

# FUTURE PROOFING HEALTHCARE: Investing in Workforce, Infrastructure, and Technology

## The Power of AI as a Catalyst for Change



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# In This InfoBrief

**Healthcare providers face a number of challenges in managing patient needs with limited resources.**

This InfoBrief provides a detailed overview of the current state of the industry, highlighting key pain points while exploring opportunities for healthcare providers to harness technologies such as AI, intelligent automation, and cloud-based solutions.

It provides guidance to healthcare leaders on adopting advanced technologies and strategies for workforce retention, infrastructure resiliency, operational efficiency, and data security.

# Healthcare Providers Are Under Pressure

Healthcare providers are contending with mounting challenges as they face escalating patient needs alongside limited resources.

Chronic diseases and an aging population have significantly increased the demand for advanced care, but outdated infrastructures and cybersecurity vulnerabilities are hampering operational efficiency.

The need for a larger, digitally proficient workforce is crucial to meeting these demands, yet existing gaps in staffing and technology adoption continue to slow progress.



By 2030, **1 in 6 people in the world** will be aged 60 years or over.

Source: IDC's U.S. Healthcare Provider IT Survey



**Nearly 95%** of adults 60 and older have at least one chronic condition, while nearly **80%** have two or more.

Source: National Council on Aging



The cost of chronic disease worldwide is estimated to reach **\$47 trillion by 2030.**

Source: World Economic Forum



**90%** of the US \$4.5 trillion in annual health care expenditures are for people with chronic and mental health conditions.

Source: World Economic Forum



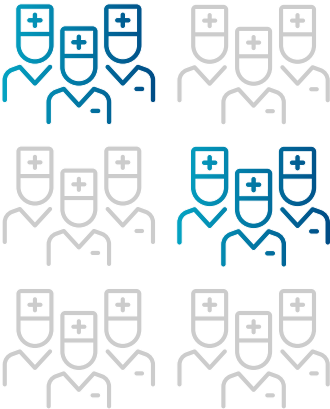
**39%** of U.S. healthcare providers are upgrading their technology to modernize IT infrastructure through 2025.

Source: IDC's U.S. Healthcare Provider IT Survey

# Worsening Workforce Shortages Hampered by Aging Infrastructure

The healthcare sector is grappling with severe workforce shortages, driven by the rise in chronic diseases, an aging population, and the pandemic’s lingering impact.

High turnover rates and burnout accelerate this crisis as healthcare systems struggle to retain talent. Compounding these issues is outdated legacy infrastructure that struggles to keep up with current demands, leaving gaps in service delivery and preventing the seamless integration of advanced digital tools that could enhance patient care and operational workflows.



▶ **The global healthcare workforce gap will reach 18 million by 2030.** This shortage is expected to particularly impact low- and middle-income countries, but high-income countries such as the United States and those in Europe will also feel the strain.

Source: World Health Organization

▶ **The healthcare sector will need to add 2.6 million new jobs by 2031** to meet rising demand, driven primarily by the aging population and the increasing prevalence of chronic diseases.

Source: U.S. Bureau of Labor Statistics

# Healthcare's New Normal of Security Risks and Cyberattacks

As infrastructure ages, it becomes increasingly vulnerable to ever-evolving cybersecurity threats. Older systems often lack advanced security frameworks to defend against sophisticated attacks, leaving data and privacy at significant risk.



The growing digital footprint — spanning electronic health records (EHRs), telemedicine platforms, and connected devices — provides rogue actors with more entry points for exploitation. These attackers are using a variety of sophisticated methods, from ransomware to phishing schemes, which target outdated infrastructure with alarming frequency.

**Ransomware attacks can cause substantial operational disruptions, leading to a 21% increase in in-hospital death rates and severe complications,** as demonstrated by the first U.S. lawsuit and settlement involving a death allegedly linked to a hospital ransomware attack.



# Healthcare’s New Normal of Security Risks and Cyberattacks (continued)

As of October 23, 2024, **there were 492 reported U.S. data breaches, each affecting more than 500 people each.**

These breaches collectively **compromised the personal information of 163.7 million people, marking a 60% increase** compared to the 12-month period ending in 2023.

