressures.

Maintaining trust

70% say cyber security teams are typically involved in the earliest planning stages and have a high degree of influence when it comes to tech investment decision-making.

Healthcare leads all other sectors when it comes to prioritising and investing in Web3 technology including blockchain and tokenisation.

Healthcare is the sector most likely to use DevSecOps practices to react to market risks.

Shoring up healthcare's IT foundations

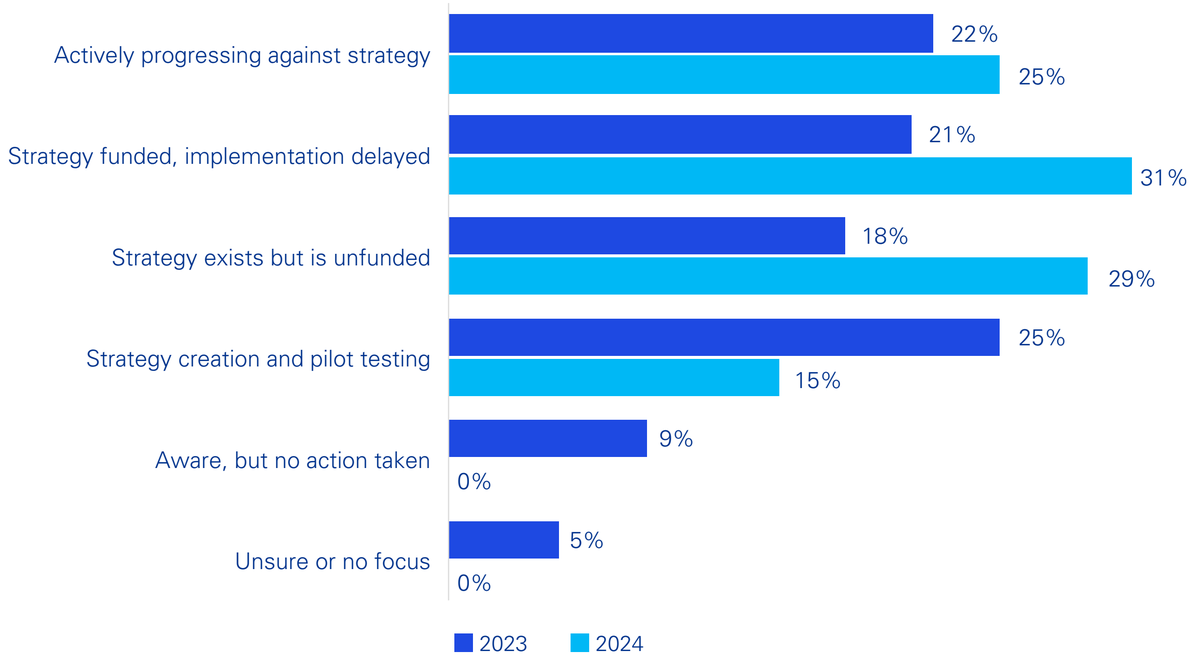
Creating comprehensive enterprise-wide technology strategies to align IT with organisational goals, and remedy stakeholder pain points

The healthcare sector continues to make progress in certain areas of digital transformation. For example, almost every healthcare technology leader in the survey says that their organisation now has AI and automation technologies – an increase of 14 percentage points in one year. These organisations have begun implementing initiatives in data and analytics, modern delivery methods such as no-code and low-code, and even quantum computing. And from an overall standpoint, 70% of healthcare tech leaders surveyed say they are satisfied with the amount of value they are getting from their technology investments.

But the overall pace and scale of digital transformation is creating challenges that healthcare organisations are struggling to deal with. Few in the sector will be surprised to learn of the top three factors slowing down digital transformation: cyber security or privacy concerns, transformation fatigue, and immature data management strategies. Factors further down the list include the fact that many tech leaders in the sector worry about where they will find the resources to pursue their transformation goals. About three-quarters (73%) say capacity constraints are denting their confidence in investment in advanced technologies. That is nine percentage points more than the average across all sectors in the research.

