

AI in healthcare: Barriers and potential



CONTENTS

Introduction	4
Where AI works in healthcare	6
The final barriers to AI success: Training and investment	12
How to overcome barriers, fulfill potential	14
Authors	16

INTRODUCTION



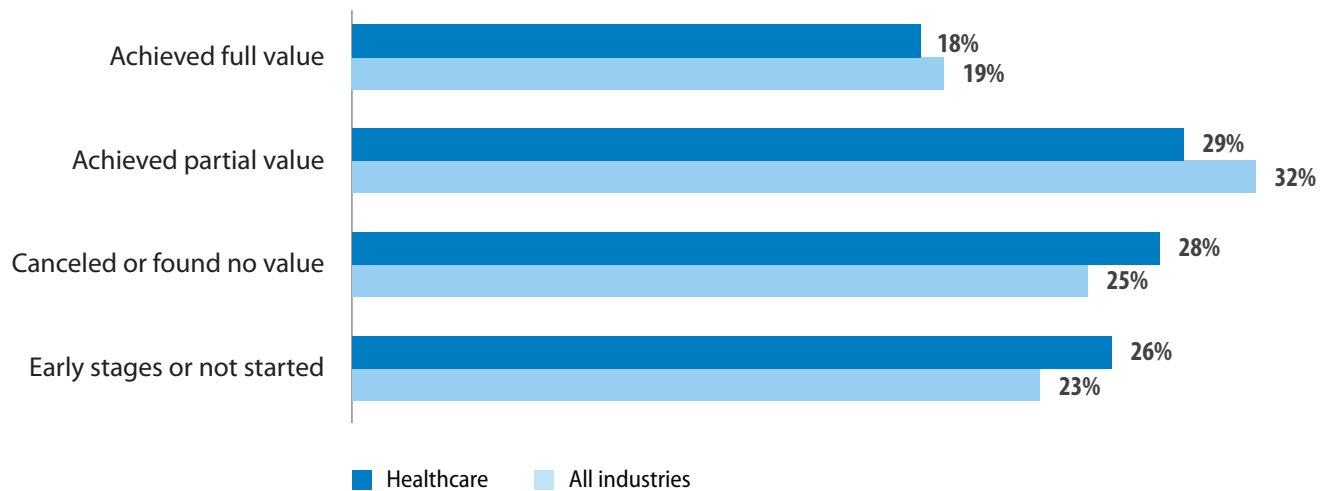
Healthcare organizations have moved beyond experimenting with AI. They have now put it to work throughout their organizations. Research by Infosys finds that healthcare companies get value from AI nearly half of the time, but there is still room for improvement.

The first challenge for healthcare executives is knowing where AI delivers business value within their organizations. Advocates for AI argue that it has the potential to transform the healthcare industry. This starts with efficiency, cost savings, and process improvements, and expands to better patient care through streamlined documentation, fewer medical errors, and more patient-centric systems.

Healthcare organizations are relatively slow to deploy AI: A slightly higher proportion of AI initiatives remain in planning or pilot phases compared with other industries, our research finds. For healthcare organizations, 18% of AI initiatives achieved full value and 29% achieved partial value (Figure 1). Compared with other industries, a slightly higher proportion of healthcare AI initiatives fail to achieve any value or are canceled after deployment.

At present, AI is applied unevenly in the healthcare space for several reasons. Healthcare processes and organizations are complex and contain many siloes. This limits the reach of enterprise-wide AI deployments. Additional academic

Figure 1. AI business value in healthcare organizations



Source: Infosys Knowledge Institute [AI Business Value Radar](#)

research shows that [AI in healthcare has been limited by a lack of governance](#) and implementation frameworks in the industry.

For large US healthcare payers and providers, the absence of AI-centered regulations limits how they can put AI to work, slowing progress across the industry. Without frameworks developed at the government or health plan level, providers and payers will not make progress with AI the way other industries will.

Some early instances where organizations have scaled up AI use have not delivered a return on investment. A sepsis prediction model that produced results at a small scale [did not perform well across clinics nationwide](#). Ambient AI tools deployed with doctors in North Carolina and Georgia [helped reduce burnout but did not deliver efficiency gains](#).

These and other disappointments often relate to proper integration, differences

among clinics, doctors' offices, and hospitals, and limited user training. In addition to managing those variables, healthcare-related algorithms and systems must overcome trust barriers and comply with transparency requirements.

