Microsoft

Breaking Down AI

Real applications in healthcare

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The healthcare opportunity: AI and your data

AI and the cloud: Overcoming obstacles with innovation

The healthcare sector stands at the intersection of technological innovation and escalating challenges. As patients increasingly expect convenient, personalized digital experiences, the industry confronts issues ranging from workforce burnout to growing operational costs to health equity.

90 percent of health system leaders say digital technology enables a more significant focus on patient wellbeing.[1]

Patient and member engagement

Engaged patients are more involved in their care journey, which can lead to better adherence and health outcomes. Digital solutions are vital to providing efficient yet personalized experiences.

50% of healthcare workers, including physicians, nurses, clinical, and non-clinical staff, report experiencing burnout.[2]

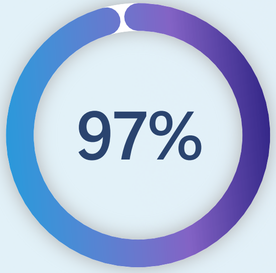
Workforce burnout and talent shortages

Burnout has reached alarming levels, affecting patient care and contributing to a shrinking pool of healthcare professionals.

60% of health system executives say rising costs are their most significant concern.[3]

Cost pressure

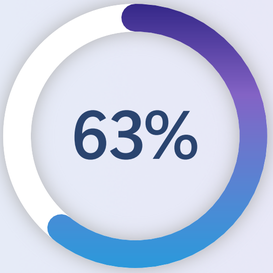
Inflation and continued economic aftereffects of the pandemic have significantly reduced healthcare revenue, requiring decision makers to look for new ways to drive down costs.



Hospitals produce 50 petabytes of siloed data per year. 97% percent of this data goes unused.[4]

Data utilization

Health data is abundant but typically siloed and underused. Providers and payors spend too much time managing data without seeing results.



63% of health sector leaders are concerned about cyberattacks.[5]

Security and compliance challenges

With growing cybersecurity threats, healthcare organizations must invest in robust security measures to protect data and finances. Meeting patient expectations while addressing operational challenges calls for an integrated strategy. AI offers a path to enhance patient experience, manage the workforce effectively, and help reduce costs.

[1] Digital health integration, Deloitte, April 2023, https://www2.deloitte.com/us/en/insights/industry/health-care/digital-health-always-on-care.html

[2] COVID burnout hitting all levels of healthcare workforce, Harvard Gazette, October 2022, https://news.harvard.edu/gazette/story/2023/03/covid-burnout-hitting-all-levels-of-health-care-workforce/

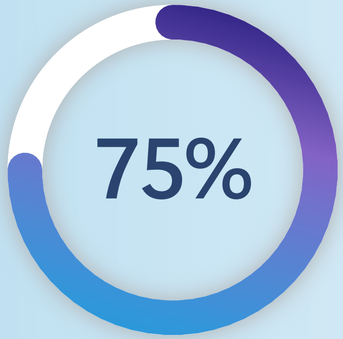
[3] Majority of health system executives believe generative AI will reshape the industry, yet only 6% have a strategy in place, Bain & Company, August 2023, https://www.bain.com/about/media-center/press-releases/2023/majority-of-health-system-executives-believe-generative-ai-will-reshape-the-industry-yet-only-6-have-a-strategy-in-place/

[4] 4 ways data is improving healthcare, World Economic Forum, December 2019 https://weforum.org/agenda/2019/12/four-ways-data-is-improving-healthcare/

[5] Healthcare trends, PwC, August 2023 https://www.pwc.com/us/en/industries/health-industries/library/healthcare-trends.html

The transformative potential of AI in healthcare

The growth of AI is reshaping the healthcare landscape at an unprecedented speed. The time to act is now for healthcare leaders looking to harness AI's transformative potential. As technology evolves, AI will become essential for delivering high-quality, cost-effective healthcare.