The Change Healthcare data breach, the largest of these incidents, **impacted 100 million individuals,** making it the most significant healthcare breach in U.S. history.

Source: U.S. Department of Health and Human Services



**40%**


of healthcare organizations will adopt AI-based threat intelligence solutions by 2027, driven by growing cybersecurity risks to ensure care continuity and safeguard patients.

Source: IDC FutureScape: Worldwide Healthcare Industry 2025 Predictions

# AI Offers Hope, But Challenges Remain

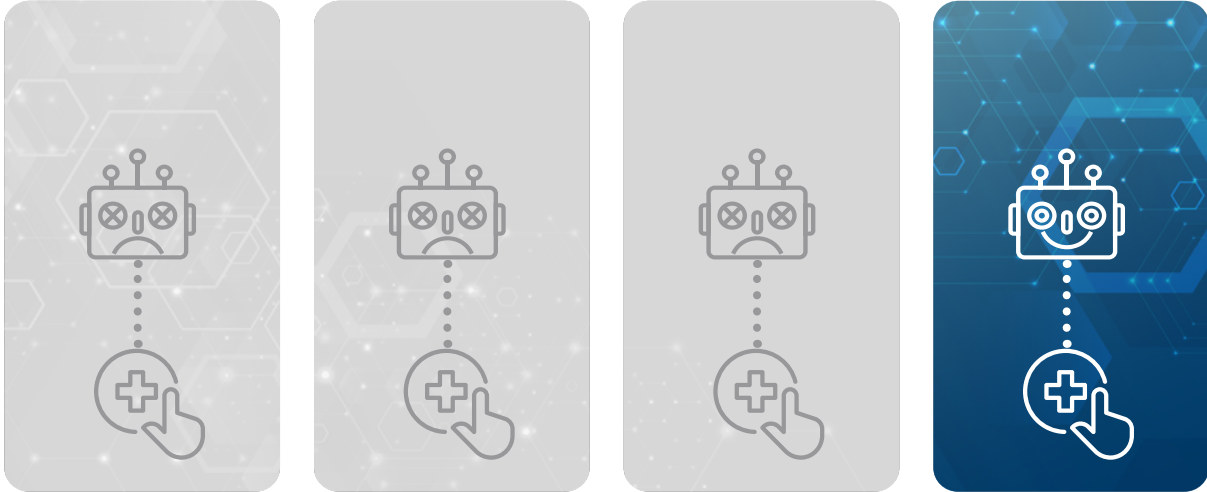
The potential for AI to transform healthcare depends on data quality and governance.

To fully leverage AI-driven solutions, organizations must establish robust frameworks for data management and access. High-quality, diverse data sources are crucial for generating actionable insights and informed decision-making. By ensuring data is effectively managed and utilized, healthcare providers can unlock the full value of AI.



**20% to 30%**  
of AI projects in healthcare fail at the implementation stage due to challenges in obtaining and processing high-quality data.

Source: U.S. GAO



By 2027, **75%** of healthcare generative AI (GenAI) initiatives will fail to achieve expected benefits due to barriers to adoption such as trustworthiness of the data, disconnected workflows, and end-user resistance.

Source: IDC FutureScape: Worldwide Healthcare Industry 2025 Predictions



# Unlocking Data Is Key to AI Success

AI requires access to diverse data types to provide tangible clinical and operational enhancements.



**Structured and unstructured data**, such as medical images to clinical documents, need to be transformed into actionable insights.



**Cloud-based federated content services and VNAs** facilitate data integration across EHRs and other healthcare systems.

This integration allows for a more **comprehensive and unified view of patient information**, enabling better informed decision-making and improved patient care.



Healthcare data is projected to expand at **a compound annual growth rate of 29%** to reach 10,647 exabytes by 2027.

Source: IDC's Worldwide Enterprise Global DataSphere by Vertical Industry Forecast, 2023–2027

# Toward Intelligent Automation in Healthcare

Intelligent automation can enhance healthcare by automating routine tasks and streamlining workflows.

This frees up staff for patient care and improves diagnostic accuracy, personalizing treatments. Intelligent automation also drives efficiency and cost savings by automating administrative tasks and predictive analytics.

Additionally, intelligent automation accelerates medical research, leading to new insights and therapeutic approaches. Overall, intelligent automation improves patient care, reduces costs, and drives innovation.