The most vigorous AI activity in healthcare comes in pure-play software development initiatives. Venture capitalists [poured \\$6.4 billion into US-focused healthcare AI](#) startups in the first half of 2025. The impact of that investment will take time to have impact and could well be surpassed by comparatively quiet collaborations, involving incumbent payers, providers, and technology partners.

Healthcare software startups have raised hundreds of millions in venture funding and lined up hundreds of hospital clients for AI-driven tools, including ambient AI that converts [patient visits into clinical notes](#), AI agents to [handle patient outreach and follow-up calls](#), and systems to help [coordinate acute care](#).

WHERE AI WORKS IN HEALTHCARE



In healthcare organizations, AI works best in standard business processes such as fraud, claims management, risk and compliance, cybersecurity, workforce, IT operations and software development, Infosys research finds. For example, Infosys is working with a leading payer to build their data pipeline on the cloud to enable rapid use of AI in their workflows.

Of those currently viable AI uses, cybersecurity, workforce management, and operations are popular areas for healthcare payers and providers to deploy AI. Guarding against fraud and developing new software are less popular AI uses with healthcare

providers, our data shows. At this stage, AI is not working effectively in high-touch areas such as customer service, product development and sales for healthcare.

Compared with other industries, healthcare organizations were more likely to turn to AI for cybersecurity and resilience matters, as well as for supply chain use cases, Infosys research found.

Other studies of AI in healthcare echo this sentiment. Venture funding for AI in healthcare most frequently went to startups [promising to use AI to improve nonclinical workflow, clinical workflow and data infrastructure](#).

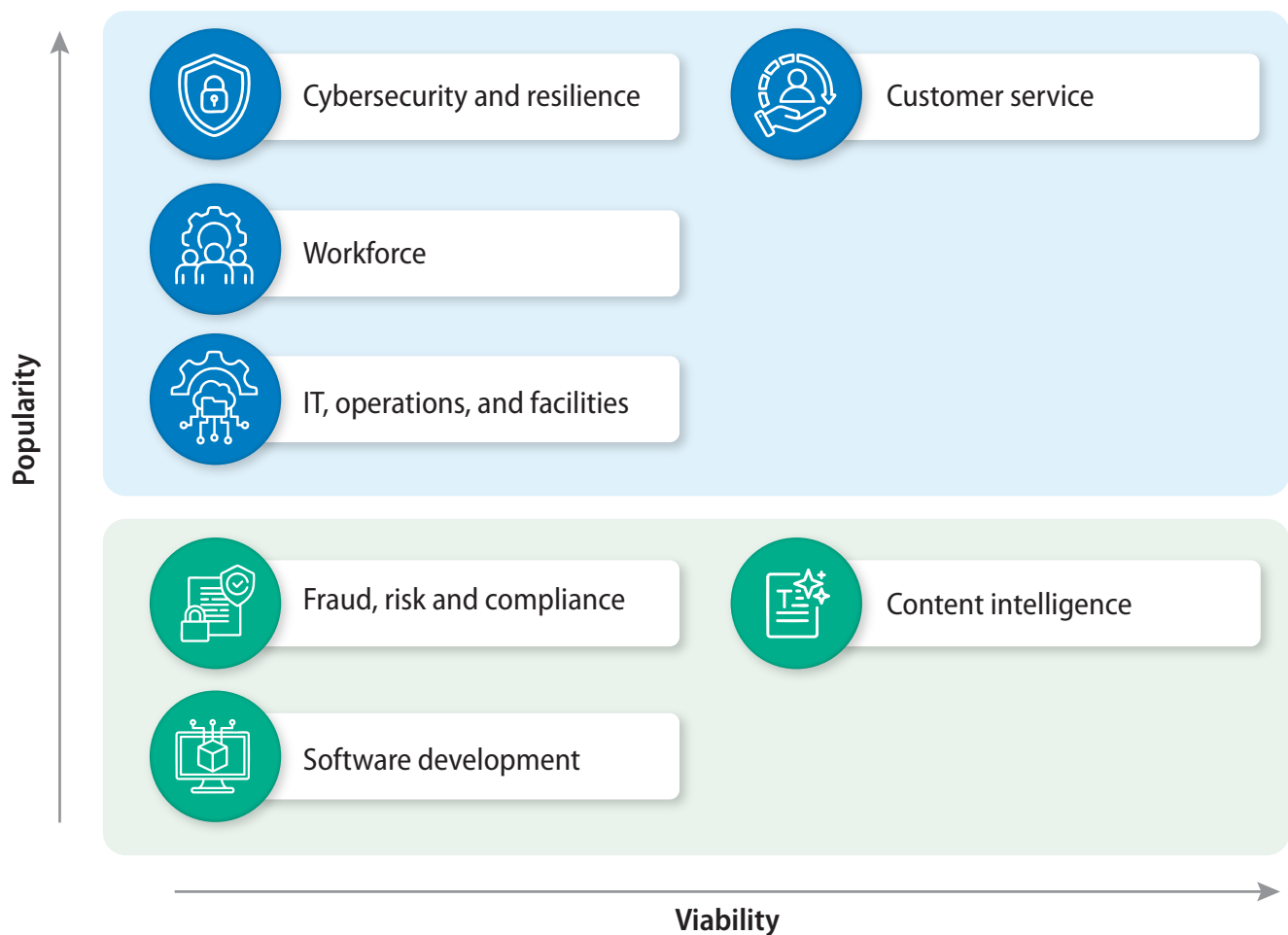
In contrast with healthcare's slow start in getting value from AI, pharmaceutical and life sciences companies are ahead of the pack.