75% of health system executives believe generative AI has reached a turning point in its ability to reshape the industry.[6]

[6] Majority of health system executives believe generative AI will reshape the industry, yet only 6% have a strategy in place, Bain & Company, August 2023, https://www.bain.com/about/media-center/press-releases/2023/majority-of-health-system-executives-believe-generative-ai-will-reshape-the-industry-yet-only-6-have-a-strategy-in-place/

The usage of AI in healthcare is rapidly growing and evolving. Many valuable use cases are emerging with the potential to enhance the patient experience, such as the following.

Accelerating automation for care management

AI tools might assist in generating workflow materials, educational content, and post-visit summaries, reducing the administrative burden and elevating operational efficiency.

Automating clinical documentation

With less time spent on administrative tasks, physicians could focus more on patient care and less on administrative tasks, potentially improving financial outcomes through accurate documentation and increased throughput.

Improving efficiency and reducing cost

AI can enable people to automate mundane, repetitive tasks, eliminating bottlenecks and reducing errors to enable increased operational efficiency and cost savings.

Medical research and personalized care

AI can help to accelerate the diagnostic process, potentially leading to faster and more accurate diagnoses. It aids researchers in medical image analysis, detection of abnormalities, and the development of new treatments.

Personalizing patient experiences

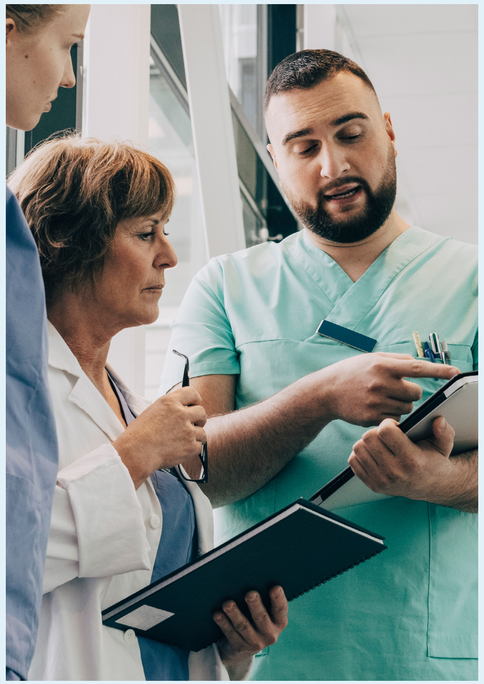
AI-driven chatbots and virtual assistants can provide quick, accurate responses to patient queries. This technology has the potential to improve patient satisfaction and loyalty while reducing wait times and operational costs.

02

Power your AI transformation with Microsoft Cloud for Healthcare

Healthcare data continues to grow. Organizations struggle to keep up with higher volume, greater variety, and increased velocity. Putting all this data to good use is the key to unlocking clinical and operational breakthroughs that can make a meaningful difference in the lives of patients and their healthcare journey. In the new era of AI, the importance of data continues to grow as organizations realize that without a solid data strategy, they are only scratching the surface of what's possible with AI.

Analytics-ready data available in a single data estate makes it easier for healthcare organizations to leverage the power of AI and machine learning. Microsoft Cloud for Healthcare helps your organization break down data silos and harmonize disparate healthcare data in a single unified store where analytics and AI workloads can operate at scale. Centralizing data gives you a holistic view of on-prem, cloud-based, and third-party sources. It enables near real-time insights to help promote better collaboration and coordination between clinicians and quickly adapt to patient changes throughout the care journey, boosting operational efficiency. A cloud-based data estate can also enhance security, compliance, and health data interoperability.



Amplify human ingenuity with a copilot for everyone

Microsoft is committed to bringing the power of AI to everyone in healthcare. AI copilot experiences help enhance administrative efficiency and improve clinical decision support for healthcare providers. At the same time, copilot experiences streamline claims processing in payor organizations, elevate member services, and enable data-driven decision-making for cost optimization and improved care delivery.

It enables healthcare organizations to deliver superior experiences and more profound insights while streamlining operations through analytics, machine learning, and actionable intelligence. This platform securely integrates historically siloed health data into the cloud, fostering innovation and efficiency in patient-centric healthcare.

