Personalizing healthcare in the age of AI:

A guide for real-world impact

kyndryl

Contents

PAGE

3 A new era of better-connected, hyper-personalized care

5 Today’s healthcare transformation

6 Six core challenges reshaping healthcare

8 What’s ahead for healthcare?

10 Provider and payor predictions

11 The future of healthcare is AI-native

13 Accelerating toward AI-Native Healthcare with Kyndryl’s Agentic AI Framework

16 Healthcare customer spotlight 1

17 Building the foundation for scalable, AI-native healthcare

19 Healthcare customer spotlight 2

21 Four strategic recommendations for accelerating the journey to AI-Native Healthcare

24 How Kyndryl helps

27 AI is beginning to transform healthcare

kyndryl

A new era of better-connected, hyper-personalized care

AI is transforming every aspect of healthcare today — impacting patients, providers, health systems, and researchers in ways that seemed impossible even just a few years ago. Technology in healthcare is no longer just a support function; it is a strategic driver of change.

Healthcare leaders are increasingly turning to AI to tackle the industry's most persistent challenges: rising costs, constrained capacity, and uneven access to care. In the U.S. alone, analysts estimate that AI could unlock $2.3 trillion to $4.6 trillion in annual value healthcare industry value by 2050 through improving workflows and outcomes, and optimizing supply chains and drug management.[1]

Healthcare and pharma are among the top adopters of agentic AI globally.[2]

At its core, healthcare is a constant flow of data-driven decisions, many made in real time. This is where AI delivers its greatest potential impact. By coordinating data, decisions, and actions as care unfolds, AI enables more seamless, focused and personalized care, more efficiently and at lower cost.

By 2030, the shortage of healthcare workers worldwide is expected to reach 11 million[4], driving urgency for automation and smarter workflows.

As AI increasingly becomes a part of the daily flow of care, it can support continuous learning and more tailored responses to patient and community needs.[3] These capabilities create opportunities for faster analysis, diagnosis, and start of treatment, which could result in earlier intervention and improved outcomes.

Across the globe, the strain on healthcare systems is growing. Rising costs are stretching the capacity of health systems that are already struggling to keep up. Patients are living longer — and facing multiple chronic conditions.

By 2030, the shortage of healthcare workers worldwide is expected to reach 11 million,[4] driving urgency for automation and smarter workflows.

As healthcare organizations race into the future, progress will depend on aligning innovation with clear goals: to improve care for patients, ease the load on clinicians, and create smarter, more resilient operations. The true measure of AI won't be the number of tools deployed, but whether it meets the same standards as medicine itself: Does it improve lives, reduce disease burden, and advance care?

Today’s healthcare transformation is revealing...

long-standing structural and human challenges. Health systems must deliver better outcomes and more personalized care while facing workforce shortages, rising costs, and uneven access. Technology must be aligned to business strategy, applied to augment people and processes, and leveraged to drive both business and patient outcomes across the continuum of care. Otherwise, amid complex and fragmented technology estates, the increasing volume of data, and complicated compliance requirements, tech becomes a barrier to delivering quality care, profitable growth, innovation, and transformation.

To simplify this landscape and focus on what truly matters, the challenges facing healthcare today can be understood through six core issues that define the starting point for AI-enabled transformation:

Six core challenges reshaping healthcare

1

Disconnected systems

Core issue

68% of healthcare leaders cited legacy systems and poor data integration as the biggest barriers to operationalizing AI.[5]

Why it matters

Interoperability is essential to delivering higher-quality care and better outcomes at lower cost.

For example, in Canada, one patient's 3-month delay in specialist referral[11]—due entirely to communication failures—highlights the human impact of systemic fragmentation.[12]

2

Burnout + staffing shortages

Core issue

Over 50% of providers identify workforce burnout and staffing shortages as their top operational concerns[11] and by 2030, the shortage of healthcare workers worldwide is expected to reach 11 million.[6]

Why it matters

Technology must reduce burden and return time to human-centered care — not add friction.

3

Cybersecurity + governance gaps

Core issue

Nearly half of leaders (49%) cite the "appropriate use of AI" among their top three challenges, while just 12% say current algorithms and datasets are robust enough to trust.[7]

Why it matters

Strong governance and DevSecOps are now foundational to patient safety and public trust.