According to Anwer Khan, Global Healthcare Sector Technology Leader for KPMG International and Advisory Partner with the Health and Government Customer and Operations practice at KPMG in the US, many organisations are facing challenges in securing key skills. Khan notes that the application of data science and data engineering techniques poses difficulties as numerous health systems have not yet developed the maturity and experience necessary to create and test effective AI algorithms. Additionally, IT architects and application developers skilled in system interfacing and configuring custom functionality are in demand and will require ongoing professional education and application-specific training.

Year-over-year comparison: Healthcare's maturing AI and automation capabilities



Q: How would you describe your organisation's position today in the area of AI and automation?

Source: KPMG global tech report 2024

According to Khan, another problem is that, in a sector where many CIOs start out as clinicians, technology investment is not always directed to where the potential returns are greatest. 'From a positive perspective, healthcare CIOs incorporate their clinical knowledge into buying, building and evaluating IT solutions and strategies, and they can see the advantages and disadvantages through the eyes of both clinicians and patients. The risk is that, as scientists at heart, these CIOs like to experiment. They are more inclined to spin up numerous AI models, for example, for an individual use case for a small, low-risk population, rather than based on an impact assessment,' says Khan.

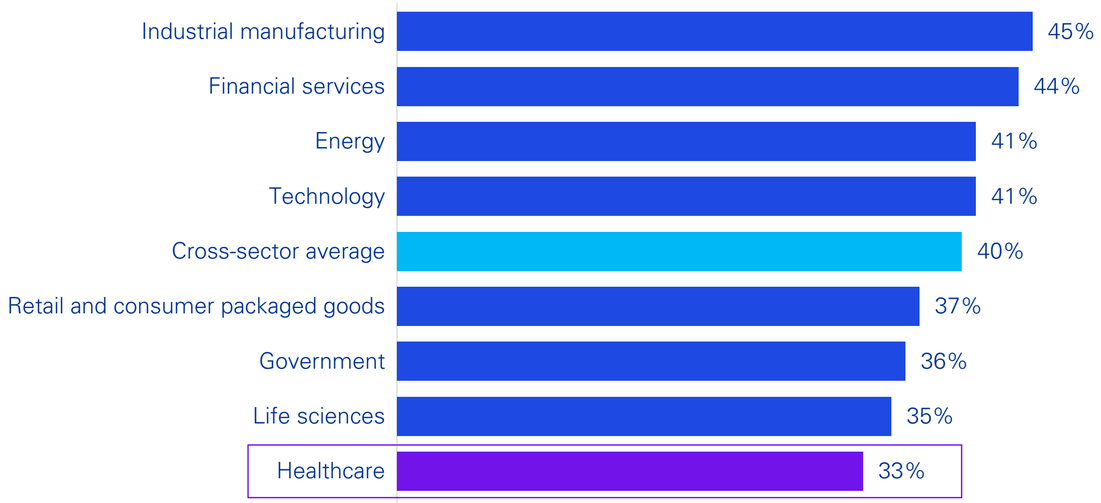
The danger here is that this longwinded approach can contribute to healthcare organisations running out of steam. Already, more than one-third of tech leaders in the sector surveyed (35%) warn that transformation fatigue is likely to slow down their transformation agenda – eight percentage points higher than the cross-sector average. And this has increased sharply since last year, when only 28% of healthcare respondents say they were concerned about this factor. But healthcare organisations must continue to find ways to overcome these fatigue and capacity constraints to address the infrastructure supporting patient safety and care: 57% say that flaws in their organisation's foundational enterprise IT systems disrupt 'business as usual' operations on a weekly basis.

> Given the criticality of systems such as electronic medical and health records, discharge systems, claims processes and revenue cycle applications, transformation should be executed in parallel with keeping these systems operational for the sake of patient safety and support.

Anwer Khan
Global Healthcare Sector Technology Leader, KPMG International;
Partner, Advisory, Customer and Operations, Health and Government, KPMG in the US

Respondents from the healthcare sector were among the most likely to say they factor in customer and employee feedback when prioritising technology aimed at supporting future organisational ambitions. Here is where our research revealed a disconnect between ambition and reality. When compared with other sectors, healthcare came in last place at achieving quick wins by targeting tech investments to remedy the strongest pain points flagged by customers and employees. This is a missed opportunity for healthcare organisations, as taking this approach can help to improve patient experiences and, in the face of a global epidemic of workforce burnout, staff experiences.