It also helps healthcare organizations accelerate digital transformation by augmenting the Microsoft Cloud with industry-relevant compliance, security, and interoperability standards. It helps unify the data estate through a common data model to break down data silos, helping healthcare organizations improve insights, regardless of where the data resides.

Deliver transformational experiences by building your intelligent apps

Flexibility and extensibility are vital in choosing an AI solution. A unified data platform that integrates with third-party solutions offers adaptability. An extensive partner network further enriches this ecosystem, enabling tailored intelligent applications through a cohesive set of services. By infusing digital capabilities into manual, outdated processes, you can build solutions for task- and role-specific scenarios.

Safeguard patient data with the most trusted AI platform

In an age where AI plays a pivotal role, healthcare organizations prioritize safeguarding their business, patients, and data. Microsoft Cloud is founded on trust and actively supports organizations in immediately instilling safety and responsibility into their AI initiatives.

Microsoft AI Responsible AI principles and approach

We're committed to making sure AI systems are developed responsibly and in ways that warrant people's trust.

Accountability

Microsoft AI systems are assessed using Impact Assessments.

Transparency

Microsoft AI systems that inform decision making by or about people are designed to support stakeholder needs for intelligibility of system behavior.

Fairness

Microsoft AI systems are designed to provide a similar quality of service for identified demographic groups, including marginalized groups.

Reliability & safety

Microsoft evaluates the operational factors and ranges within which AI systems are expected to perform reliably and safely, remediates issues, and provides related information to customers.

Privacy & security

Microsoft AI systems are designed to protect privacy in accordance with the Microsoft Privacy Standard. Microsoft AI systems are designed to be secure in accordance with the Microsoft Security Policy.