Life sciences companies typically lag in adopting new technologies because of their highly regulated and structured nature. But regimented processes in drug development, clinical trials and even

manufacturing have accelerated business value with AI.

Standard technology infrastructure in life sciences organizations has enabled companies to quickly apply artificial intelligence. Infosys clients have applied AI and generative AI use cases across the value chain, particularly in Phase I to Phase III drug trials and in regulatory review.

Figure 2. Where AI works and what's most popular



Source: Infosys Knowledge Institute AI Business Value Radar

AI at the edge and center of care

AI will have a more immediate impact at the edges of patient care — around scheduling and follow-ups. Processes at those stages — such as intake and enrollment verification on the front end and discharge and post-procedure follow-ups on the back end — are more standardized.

As AI takes on more of the processes at the edges of healthcare, the role of healthcare payers will recede, and primary care providers can have a more prominent role with patients.

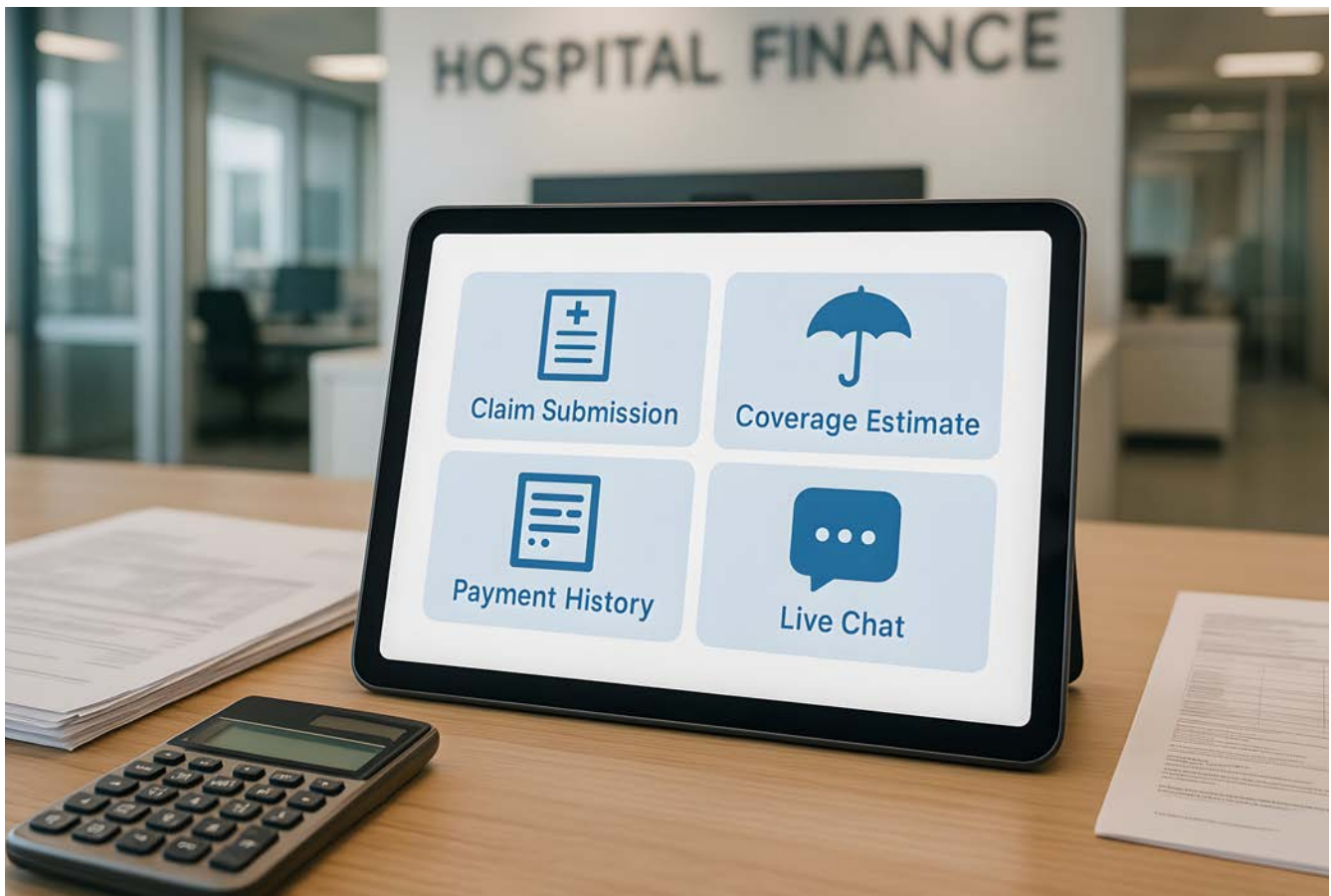
Payers manage risk and organize information. Much of the processing, verification and transactions managed by healthcare payers can be handled by artificial intelligence and automation.