Using tech investments to target the strongest service pain points flagged by customers and employees



Q: In your experience, which tactics have been the most influential to achieve quick wins from your technology investments?

Source: KPMG global tech report 2024

When it comes to realising enterprise-wide transformation success, in another KPMG survey, senior and line level leaders in the healthcare and life sciences sectors cited having strong leadership and sponsors, clear direction, purpose and goals, and an integrated strategy around data, tools and technology as the top three factors needed to support success in their organisations.[1] These factors can provide leaders with direction for transforming their organisations' technology infrastructures.

[1] KPMG International. (2024). Global Transformation Survey 2024. Healthcare and Life Sciences Snapshot.

Recommendations:

To strengthen IT foundations, healthcare leaders should:

Form teams of trusted advisers by assembling teams with specialised skills to navigate the complexities of technology transformation.

Make better use of tech investments to help achieve higher impact interventions for organisational advantage. Comprehensive assessments should be conducted to identify organisational strengths and weaknesses (including pain points identified by different stakeholders, including patient and care providers). These assessments should include existing organisational technology capabilities, emerging tech, and innovative practices within and outside the healthcare sector.

The findings of these assessments should then be incorporated into enterprise-wide technology strategies that align functions and processes with organisational goals and support large-scale transformation.

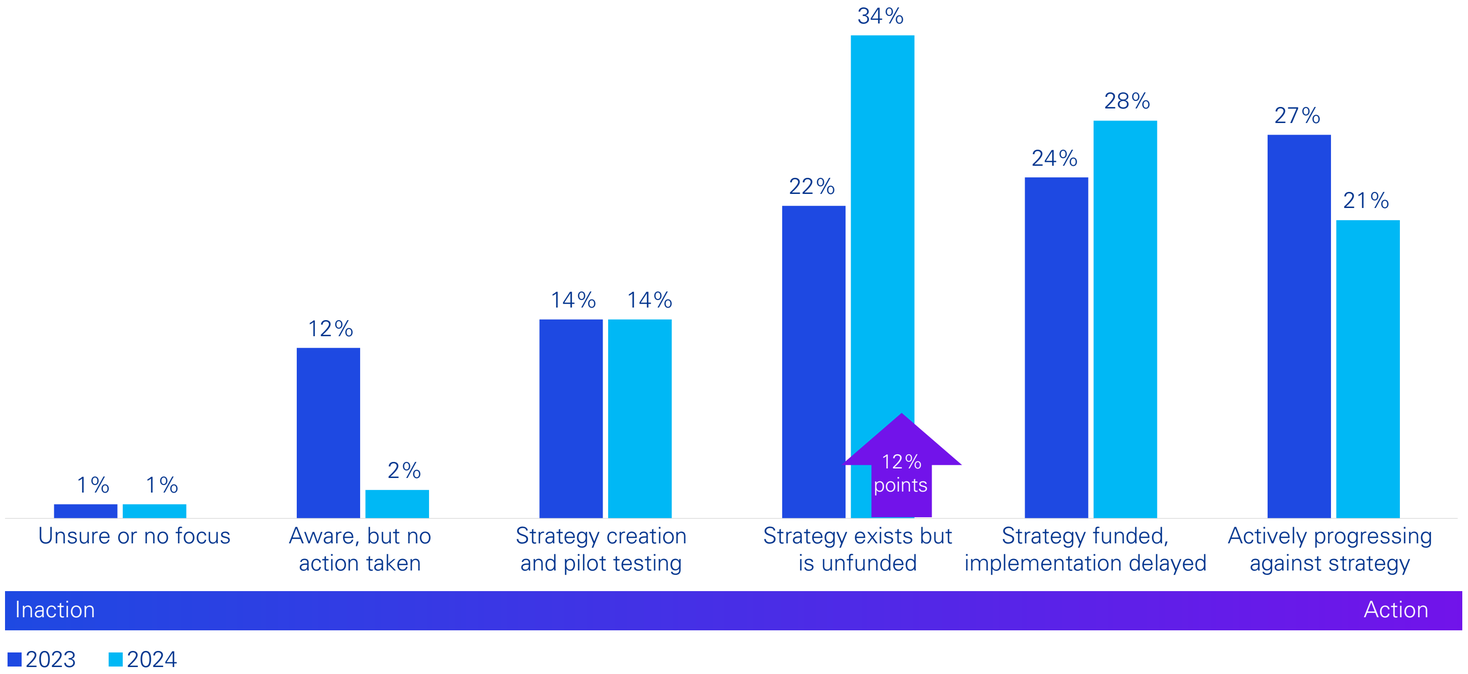
Scaling up enterprise level value from data and AI