By 2027, the healthcare industry will save up to **\$382 billion** by significantly optimizing clinical, operational, and administrative workflows through intelligent automation.

Source: IDC FutureScape: Worldwide Healthcare Industry 2025 Predictions

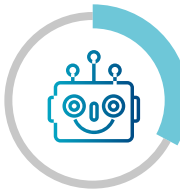
From 2024 to 2025, U.S. healthcare providers anticipate spending to rise:



**51%**  
GenAI



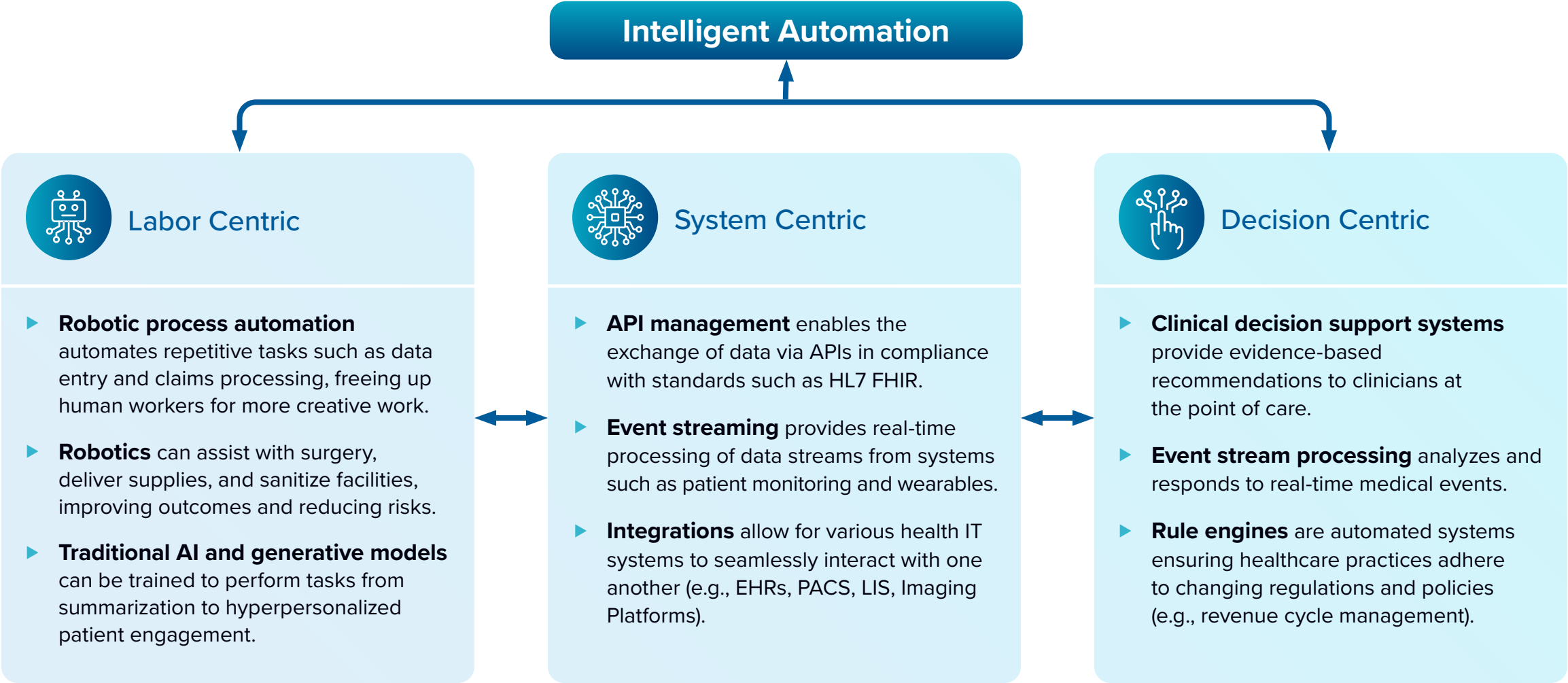
**31%**  
Traditional  
(non-generative) AI



**33%**  
Robotic process  
automation

Source: IDC's U.S. Healthcare Provider IT Survey



# Toward Intelligent Automation in Healthcare (continued)



Source: IDC




# Streamlining Healthcare Operations with AI-Powered Intelligent Document Processing

Intelligent document processing (IDP) automates the management of documents such as medical records, referrals, and billing information. This automation reduces the administrative burden on staff, improves data accuracy by minimizing manual errors, and speeds up processes such as medical records classification. Additionally, IDP helps healthcare organizations comply with regulations, ensuring secure and efficient handling of sensitive patient data.