4

Persistent health inequities

Core issue

Uneven access continues to limit trust in healthcare systems, with only 28% expecting improvement.[8]

Why it matters

Data and tech must identify inequities and guide targeted interventions.

5

Workforce readiness for AI

Core issue

84% of healthcare leaders think AI will completely transform job roles and responsibilities at their organizations this year.[9]

Why it matters

Upskilling + roles like Application-T echnology Ambassadors ensure safe, effective adoption.

6

Local context shapes transformation

Core issue

Global healthcare spending is projected to rise at an average rate of 10.3% in 2026, driven by costly new technologies and treatments, strained public systems, and a fast-growing senior population.[10]

Why it matters

Innovation must adapt to local realities to scale impact.

Together, these challenges define the starting point for AI-powered transformation.
But what is the ultimate destination? At Kyndryl, we define it as AI-Native Healthcare.

What’s ahead for healthcare?

The following predictions highlight where healthcare is moving next — and, critically, what it will take to operationalize these shifts. To successfully navigate these shifts, leaders will need to focus on execution at scale, not just pilot emerging ideas in pockets.

AI-powered healthcare ecosystems become the default

Healthcare will move from siloed AI pilots to orchestrated, governed AI ecosystems spanning payers, providers, and life sciences. As workforce shortages intensify, agentic AI will move into production — automating documentation, triage, and workflows while increasingly coordinating complex cross-system processes.

Cyber-resilience becomes a strategic imperative

As digital estates expand and threats escalate, cybersecurity and compliance will dominate board agendas. Zero-trust architectures, continuous monitoring, and assured recovery capabilities will become standard, with cyber-resilience treated as foundational to patient safety and operational continuity.

Distributed, edge-enabled care scales, and personalization accelerates

Care delivery will continue shifting beyond hospital walls as virtual wards, remote patient monitoring, and edge AI become routine. At the same time, precision medicine, advanced analytics, and digital twins will enable continuously updated, individualized health profiles and more proactive care models.

2026 provider predictions

As AI becomes embedded in clinical operations, providers will face three defining shifts.

AI-led hybrid platforms transform clinical workflows

Providers will standardize on hybrid environments combining public and private cloud with on-prem systems to run generative AI assistants, imaging analytics, and automation — while maintaining control over protected health information (PHI).

Distributed care models scale across the continuum

Virtual wards, remote patient monitoring, and point-of-care AI will expand rapidly, increasing demand for secure networks, edge computing, and end-to-end device life cycle management.

Cyber-resilience and zero-trust move to the boardroom

Following a wave of high-impact breaches, providers will invest in integrated cyber-resilience strategies, including zero-trust security, managed detection and response, and defined recovery SLAs.

2026 payer predictions

Payers will accelerate AI adoption to control cost, improve experience, and compete in value-based care.

AI-driven operations and cost optimization

Agentic AI will be deployed across claims, prior authorization, fraud detection, and appeals —driving down administrative cost while improving accuracy and speed.

Outcomes-driven member experience

AI-powered personalization will transform the member journey through virtual assistants, proactive care navigation, and omnichannel engagement focused on measurable outcomes.

Value-based care and data modernization

Payers will accelerate investment in modern data platforms, interoperability, and predictive analytics to support population health, risk-based contracts, and regulatory compliance.

Kyndryl point of view:

The future of healthcare is AI-native

Despite record levels of investment, many organizations are struggling to implement effectively, drive tangible value, and scale beyond AI pilots. In current approaches, the problem is that agentic AI is bolted on as an additional layer and doesn't consider the full picture (or potential) of the organization, from business policies and processes to workforce readiness.

AI-Native Healthcare, defined

An AI-Native healthcare organization is intentionally agile, designed from the ground up with AI at its core. It enables seamless collaboration between people and digital agents within a system that can sense, respond, and act according to policy in real time. For example, an agent analyzes real-time electronic health records, diagnostic results, and bed-management data to predict admission risk within minutes. It alerts the care team, initiates guideline-aligned orders, and reserves beds earlier. The agent then learns from patient flow and outcomes data to continuously improve emergency department efficiency and reduce patient wait times.