A review of AI capabilities in development with health plans shows more robust development around call center operations, case management and management of medical conditions (Figure 3). While process-focused tasks have developed further, AI for patient interactions is showing great potential. Wearable devices infused with AI

Figure 3. AI capabilities for healthcare plans

Area	AI capabilities	In development	On offer	In production
Call center operations and case management	Highly developed	□□□□□□□□	■ ■ ■ ■ □□□□	■ ■ ■ ■ □□□□
Medical management		■ □□□□□□□	■ ■ ■ ■ □□□□	■ ■ ■ ■ □□□□
Sales and marketing/Member engagement	Partially developed	■ ■ ■ ■ □□□□	■ ■ □□□□□□	■ ■ ■ □□□□□
Provider management and engagement		■ ■ ■ ■ □□□□	■ □□□□□□□	■ ■ ■ □□□□□
Products, member enrollment and billing	Lightly developed	■ ■ ■ ■ ■ □□	□□□□□□□□	■ ■ □□□□□□
Claims and payments management		■ ■ ■ ■ ■ □□□	■ ■ □□□□□□	■ □□□□□□□
Compliance and regulatory reporting		■ ■ ■ ■ ■ □□□	■ ■ □□□□□□	■ □□□□□□□

Source: Infosys Healthcare



can deliver enhancements, particularly on the post-appointment and post-procedure side of healthcare interactions. Early research shows that [patients are more engaged and proactive](#) with information tracked by devices and compiled by AI tools.

In time, AI stands to have its biggest impact in healthcare at the center – where doctors engage with patients. For example, Microsoft has developed [ambient AI tools that can passively “observe”](#) and summarize patient visits. The company says this tool reduces administrative burdens on physicians and makes them more personable during visits.

As regulations develop, doctors and clinicians will be able to provide care for

more patients at the same time. Following examples in cosmetic surgery and dentistry, a single doctor augmented with AI and nurse practitioners or technicians can oversee care and treatment in a bigger office and over distance with virtual healthcare tools. For example, Microsoft has trained ambient AI products that assist patient visits by listening in and summarizing interactions. This tool reduces administrative burdens and leads to more personable exchanges with physicians, the company says.

But integrating AI into the patient-doctor relationship will take more time, due to the complexity of integrating systems and the slow process of building trust in

AI healthcare tools. Because healthcare is personal, AI has some greater adoption and trust challenges to address. Healthcare payers and providers will need to develop their own [responsible AI standards](#), and build training for staff and patients to achieve full value.

Recent Infosys research into responsible AI found that 95% of business executives globally had experienced [at least one problematic incident that involved AI](#). Privacy violations, system failures, inaccurate or harmful predictions, and ethical violations were the most common types of incidents. Given that healthcare is one of the most intimate business interactions most people have, responsible AI standards are even more important in the healthcare context.