Embracing advanced technology approaches aimed at improving healthcare sustainability and equity

The healthcare sector's struggles with data gaps and the interoperability of clinical systems are longstanding but the sector is working to treat its data and analytics pains. Compared with a year ago, more healthcare organisations are developing and testing strategies or already have a strategic vision for their data and analytics capabilities. Awareness of these issues has matured since last year's research and more healthcare organisations are now in the data and analytics strategy development phases for these capabilities. Unfortunately, a lack of funding or implementation appears to be holding the sector back from actively realising these strategies.

While it is promising to see healthcare organisations taking action in the area of data and analytics, effectiveness could be higher. Despite most healthcare tech leaders saying that their organisations' data practices are in our survey's two highest levels of effectiveness, 'influential' or 'embedded', healthcare significantly trails other industries in data governance, monetisation, interoperability, data science and security activities. The ability to extract meaningful insights from data repositories will be key to more sustainable and equitable healthcare. The interoperability of IT systems and linkages of data can inform policymakers' and health professionals' decisions, allowing them to track progress, and adapt strategies as needed.

Taking action in maturing healthcare's data analytics capabilities



Q: How would you describe your organisation's position today with data and analytics?

Source: KPMG global tech report (2023 and 2024 reports)

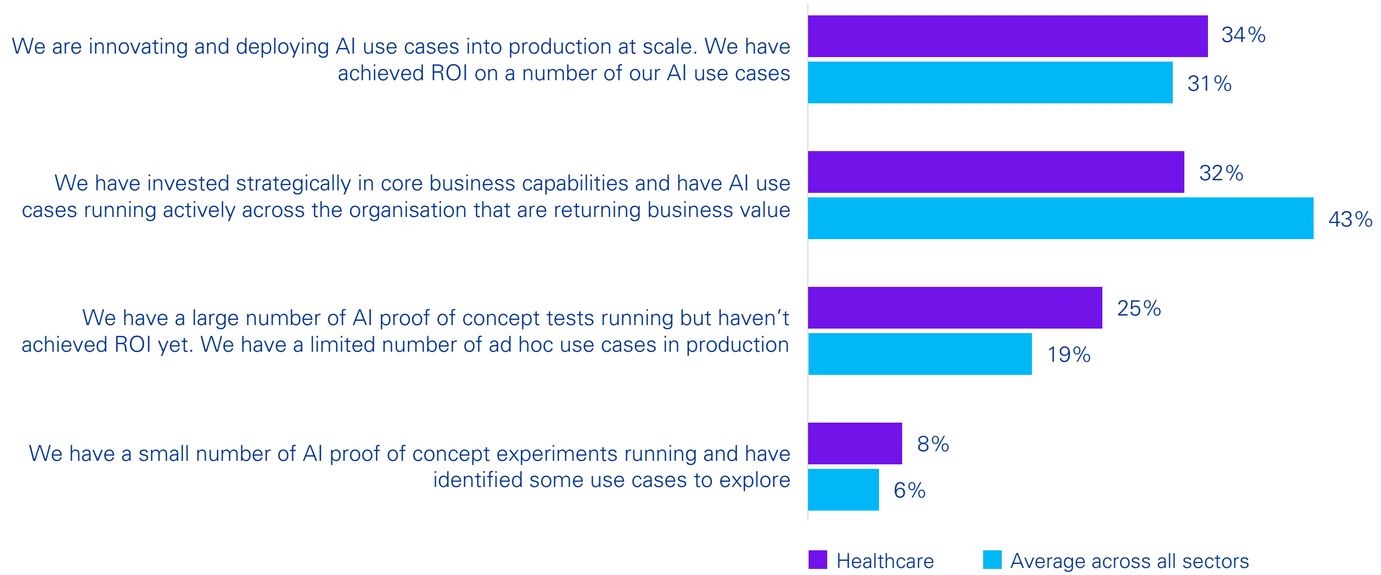
Elsewhere, healthcare is less likely than every other sector in our research to be proactively progressing on XaaS technology strategy, including public cloud and multi-cloud solutions. This is concerning because the adoption of cloud platforms is a key part of any modern digital infrastructure. This technology can also reduce reliance on repetitive manual tasks, enabling healthcare workers to spend more time with patients. The sector may also be missing a valuable way to grow their data maturity here, because data management and integration have been the top advantages gained from XaaS technologies over the past 12 months, averaged across all sectors. But, in a sector where data security and data privacy are so pressing, this elevated level of caution and lack of proactivity in relation to XaaS and Cloud solutions are understandable. In the absence of clearer guidance on data in the cloud from regulatory authorities, many healthcare organisations will not feel comfortable increasing their use of data and exploring cloud solutions fully.