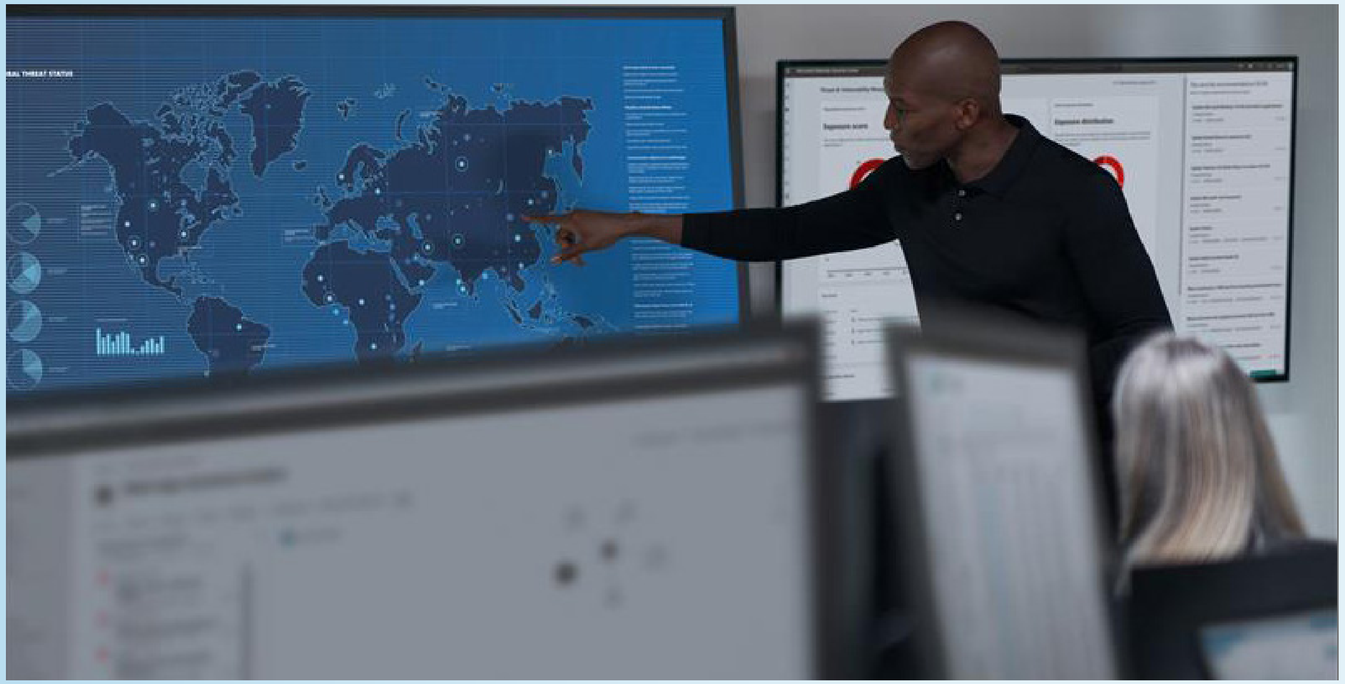
Inclusiveness

Microsoft AI systems are designed to be inclusive in accordance with the Microsoft Accessibility Standards.

Learn more about Microsoft AI Responsible AI principles.

Microsoft commitment to privacy and security in AI

Trust, security, privacy, and compliance are integral to Microsoft's approach to AI, as they are across all its solutions.



You own your data

Your data remains solely yours to own and control, allowing you to leverage and monetize it as you see fit.

Protection

Your data is not used to train or enrich foundation models in OpenAI without your permission, ensuring that only your organization benefits from AI trained on your data.

Security

At every stage, robust enterprise compliance and security controls safeguard your data and AI models. In AI and beyond, Microsoft's commitment to ethical, secure, and accountable practices remains unwavering. Trust is the cornerstone of our mission, and we prioritize it in every aspect of AI development and deployment.

Leading healthcare innovation from Microsoft

Microsoft Cloud for Healthcare

Gain trusted and integrated capabilities that make it easier for your organization to create connected experiences at every point of care. Microsoft provides tools that foster collaboration, empower your healthcare workforce, and unlock the value from clinical and operational data using the data standards that are important to healthcare. Microsoft helps your organization use your data and cutting-edge AI innovation to deliver meaningful outcomes across the entire healthcare journey.

- **Create connected experiences at every point of care:** Connect your data and leverage AI to unlock better patient experiences.
- **Foster health team collaboration:** Help your team make more data-driven decisions using AI to streamline workflows and automate redundant tasks.
- **Empower your healthcare workforce:** Focus clinicians on high-value work with AI-enabled tools that enhance productivity.
- **Unlock value from clinical and operational data:** Act with your data to realize savings and achieve better outcomes.

Outcomes-focused AI with Nuance

As part of Microsoft, Nuance pioneers conversational and ambient AI to enhance the patient-clinician dynamic. With three decades of healthcare expertise, the team commits to reducing administrative burdens and improving care quality. Deep integration with healthcare IT ensures efficient workflows and collaboration. Microsoft's integration of Nuance propels AI adoption in healthcare, dedicated to transforming care delivery and enhancing patient-clinician experiences.

- **Ambient clinical intelligence:** Dragon Ambient eXperience (DAX) Copilot enables clinicians to create draft clinical summaries automatically and securely in seconds from exam room or telehealth conversations. This technology significantly reduces the time spent on documentation, allowing healthcare professionals to focus more on patient interaction and care, thereby improving the overall healthcare experience.
- **Automated document capture:** Dragon Medical One (DMO) enables speech-driven clinical documentation with secure, convenient, and comprehensive support from pre-charting through post-encounter.
- **Diagnostic solutions:** PowerScribe One provides AI-powered capabilities that help radiologists automate their reporting, drive consistency, and minimize errors. Cloud-hosted speech and language understanding algorithms provide exceptional recognition—without local profile training and maintenance.

03

How does AI lead to better care?

Better experiences

Using AI, providers can improve healthcare outcomes through more personalized treatment plans and efficient resource allocation. Insights support professionals in diagnosis and treatment, empower them to spend more time with patients, and help coordinate care across services, from in-person visits to virtual consultations. Healthcare organizations can improve operational efficiency, cost management, and patient satisfaction by adopting AI technologies.

Deliver personalized healthcare by providing nuanced patient engagement, insights, and effective triage with help from AI tools. Advanced algorithms analyze complex data to draft treatment plans, potentially enhancing care efficiency.