In this new healthcare operating model, leaders can stay ahead with a business that continuously adapts to change, accelerates innovative and patient-centered care, reduces provider and administrative burden, enables profitable growth, and even reimagines care itself. All while strengthening resilience, security, and regulatory compliance.

Given the true transformative potential, it's easy to see why healthcare organizations are keen to invest in agentic AI. So, what's holding them back?

Accelerating toward AI-Native Healthcare with Kyndryl's Agentic AI Framework

To achieve scale, return on investment and sustainable value from AI, organizations must evolve how they architect and manage their technology systems and design and run business processes. They must intentionally embed patient and employee experience into every touchpoint across the system, and think differently about how they manage change to bring employees along on their AI journey. And they need AI-ready infrastructure, governed data, and embedded security — integrated with modern platforms and applications.

But how can organizations...

- orchestrate agents across complex technology systems;
- secure them with embedded security by design and governance;
- and scale from isolated pilots to enterprise-wide adoption?

As the world's largest managed IT infrastructure services provider for mission-critical technology systems, Kyndryl understands what it takes to move toward AI-Native healthcare. And we've developed the Kyndryl Agentic AI Framework to make the journey easier.

A unified framework for scaling agentic AI

At a high level, the Kyndryl Agentic AI Framework brings together:

- Agentic ingestion and governed orchestration of data across systems
- Agent development supported by reference architectures
- Policy as code to ensure agents act within defined clinical, operational, and regulatory guardrails
- Zero-trust security, data sovereignty, and enterprise-grade encryption to enable security at scale
- Experience design, workforce transformation, and change management to support adoption and sustainable change
- And full-stack, chip-to-experience engineering that enables the full AI value chain, from tech to talent to processes

For healthcare organizations, this integrated approach is critical. Regulated environments demand trust, transparency, and accountability—especially as autonomous systems take on a greater role in care delivery, operations, and decision-making. The framework is designed to ensure agents can act in real time, while remaining making. The framework is designed to ensure agents can act in real time, while remaining aligned to policy, compliant with evolving regulations, and trusted by the workforce.

Applying the framework to healthcare priorities today

With this foundation in place, organizations can apply agentic AI to real-world healthcare challenges without creating new silos or starting from scratch. Imagine:

- Ambient clinical workflows that reduce provider burden while improving care coordination
- Health insurance claims processing that helps insurers improve accuracy and speed
- Agentic automation that speeds trials and scalable innovation for life sciences organizations

No matter the workflow or starting point, Kyndryl brings decades of deep healthcare experience, mission-critical IT expertise, and proven co-creation models to help organizations get there with confidence.

Connect with a Kyndryl Healthcare expert →

Healthcare customer spotlight

Facing a shortage of trained professionals and a rapidly growing elderly population in need of home-based care, the founder of a U.K.-based healthcare services technology company needed a fit-for-purpose AI and cloud strategy to support scalable care platforms.

Our solution

Kyndryl designed and built a Microsoft Azure–based platform that supports the end-to-end home care workflow from initial assessment to compliant care delivery and reporting. The system creates personalized care plans, matches care recipients with the right care professionals, guides in-home visits through digital workflows, and automates government-mandated documentation.

The inside edge

Close collaboration and continuous feedback enabled rapid iteration and high-impact results that improved accountability, reduced administrative burden and operating costs, and enabled efficient growth, including:

- End-to-end healthcare data privacy and security
- Agile updates based on direct feedback from healthcare service providers using the software in the field
- Coordinated improvements across three development and operations (DevOps) pipelines, with multiple weekly updates
- A scalable cloud foundation that supports expansion across regions

Building the foundation for scalable, AI-native healthcare

Scaling AI in healthcare starts with focus, governance, and a clear view of the systems already in place. Many organizations still rely on aging infrastructure and disconnected platforms that make it difficult to share data or scale new capabilities across the enterprise.

Implementation costs add further pressure. For example, AI agents that guide patients through pre-operative appointments — answering questions about anesthesia, preparation, and recovery — typically cost between $500K and $1M to deploy,[13] depending on scope and complexity.

For organizations operating with tight margins, these investments demand a clear path to sustainable value.