> "Healthcare technology leaders need regulation to feel that the data from their cloud-hosted solutions is safe, allowing them to advance. The focus should be on creating strong frameworks for data interoperability, allowing systems in different organisations and jurisdictions to communicate smoothly. This can help to improve patient care accuracy, foster global medical research collaboration and support better training of AI models."

Anwer Khan
Global Healthcare Sector Technology Leader, KPMG International;
Partner, Advisory, Customer and Operations, Health and Government, KPMG in the US

When it comes to AI, the healthcare sector is enjoying strong adoption of this technology. Our research shows that healthcare is one of the most mature sectors in terms of AI adoption. Already, 66% of healthcare tech leaders say their organisations are generating business value from several AI use cases. Unfortunately, their investment levels are lagging the pace of development. Furthermore, while ROI may have been achieved by healthcare organisations in certain silos, business value at the enterprise level is not being realised in a consistent way, with healthcare being eight percentage points more likely than the cross-sector average to admit their AI use cases are deployed on an ad hoc basis and have yet to achieve returns.

Organisational AI adoption maturity level



Q: Which of the following best describe your organisation's current maturity level with AI adoption?

Source: KPMG global tech report 2024

Healthcare organisations are also adept at socialising the abilities of 'super users' to encourage AI adoption. About three-quarters (74%) say they place the employees with the most AI knowledge into different business departments so they can share their knowledge. Given that the 'see one, do one, teach one' approach is foundational to medical education, this is unsurprising.

Many in the sector now plan to build on their early AI successes. More than half of healthcare respondents (52%) say advanced pattern detection and issue correction are major use cases for their AI technologies over the next two years. Other AI ambitions for the sector include improved fraud detection and greater operational efficiency.

The use of AI with tools that can liberate healthcare professionals from their administrative burden will play a crucial role in the healthcare sector's ability to transform. The KPMG Healthcare Horizons Revisited publication highlights examples of how healthcare organisations around the world are using AI to help transcribe notes or create patient summaries, diagnose and treat people with mental health needs faster, and scan electronic medical records to help primary care physicians provide proactive and preventive care.