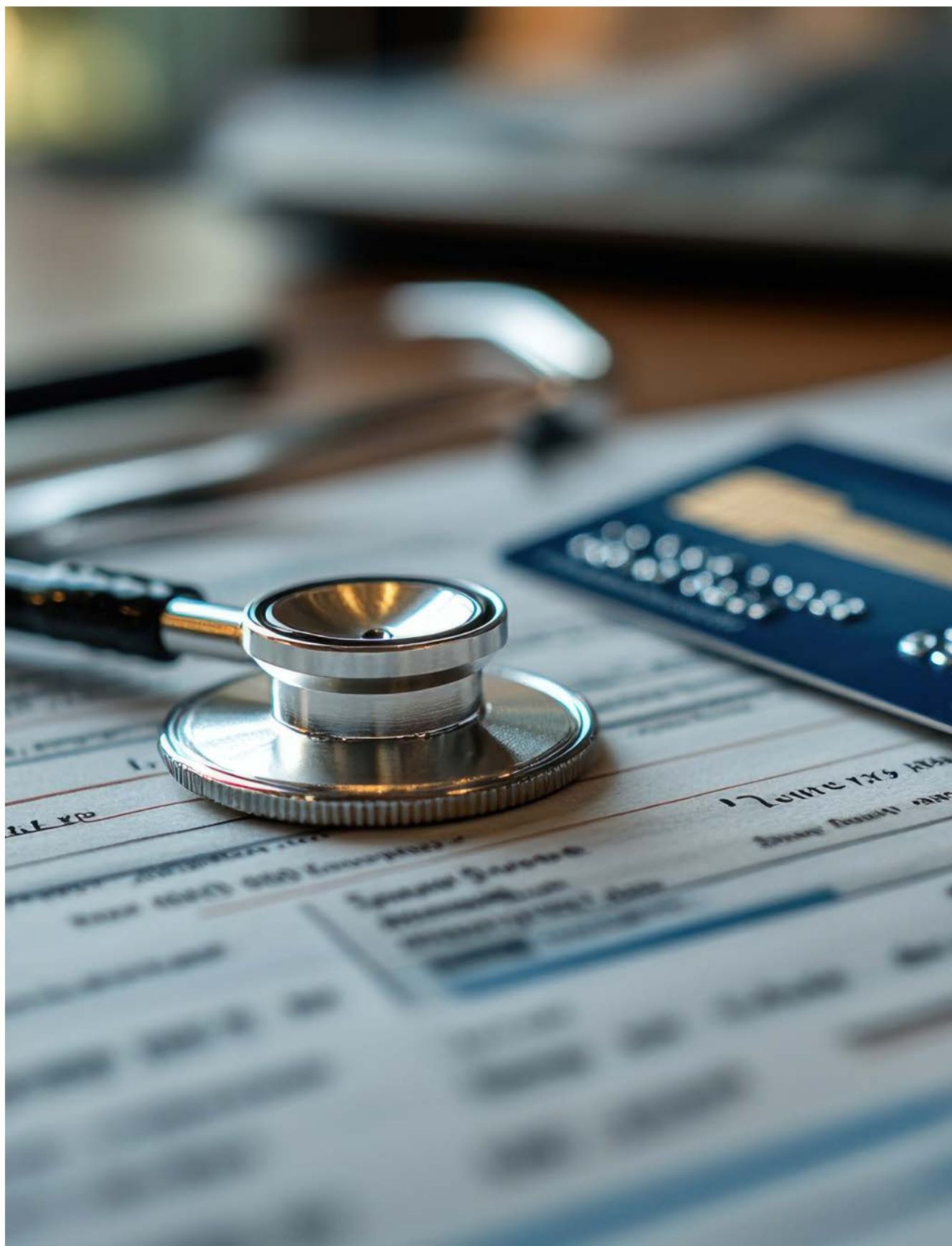
Therefore, any healthcare process that

involves AI must be implemented with transparency and explainability. How it works — and why it reached an outcome — has to be clear, auditable, and explainable to experts and novices.