Benefit	Description	Impact on Operations
 Improved accuracy	<b>AI-powered IDP reduces human errors in document handling and data extraction</b> by automating processes such as data capture, classification, and validation. It uses advanced algorithms to accurately interpret unstructured data, such as handwritten notes and complex medical forms, ensuring greater reliability across clinical and administrative tasks.	<b>Improving accuracy has a direct impact on departments such as medical billing, coding, and patient record management.</b> In RCM and medical coding, for example, AI-powered IDP can enhance accuracy, reduce rejected claims, and ensure accurate billing. This leads to faster reimbursements and increased satisfaction among administrative staff.
 Enhanced efficiency	<b>AI-powered IDP helps streamline repetitive and time-consuming processes.</b> By automating workflows in IDP, healthcare organizations can significantly reduce delays, improve turnaround times, and enhance productivity across departments.	<b>Efficiency improvements benefit both front-office roles such as patient registration and back-office roles.</b> Departments handling large volumes of patient data see accelerated turnaround times, enabling everyone from clinicians to clerks to focus on more value-added tasks. This also positively impacts patient care coordination by speeding up data availability for clinical decision-making.

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Benefit	Description	Impact on Operations
 <p><b>Better data security</b></p>	<p><b>Sensitive patient information is securely processed with AI-powered IDP</b>, reducing the risks associated with manual document handling. This includes integrating encryption and compliance monitoring mechanisms directly into document processing workflows to meet standards such as HIPAA and GDPR.</p>	<p><b>Better data security enhances compliance for compliance officers, IT teams, and privacy officers.</b> AI in IDP ensures that sensitive health data is encrypted and adheres to regulatory standards such as HIPAA and GDPR, reducing risks for data breaches and improving trust across stakeholders. IT teams can focus on system optimization, while privacy officers ensure all data practices are aligned with regulations.</p>
 <p><b>Scalability</b></p>	<p><b>AI-powered IDP can effortlessly scale with increasing document volumes and complexity.</b> This capability enables healthcare providers to handle fluctuating workloads during peak periods or expansion without overburdening staff or compromising service quality.</p>	<p><b>Scalability ensures that healthcare providers can manage increased patient loads or new services without expanding their workforce or IT infrastructure.</b> This benefits hospital administrators and operational managers by allowing them to maintain efficiency during growth, mergers, or acquisitions. Use cases include scaling up EHR processing or claims processing during flu season.</p>
 <p><b>Reduced manual labor</b></p>	<p><b>Healthcare organizations can minimize the need for manual data entry and sorting with AI-powered IDP</b>, reducing errors and administrative overhead. This frees up valuable time for staff to focus on patient care and other high-priority tasks.</p>	<p><b>Reducing manual labor impacts nearly every administrative department, from patient intake to insurance verification.</b> Medical billing clerks, administrative assistants, and even clinical staff benefit from AI handling routine tasks such as form filling and data validation. This results in reduced workload, lower error rates, and more time for patient engagement or clinical duties, improving overall staff morale.</p>

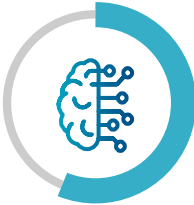
# AI and IDP Help Fuel Medical Imaging Research and Collaboration

By automating de-identified imaging data and document workflows, AI and IDP help ensure regulatory compliance while accelerating medical research and improving documentation accuracy.



**More than 600 developers and researchers** are improving image de-identification practices for cancer studies alone to ensure compliance with privacy regulations while maintaining research-critical information.