A 360-degree view of every patient facilitates effective care coordination, whether identifying at-risk individuals or integrating virtual health services into the care journey. Healthcare providers using AI can meet and exceed patient expectations with a data-driven approach, making care delivery more efficient and cost-effective.

Customer story

Johnson & Johnson uses AI to enhance employee and customer experience

Johnson & Johnson's collaboration with Microsoft's Azure AI Bot Service allows the healthcare giant to offer an improved, seamless experience for employees and customers. By using intelligent chatbots, the company significantly reduces the time and cost involved in addressing routine queries and tasks. Employees without coding skills use AI tools to create problem-solving chatbots, embedding intelligent automation into daily operations.

A multi-day "botathon" with Microsoft proved pivotal for Johnson & Johnson, leading to the creation of the Genie the Genius chatbot platform. This user-friendly platform enables staff to build no-code/low-code chatbots, simplifying and accelerating the delivery of real-time, accurate information across the organization. The platform meets stringent security requirements and offers conversational capabilities to ensure a human-like interaction.

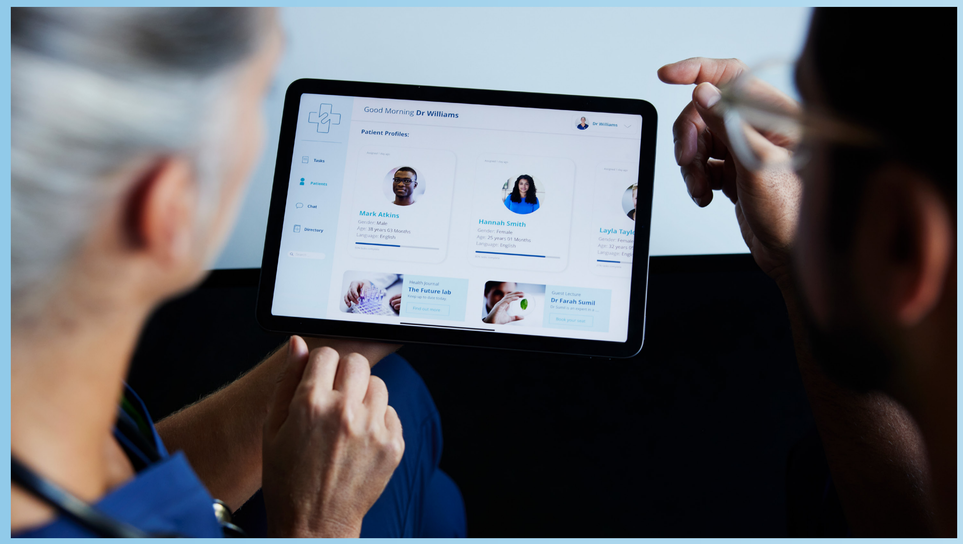
"Because we were already using Azure, including ML, Databricks, and IoT, it was a natural choice to continue using the Microsoft Azure platform without making additional investments."

Mrunal Saraiya

Senior Director and Intelligent Automation Leader, Johnson & Johnson

Read the story >

Better insights



Healthcare data can potentially transform patient care and operational efficiency, but much of it is difficult to access and analyze. Microsoft Cloud for Healthcare empowers providers by enhancing operational insights, improving patient care, and optimizing analytics. It enables healthcare organizations to deliver superior experiences and more profound insights while streamlining operations through analytics, machine learning, and actionable intelligence. This platform securely integrates historically siloed health data into the cloud, fostering innovation and efficiency in patient-centric healthcare.

It also helps healthcare organizations accelerate digital transformation by augmenting the Microsoft Cloud with industry-relevant compliance, security, and interoperability standards. It helps unify the data estate through a common data model to break down data silos, helping healthcare organizations improve insights, regardless of where the data resides.

"Our hypothesis is that with these tools, we will better engage men in healthcare and ultimately save lives. That's what drives us. That's what excites us."