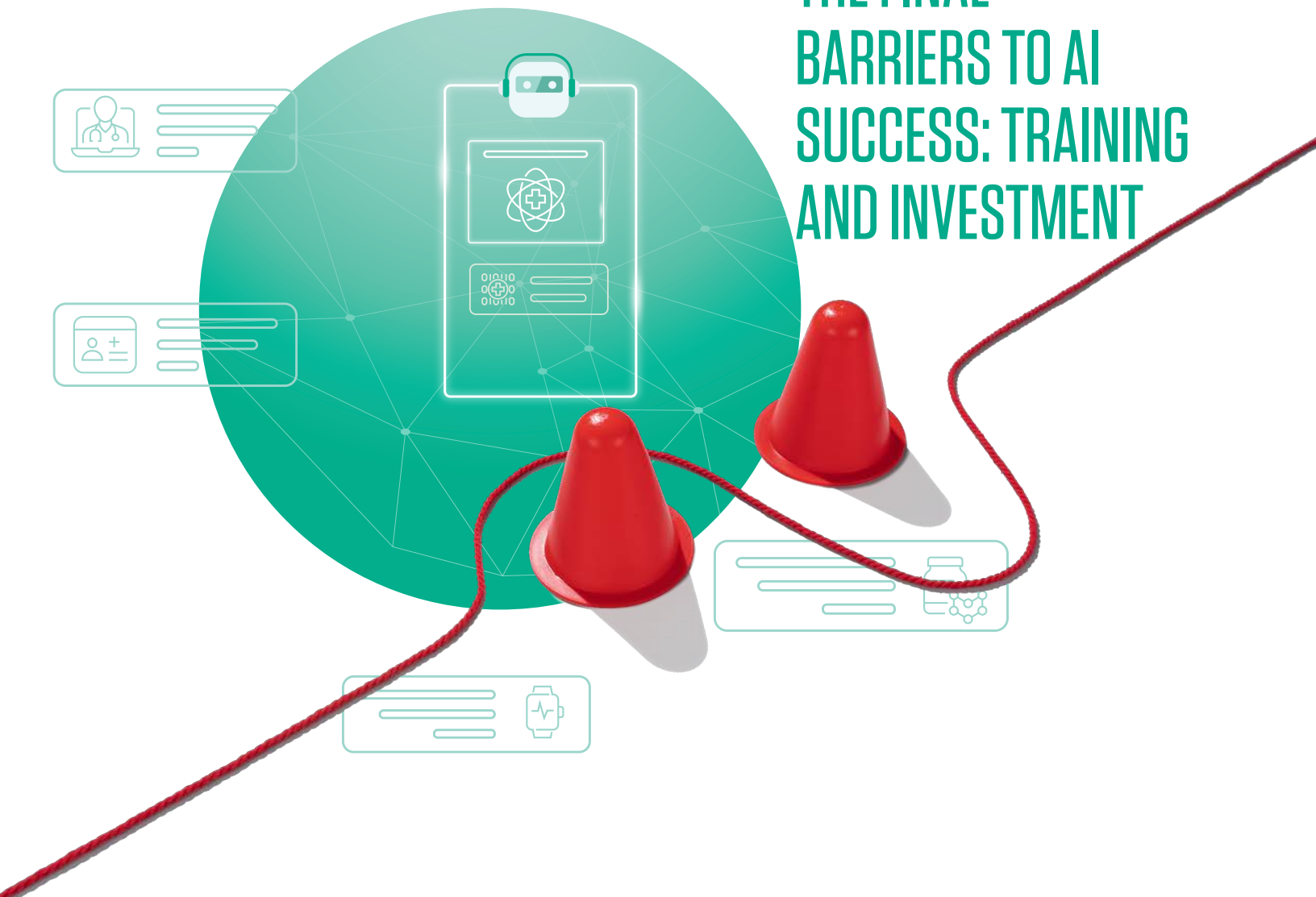
Going further, AI in healthcare must be doubly clear of biases and include special checks for fairness and equity. AI must be checked and rechecked for bias based on race, gender, class, and socioeconomic level.

Finally, data is the most critical input for AI, and healthcare data is perhaps the most confidential, critical, and regulated forms of data. Healthcare data can be very instructive in developing healthcare AI, but it must be handled with care, anonymized, and minimized if it is shared. Otherwise, an organization runs the risk of violating privacy rules and losing trust.