Source: National Cancer Institute



**59%** of respondents believe generative AI will be critical for dramatically improving enterprise imaging.

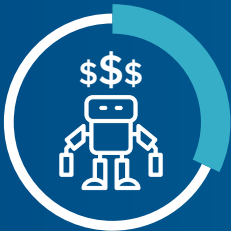


**56%** see it as critical for dramatically improving medical imaging analytics.

Source: IDC's Industry Tech Path Survey, August 2024

# Robotic Process Automation: A Simple Yet Effective Quick Win

Robotic process automation (RPA) is a highly effective solution for automating repetitive, rule-based tasks, significantly improving staff productivity in healthcare. By automating processes such as data entry, billing, and appointment scheduling, RPA reduces human error and frees up staff to focus on more strategic, value-added activities. This leads to streamlined operations, faster task completion, and optimized resource allocation.



**32%**

of U.S. healthcare providers plan to increase their spending on RPA through 2025.



**45%**

of those expecting a budget increase said the additional funds would be allocated to IDP.

Source: IDC's U.S. Healthcare Provider IT Survey



# Low-Code Technology Supports Healthcare Ecosystem Agility

The deployment of applications built on low-code technologies empowers health systems to remain agile and responsive to changing needs.

Low-code platforms connect people to content, business processes, and core systems, powering solutions such as case management to support the ecosystem of care. With the addition of copilots, low-code technologies are enhancing support for both professional developers and business users trained as citizen developers, making development more efficient and accessible across healthcare organizations.



The global market for low-code, no-code, and intelligent developer technologies is projected to reach **\$25.7 billion by 2027.**

Source: IDC Worldwide Low-Code, No-Code, and Intelligent Developer Technologies Forecast, 2023–2027



# Managed Cloud Solutions Support AI and IT Resilience

Legacy systems in healthcare are vulnerable to cybersecurity threats. Managed cloud infrastructures with layered security defenses and 24x7 monitoring can mitigate these risks by providing resilience and security for AI and modern IT solutions.



**Investing in AI-powered content infrastructures within cloud platforms optimizes workflows and scales automation.** AI provides real-time insights, while the cloud ensures seamless integration and scalability, ensuring intelligent automation enhances efficiency and future proofs the IT environment. Additionally, cloud-based infrastructures offer disaster recovery, reduce the risk of system shutdowns, and enhance IT effectiveness through AI integration.



**77%** of healthcare organizations have experienced IT outages in the past 12 months due to security or cybersecurity events, with nearly one in five lasting 25 hours or more.


Source: IDC's *Industry Tech Path Survey 2024*, August 2024



**96%** of small, medium, and large-sized hospitals claim to operate with end-of-life operating systems or software with known vulnerabilities, including medical devices.

Source: American Hospital Association

# Factors Hospitals Consider When Migrating Applications to the Cloud



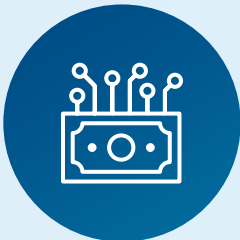
1	Importance of the workload	61%
2	Security	57%
3	Ease to migrate	55%
4	Data sensitivity	50%
5	Support of departments that utilize application	34%
6	Workload usage pattern	36%
7	Regulatory compliance	46%
8	Latency (speed)	41%
9	Ability to use cloud capabilities like analytics or AI/ML	43%
10	Cost of running the workload in the cloud	27%

Source: IDC's Worldwide Industry CloudPath Survey

# Preparing for the Future of Healthcare

Healthcare organizations need to utilize advanced technologies, such as GenAI, to overcome current and future challenges.