Dr. Lee Ponsky

Executive Director of UH Cutler Center for Men

Customer story

NHS optimizes data retrieval with Azure Cognitive Search

Cambridgeshire and Peterborough NHS Foundation Trust turned to Azure Cognitive Search to streamline data access and retrieval. A single case could contain up to 2,000 documents. The traditional search process was laborious, often leading to extended delays in accessing critical information. However, the trust has dramatically improved efficiency by implementing Azure Cognitive Search, reducing data retrieval times from hours to seconds.

"Our clinicians were blown away... it was a real indication of the flexibility that Azure gives us."

Jonathon Artingstall

Associate Director Information & Performance, Cambridgeshire and Peterborough NHS Foundation Trust

Read the story >

Better care

AI can help alleviate burnout and empower providers to spend more time with patients. Using ambient clinical intelligence and automated documentation, providers spend less time on administrative tasks. These tools help improve care quality, boost clinician satisfaction, increase operational efficiency, and reduce costs. In radiology, automating diagnostic workflows accelerates care by providing on-demand access to medical images and reports.

Customer story

Atrium Health adopts Nuance DAX Copilot for improved clinical documentation

Atrium Health implemented Nuance DAX Copilot to streamline clinical documentation creation during patient visits. Primary care physicians using the technology have reported saving up to 40 minutes daily, increasing efficiency.

Clinicians at Atrium Health have expressed their favorable experiences with DAX Copilot, with 84 percent reporting an improvement in documentation experience and 68 percent saying it improved care. This adoption reflects Atrium Health's commitment to leveraging AI to alleviate administrative burdens and enhance patient care quality, setting a precedent for innovation in healthcare.

"DAX Copilot is enabling a better clinician experience. Most of our surveyed users are reporting a positive impact on their day-to-day schedule, being able to increase the number of patients they are able to see and even spending more time with them. This type of scale and satisfaction is critical in the advancement of healthcare."

Dr. Matt Anderson

Senior Vice President and Medical Director of Virtual Health for Advocate Health and Atrium Health's Senior Medical Director for Primary Care

Read the story >

Customer story

Mount Sinai Health System adopts comprehensive AI solutions to drive better care

Since initiating its Clinical Data Science (CDS) project in 2015 and transitioning its CDS infrastructure to Azure in 2021, Mount Sinai has made significant strides in predicting patient needs through data analytics and AI tools. This partnership with Microsoft has resulted in substantial improvements, including reduced hospital stays, lower mortality rates, and increased healthcare provider engagement.

Mount Sinai's commitment to data science and AI has yielded impressive outcomes, with projects focused on preventing predictable healthcare events such as malnutrition, falls, and delirium. Leveraging predictive machine learning models with electronic medical record data, Mount Sinai achieved notable successes, including enhanced fall risk assessment accuracy and identifying malnourished patients with over 70 percent positive predictive value. These advancements improve patient outcomes and lead to substantial cost savings.

"Mount Sinai's physicians, nurses, and scientists collaborate seamlessly to implement clinical decision support tools that are both accurate and helpful to our clinicians in their workflows. Creating 'augmented intelligence' at scale is our goal, and the partnership with Microsoft Azure has been a key element in our successes thus far."

Dr. David L. Reich, MD

President of The Mount Sinai Hospital, Professor of Anesthesiology, Pathology, and Artificial Intelligence

Read the story >

04

Bringing it all together

Bringing it all together

The healthcare sector faces mounting pressures: escalating costs, workforce burnout, and increasing patient demands for digital engagement. AI technology offers tangible solutions to enhance operational efficiency, streamline clinical documentation, and personalize patient experiences. Embracing AI alleviates current burdens and lays the groundwork for a more cost-effective and patient-centered future. Organizations that adapt quickly to incorporate AI into their systems will likely lead the industry in innovation, productivity, and patient satisfaction.

- **Learn more about Microsoft Cloud for Healthcare**
- **Learn more about Nuance solutions**
- **Read the AI Business Strategies whitepaper**
- **Learn how to power your AI transformation with Microsoft**
- **Learn how to build safety and responsibility into your AI journey from the start**

Microsoft

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