THE FINAL BARRIERS TO AI SUCCESS: TRAINING AND INVESTMENT



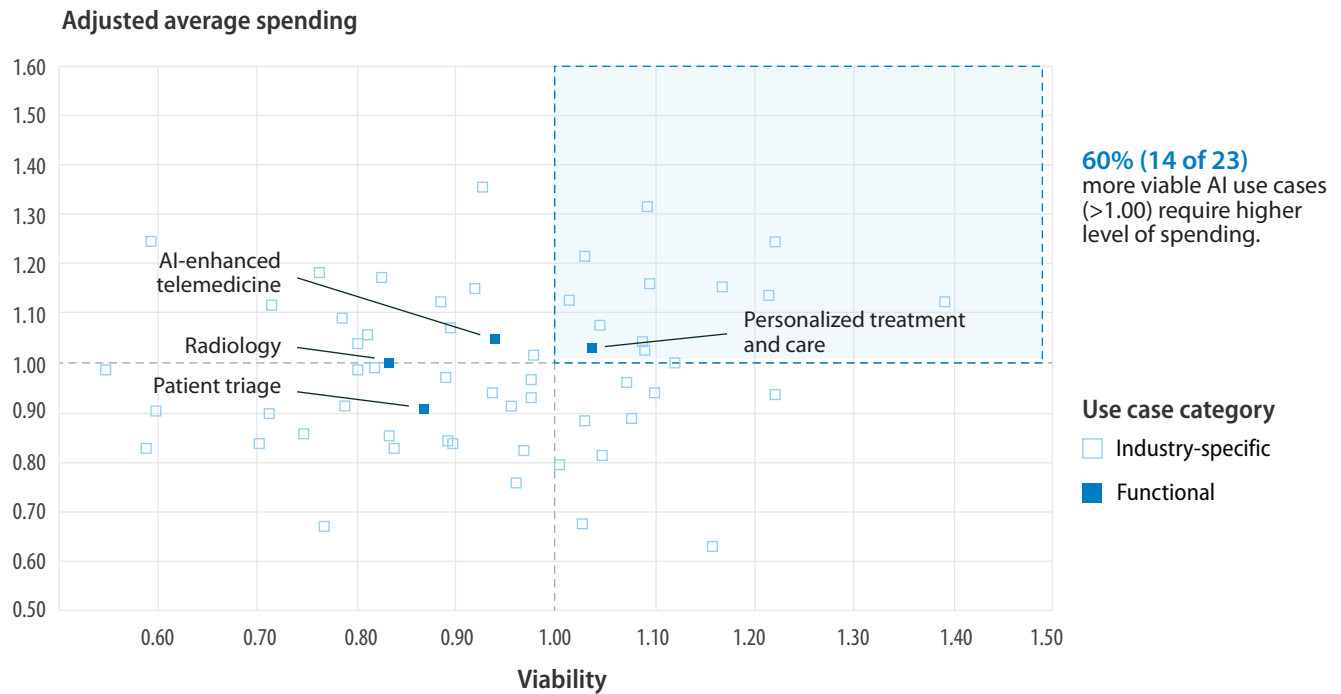
The final and perhaps the most critical barrier to healthcare AI success lies in investment and training. Healthcare organizations need fundamental digital modernization and integration in order to be ready for AI.

Healthcare processes and systems are complex and interconnected. Bringing AI into healthcare organizations requires

foundational transformation and training across the organization.

Our research shows that AI value is made more viable through high levels of and the right kind of spending or investment in technology transformation. This is true for both industry-specific initiatives and broad functional AI use cases (Figure 4).

Figure 4. In healthcare, 60% of the most viable AI initiatives studied required higher levels of spending (as reflected in the top right quadrant)



Both measures are relative, with 1 being the average for an AI use case.

Source: Infosys Knowledge Institute [AI Business Value Radar](#)

HOW TO OVERCOME BARRIERS, FULFILL POTENTIAL



AI applied to healthcare has great potential to deliver value to clinicians, patients and healthcare enterprises. But the delicate nature of healthcare necessitates even more careful adoption.

Putting AI to work directly in patient interactions and clearly delivering better care remains a goal for the future. This will take more time. Where standard large language models (LLMs) can be applied for managing claims and IT operations, researchers point out that [large language models in medicine must be trained on medical data](#).