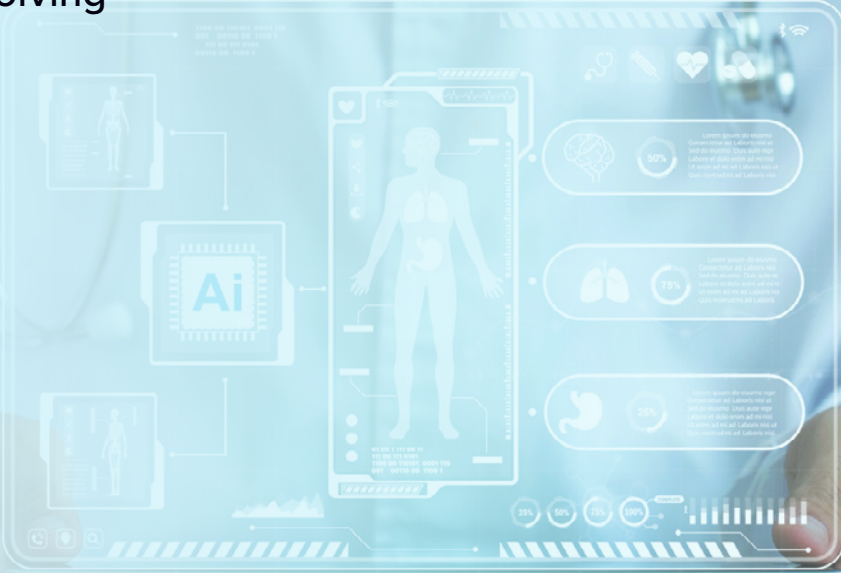
These technologies can enhance resilience and efficiency within the healthcare industry. In addition to AI, data governance and infrastructure modernization are crucial for the long-term success of healthcare organizations. By prioritizing these aspects, healthcare organizations can ensure they are well-equipped to adapt to the evolving landscape and deliver high-quality care to patients.



**By 2026, healthcare GenAI investments will triple,** driven by rapid use case deployment, more curated clinical data, and increased organizational buy-in.



**By 2029, at least 50% of complex, high-volume surgeries** at top global hospitals will use AI-driven, real-time guidance, haptic feedback, and advanced analytics, **reducing surgical complications by 60%.**



Source: IDC FutureScape: Worldwide Healthcare Industry 2025 Predictions

# Essential Guidance

**Prioritize Enterprise Infrastructure for Workforce Efficiency**



**Healthcare providers must address aging siloed applications** and replace them with enterprise infrastructure to improve workforce efficiency, reduce burnout, and drive operational performance.

**Strengthen Technology Integration**



To remove inefficiency and stay competitive, healthcare organizations should **focus on integrating broader digital tools such as AI, RPA, and intelligent document processing.** This approach will streamline workflows, improve decision-making, and enhance collaboration between departments, ensuring more effective operations and patient care.

**Provide for Organizational Agility with Low-Code Technology**



To speed up collaboration for case management and other use cases that extend within the enterprise and outside to the care ecosystem, **deploy flexible low-code technology that connects people and processes while complementing core technologies.**

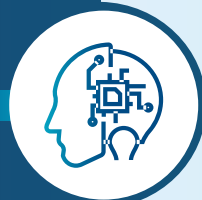
# Essential Guidance (continued)

## Invest in Data Security and Cyber-Resilience



As healthcare becomes more digitally connected, the risk of cyberattacks increases. **Investing in managed cloud infrastructures with robust security measures and disaster recovery** is critical to protect sensitive patient data and maintain system resilience.

## Embrace AI for Intelligent Automation



AI offers a way to alleviate administrative burdens and enhance clinical research, especially when combined with intelligent automation solutions. **Automating routine tasks with AI-powered tools** can improve productivity, reduce human error, and enable staff to focus on high-value patient care.

## Leverage Cloud Solutions for Scalability



Cloud-based systems offer the scalability needed to support growing healthcare demands. **By migrating key applications and data to the cloud, including medical imaging and EHRs**, organizations can enhance service delivery, improve data integration, and reduce system downtime.

# About the IDC Analyst



## Mutaz Shegawi

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Mutaz Shegawi leads the provider research practice at IDC Health Insights covering topics of most relevance to healthcare provider organizations looking to digitally transform and become more digitally native than their competition. Mutaz advises the executive, clinical, and technical leadership of the world's foremost health information technology supplier and buyer organizations by producing data-driven research and thought-leadership insights that help to navigate strategic challenges in health information technology and transform complexity to clarity in decision-making that would decrease costs, enhance quality, optimize access, improve patient safety, and champion patient experience. Mutaz is passionate about strengthening healthcare systems through the dynamic interrelations between technology, patients, and providers by combining industry, professional, academic, technical and global expertise in healthcare, policy, business, management, research, consulting, and medicine.

[More about Mutaz Shegawi](#)

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**On average more than 17% of the work week is lost today just searching for information. For a health system with 20,000 employees that equates to 136,000 hours weekly that could be better utilized.**

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