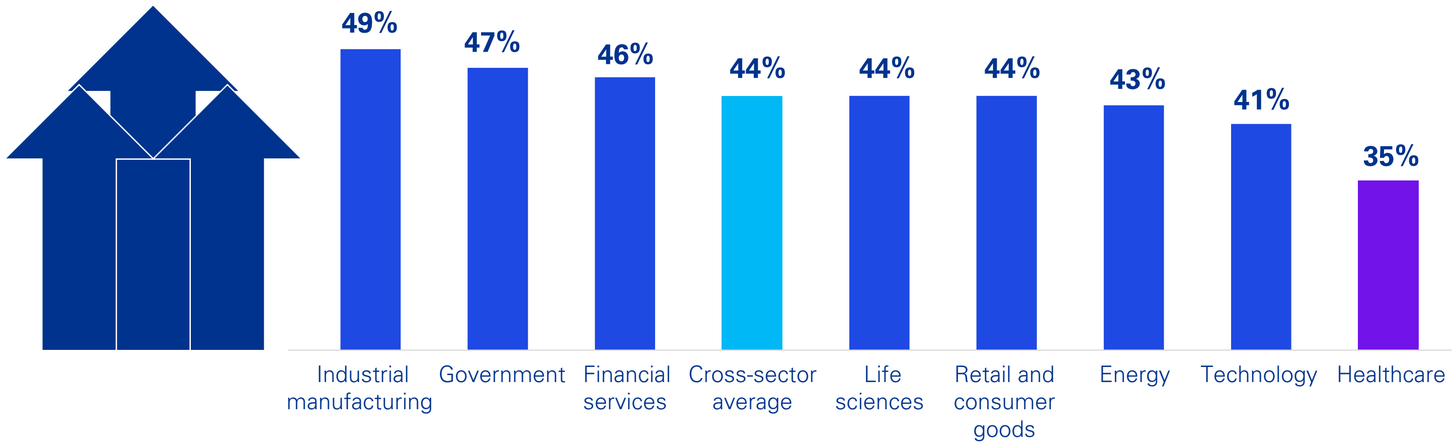
The Harvard School for Public Health also projects 40% improvement in health outcomes when using AI for diagnosis.[2] Our research found that healthcare was the sector most likely to be using AI for advanced pattern detection and issue correction to achieve short-term goals. The fact that healthcare organisations are prioritising advanced pattern and issue correction is expected, given algorithms have been applied on clinical, imaging, and genomic data for years now.

The sector is well known for integrating evidence-based knowledge and patient-specific information to support enhanced outcomes and more cost-effective care delivery, based on using AI to infer the characteristics of a patient cohort.

Despite being a leader in using AI in achieving pattern recognition goals, healthcare was the sector least likely to be using the technology to boost operational efficiency. This is a missed opportunity, as there are still many repetitive tasks that could be automated in clinical settings.

Click on the above report image to read the Healthcare Horizons Revisited publication

Using AI to boost operational efficiency



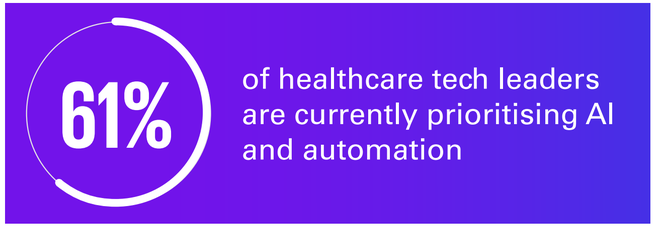
Q: Could you detail what your short-term goals are for leveraging AI over the next 2 years? Operational efficiency boosts (repetitive task automation and employee experience uplift)

Source: KPMG global tech report 2024

[2] Harvard Medical School. (2024) Harvard Medical School Program – AI in Health Care for Impact.

'In personalised medicine, generative AI can accelerate drug discovery, predict individual drug responses and craft personalised treatment plans,' says Khan. 'It aids in accurate diagnosis with simulated disease patterns and enhances remote monitoring with tailored care plans and alerts, promoting proactive health management.'

The potential for operational gains is also appealing, and healthcare workers should not be concerned about the advent of the technology, Khan adds: 'AI, when used as a tool or assistant, rather than as a replacement, will enhance the productivity, efficiency and accuracy of healthcare workers by relieving the burden of their administrative tasks and allowing them to focus more on delivering proactive care."



61% of the healthcare tech leaders in our research say they are currently prioritising AI and automation (including generative AI) as they consider how to invest in technology to support their ambitions. No healthcare technology leaders in the survey say their organisations have not yet invested in AI and automation.