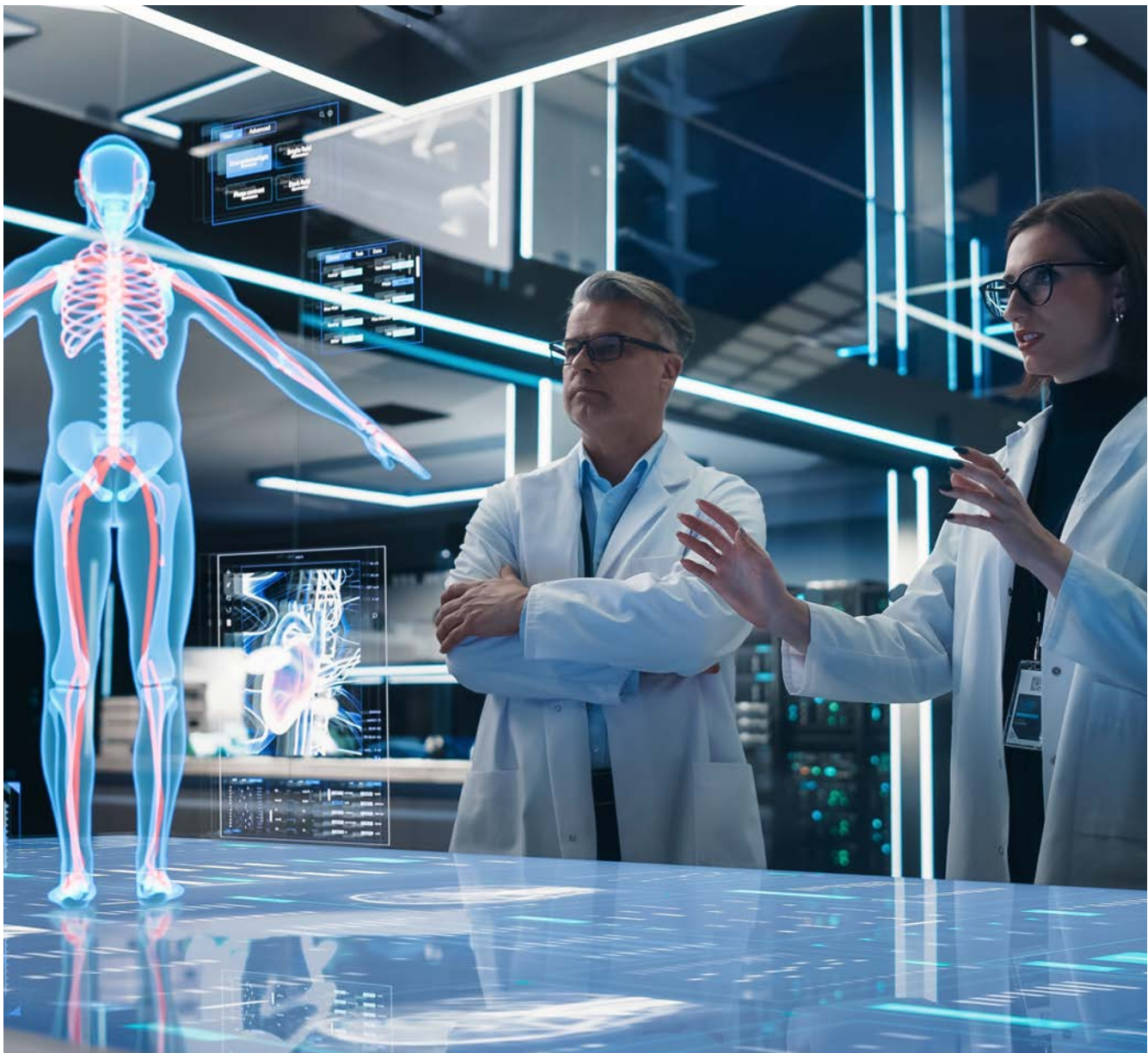
LLMs are making fast strides. OpenAI has focused the development of its recently released GPT-5 specifically on addressing health questions, and now touts [answering healthcare queries as a main feature](#) of GPT-5. Akido Labs, a California-based medical startup, is using its proprietary LLM to diagnose and develop treatment plans for patients at clinics in California and Rhode Island. A doctor reviews all the LLMs' work before treatment commences. The company claims this allows doctors to provide care for more patients and for patients to have access to care much more quickly.

Again, much of the experimentation and innovation in AI healthcare continues to come from technology companies and health technology startups. Healthcare organizations and pharmaceutical incumbents remain much more risk-averse and reliant on established processes.

What must change for payers and providers to embrace AI more fully? Clear regulations, responsible AI practices, AI literacy, workforce

training and digital modernization are all prerequisites to overcoming these barriers and enable AI to reach its potential in healthcare.

AI has shown its promise at the edges of the healthcare field. Practical business value across the healthcare value chain will be achieved only with more time, modern digital systems, responsible AI standards and workforce training.



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