AI-native healthcare means evolving from single-use AI tools and isolated datasets toward a system that empowers people and digital agents to collaborate seamlessly within a system that can sense, respond, and act within policy, all in real time. Intelligence can be embedded into the infrastructure, linking operations, clinical decisions, and financial performance into one seamless network.

Our recent collaboration with a large government-sponsored healthcare organization shows this shift in action.

We're helping to digitize healthcare services across Dubai's network of public hospitals and clinics — modernizing its IT infrastructure, unifying data systems, and building the foundation for AI-enabled care delivery.

As more health systems follow this path, the foundation becomes the environment where agentic AI can operate safely and effectively. Governed data, interoperability, and trusted workflows give these autonomous systems the context they need to act responsibly.

Technology alone, however, is not enough to scale AI successfully. Administrative and technical leaders need shared priorities and a culture that values security and accountability. Experience design must be intentional and training must be practical, not theoretical, helping teams understand how AI fits into daily to-dos and builds trust over time.

Trust keeps everything in motion. Transparent oversight, bias monitoring, and ethical review ensure AI stays accountable as it evolves. When these fundamentals are in place, AI becomes less experimental and more of an enabler of clinical and operational improvement.

Together, these elements form the groundwork for scalable AI-native healthcare: modern infrastructure, governed and interoperable data, secure and resilient operations, and a people-first approach to adoption. With this foundation in place, healthcare organizations can move beyond isolated successes and unlock AI's full potential—safely, responsibly, and at scale.

Healthcare customer spotlight

When hygiene standards are not followed, central line–associated bloodstream infections (CLABSIs) can occur, causing serious patient harm and billions of dollars in added healthcare costs each year, including regulatory fines of roughly $42,000 per incident in the U.S. Many of these infections are preventable with consistent adherence to established care protocols.

To improve patient safety and reduce financial risk, **one public health system** needed clearer, real-time insight into CLABSI prevention. Although it had extensive clinical data, that information was not reaching nurse managers in a timely, actionable way, making it difficult for overstretched teams to consistently prioritize central line care.

Our solution

Kyndryl designed and implemented a cloud-based compliance and analytics solution on Microsoft Azure. The solution integrates data from the Epic EHR system, applies enterprise-grade governance with Microsoft Purview, and uses advanced analytics in Azure Synapse Analytics to deliver near-real-time insights through Power BI dashboards, enabling nurse managers to proactively monitor prevention workflows.

The inside edge:

- Actionable, near-real-time visibility into infection-prevention workflows
- More consistent execution of hygiene protocols, improving patient safety
- Kyndryl's experience operating secure, highly regulated environments to support reliable clinical adoption
- A scalable Azure analytics foundation extended to additional quality and operational use cases
- Lower exposure to regulatory fines and reputational risk

Four strategic recommendations for accelerating the journey to AI-Native Healthcare

Below are four strategic recommendations to help you accelerate agility, innovation, and time to value with agentic AI.

78% of healthcare leaders prioritize clinical productivity over cost savings when investing in AI.[16]

1

Look for low-hanging fruit for the first pilot

Start where impact is meaningful, achievable, and measurable. Focus on repetitive or manual processes that strain clinicians and staff — such as clinical documentation, scheduling, claims management, or prior authorization. These “quick win” use cases often build on capabilities that exist within the EHR ecosystem, like ambient listening and automated coding. They demonstrate ROI and help build confidence in AI’s value across the organization.

In one hospital network, AI scribes saved doctors 15,000 hours in administrative work, and 82% of doctors reported improved overall job satisfaction.[14] In another pilot, an AI tool used to identify adults at risk of opioid use disorder led to 47% lower risk of hospital readmission within 30 days and an estimated $109,000 in care savings.[15]

Strategic actions for leaders:

- Build business cases around measurable value and time savings
- Use digital twins to simulate workflows before scaling solutions
- Reinvest early wins into broader modernization initiatives
- Pilot agentic systems in high-volume workflows that strain clinical and administrative teams

2

Target meaningful outcomes to prioritize further investment

Next, move beyond isolated pilots to initiatives that improve both patient and workforce outcomes. Examples include predictive models that identify high-risk populations, AI-supported diagnostics that enhance clinical accuracy, or digital workflows in emergency departments that reduce wait times and improve throughput.