'Initially in healthcare, financial efforts will likely target back-office and middle-office solutions for cost savings, to support front-office initiatives,' predicts Khan. 'However, in the next five years the emphasis will likely transition to AI solutions aimed at enhancing clinical outcomes, redefining protocols, improving patient and provider engagement and discovering new therapies.'

As healthcare organisations depart from justifying data and AI initiatives to increase automation and productivity in core administrative tasks, the near future will likely focus on interoperability, using devices and related tertiary data sources to generate new insights and hypotheses. These hypotheses will be based on novel patterns of care, drug interactions, environmental variants, and financial implications arrived at through analysis of massive volumes of structured, unstructured and semi-structured data, a process that can only be conducted to a limited extent today.

Recommendations:

To scale up enterprise level value from data and AI in healthcare:

Organisations should adopt innovative approaches to technology, embracing it and shaping their workforces around it to help alleviate workforce concerns. Organisations should also rethink how they build skills. To get started, leaders in the sector should understand where their employees are today, to clear their path forward.

Transparency in how organisations implement data and AI solutions and what they mean for employees, as well as the positive impact that they can bring to the various stakeholders, should be constantly communicated.

Emphasising how ethical AI considerations will be aligned with organisational strategic principles will help to reshape digital transformations and highlight market differentiators, as well as driving conformity in global industry standards and regulations around AI and data.

Maintaining patient and stakeholder trust

Leveraging cyber security, Web3 and DevSecOps to help secure complex healthcare ecosystems

Healthcare organisations continue to encounter a wide range of cyber threats, such as ransomware and distributed-denial-of-service attacks. Criminals capitalise on the sector's cyber security challenges, which include lack of multifactor authentication, reliance on outdated systems, endpoint complexity, insufficient security awareness and training, frequent vendor upgrades and patches to core systems, and electronic health record and medical device interfaces.[3] Our research reveals that healthcare tech leaders cite cyber security threats as a top factor in making their organisations feel less confident about investing in new technology.

Healthcare organisations operate in complex, interdependent ecosystems and the sector's chain of suppliers, manufacturers, and service providers further compounds cyber security challenges. Vendors have varying cyber security maturity levels, making the entire supply chain vulnerable to the weakest link. Ensuring consistent security measures across such a diverse network is still difficult. Healthcare is among the sectors most likely to be prioritising data accessibility and democratisation to help ensure that ecosystem partners have the data they need to fulfill their roles. 'Cyber security is more than just a technology issue – it's about securely maintaining operational capabilities but also preserving the confidence and trust of patients and stakeholders,' says Anwer Khan.

Our research shows that healthcare organisations recognise this urgency and are being proactive about promoting robust cyber resilience. For example, 70% of healthcare tech leaders in our survey say that cyber security is typically involved at the earliest planning stage of new projects, and that cyber security teams have a prominent level of influence on decision-making.

When it comes to essential attributes needed for organisations to thrive in a digital economy, healthcare and the technology sectors are the most likely to cite the attribute of cyber security and privacy considerations guiding organisational technology priorities. This kind of security by design can embed higher standards of protection and is likely to be less time-consuming and costly than retrofitting solutions. Healthcare tech leaders are also more likely than their peers in other sectors to be prioritising investments in Web3 (including blockchain and tokenisation) in the next year.

of healthcare tech leaders say cyber security have high influence on tech investment decision-making processes

> "Blockchain and tokenisation can help to increase the cyber security posture of healthcare organisations by controlling access to sensitive data and increasing data security through blockchain's immutability and encryption process."

Anwer Khan
Global Healthcare Sector Technology Leader, KPMG International; Partner, Advisory, Customer and Operations, Health and Government, KPMG in the US

[3] Rai, A., and Muto, M. (2024 October). Cybersecurity considerations: Healthcare sector insights. KPMG International.

Another crucial pillar to enhancing cyber resilience in the sector is DevSecOps. Many organisations in the sector are now leaning on DevSecOps to help ensure that security is integrated into every phase of technology development and transformation workflows. About half (49%) of healthcare respondents say that adopting DevSecOps practices is one of the tactics they are using to adapt their digital transformation strategies in response to evolving market trends and risks. That is a higher proportion than in any other sector taking part in this research. 'DevSecOps techniques can also be used at every stage of the process to secure interoperable care ecosystems,' says Khan.

About DevSecOps

Development, security, and operations (DevSecOps) frameworks integrate security into every phase of the software development lifecycle, minimising security vulnerabilities. This approach promotes collaboration, automation, and clear processes, making security a shared responsibility rather than an afterthought.

Adoption of DevSecOps practices in response to evolving market trends and risks

Q: Which of the following tactics do you use to adapt your digital transformation strategy in response to evolving market trends and risks? Adoption of DevSecOps practices

Source: KPMG global tech report 2024

Given the sector's unique vulnerabilities and regulatory compliance requirements, healthcare organisations need comprehensive incident response plans that outline procedures to find, contain, eradicate and recover from various cyberattacks.

Recommendations:

To continue to support patient and stakeholder trust, healthcare organisations should:

Continue to invest in advanced data encryption technologies and data breach detection systems to strengthen their cyber security foundations.

Implement stringent cyber security criteria into procurement contracts and conduct audits to bolster ecosystem security (security governance language will not only need to be a part of any legal agreement, but also conform with ever changing regulations and standards).

Consider setting up formal cyber security centres of excellence to shape digital transformation and implement comprehensive security protocols across the continuum of DevSecOps activities.

How KPMG can help

We are a global organisation of professional services firms whose consultants provide support to healthcare systems, providers, and insurance organisations around the world. Our multidisciplinary approach allows us to pull resources from across geographies, disciplines and areas of experience from a network of 5,000 dedicated professionals who are focused on healthcare in more than 70 countries and jurisdictions. This network includes almost 200 clinicians who have a wealth of frontline health and care experience as physicians, nurses, paramedics, social workers and other professions.

KPMG firms' tech consulting practices have extensive experience in key tech capability areas and a global delivery network to support digital transformation in healthcare organisations. To jumpstart transformation and help organisations harness the latest tech, we offer a suite of market-tested digital health solutions and accelerators, and a broad set of tech services across strategy, platforms, cyber security, data, AI and emerging tech, cloud, and risk. We also have alliances with some of the world's leading technology, data and services companies, which allow us to approach the most pressing tech-based challenges and offer broad solutions and services via expanded product offerings and increased capabilities.

To understand the impact of technology on workforces, KPMG People and Human Resources consulting specialists can conduct workforce shaping and strategy exercises to help organisations ensure that they have employees with the right skills to fully use evolving technology, now and in the future. These specialists can also help create tailored learning strategies to reskill employees in using advanced technology.

Get in touch to learn more about how KPMG can support transformation in your healthcare organisation.

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Methodology

The insights in this report were derived from the KPMG global tech report 2024, a survey of 2,450 technology leaders from 26 countries across 8 industries: financial services, technology, retail and consumer packaged goods, industrial manufacturing, life sciences, healthcare, government and public sector, and energy.

Survey respondents represented organisations with annual operating budgets or revenues above US$100 million and included a diverse group of technology leaders, such as chief digital officers, CIOs, CTOs, CISOs, chief AI officers, and others.

The healthcare insights of KPMG global tech report draws on the views of:

122 healthcare technology leaders

Respondent organisation breakdown

Health systems
37%

Hospitals
35%

Care provider networks
28%

Respondent organisation size

of respondents represented organisations with operating budgets or revenues of US$10B-plus (with one-quarter representing US$100B-plus organisations).

About the author

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Global Healthcare Sector Technology Leader,
KPMG International
Partner, Advisory, Customer and Operations,
Health and Government,
KPMG in the US

Anwer is a healthcare and life sciences technology consulting leader with a track record of launching and growing large-scale technology-based practices and market offerings across healthcare ecosystems. Anwer leads and collaborates with a global network that creates digital solutions to help address critical challenges and support transformation in healthcare organisations in agile, secure and scalable ways. He is also an Advisory Partner with KPMG in the US Customer and Operations, Health and Government practice. Anwer holds several registered patents in the US in the areas of health data management and advanced analytics. He is also a frequently published author and speaker on pressing technology topics.

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