These efforts should be grounded in measurable outcomes, such as improving clinician satisfaction, lowering readmission rates, or expanding access in rural, underserved communities. Physicians, operational leaders, and patients should be meaningfully engaged in the development, testing, and implementation of AI tools from the beginning to ensure they’re clinically relevant and usable in real-world workflow.

Strategic actions for leaders:

- Anchor AI initiatives to clinical and operational KPIs
- Track results continuously and refine models as conditions change
- Define success early — whether lower readmissions, shorter wait times, or fewer clinician hours spent on clinical documentation

3

Take a people-first approach to drive adoption and impact

Technology is only one side of the agentic AI coin; human engagement and talent is the other. To drive adoption, productivity, and employee satisfaction from administrative to clinical to research teams, healthcare organizations must take a 360-degree approach to workforce readiness and experience.

Strategic actions for leaders:

- Conduct skills assessment early on to identify and fill talent gaps
- Incorporate job and task redesign while mapping out clear career paths
- Embed proactive change management principles
- Leverage human-centered experience design to enable next-gen AI-enabled UI and UX

4

Scale securely with trust and governance

As you move from individual use cases to a connected ecosystem, data architecture, governance frameworks, and responsible AI practices are critical. Embed security by design through zero-trust security architecture, industry-standard encryption, observability, and audit trails. Governance must define accountability, ensure data integrity, and guard against bias or privacy breaches.

Strategic actions for leaders:

- Establish an AI agent control center to maintain visibility, verification, and compliance
- Create governance frameworks that incorporate agent-specific threat modeling and risk assessment
- Embed bias monitoring, model validation, and ethical review into development cycles
- Communicate transparently with staff and patients about how AI informs decisions

Inaction is a clear strategic risk. As peers accelerate their AI adoption curves, organizations that wait could be locked out of emerging healthcare ecosystems — unable to catch up on cost competitiveness, talent capabilities, or patient trust. Standing still is not neutral; it widens the gap between early movers and everyone else. **The time to act with purpose is now.**

How Kyndryl helps

Kyndryl specializes in the on-the-ground realities of healthcare. We help healthcare organizations modernize and operate mission-critical infrastructure, integrate new capabilities into existing systems, and translate technology investments into dependable, day-to-day execution that improves insight, safety, compliance, and patient outcomes.

IT modernization

Adopting a culture of continuous IT modernization is essential to AI success, value and ROI at scale. Kyndryl modernizes complex healthcare IT environments by assessing the current estate, simplifying and upgrading core systems, and integrating data across clinical, operational, and business platforms. We embed automation and AI readiness into existing workflows, enable secure interoperability across EHR/EMR and enterprise systems, and strengthen governance, compliance, and resilience. Through Kyndryl's Agentic AI framework, organizations can accelerate infrastructure and application modernization while building a scalable foundation for data-driven innovation.

Ambient clinical assistants

Healthcare organizations are struggling with clinician burnout, staffing shortages, regulatory risk, and revenue leakage driven by documentation burden and fragmented systems. Kyndryl helps address these challenges by integrating Microsoft Dragon Copilot into existing EHR environments to enable ambient, real-time listening and automated clinical documentation at the point of care. Leveraging our strategic partnership with Microsoft, we rapidly deploy and scale solutions with healthcare-experienced teams, supported by white-glove integration, change management, and ongoing operations — ensuring that AI reduces clinician workload while remaining secure, compliant, and trusted.

According to Gartner® by 2030, 40% of clinical patient data will be collected through ambient intelligence, utilizing a combination of sensors such as automated medical devices, computer vision, and environmental Internet of Things (IoT).

Clinical safety and compliance optimization

Transform fragmented, reactive data into proactive insights that strengthen safety, compliance, and operational performance. Kyndryl applies AI-powered monitoring, analytics, reporting, and workflow automation to help reduce preventable harm and risk while improving cost efficiency and patient throughput — supporting outcomes such as double-digit reductions in hospital-acquired infections, improvements in critical equipment uptime of more than 20%, and millions of dollars avoided in preventable costs.

Cyber-resilience

Innovate with confidence while maintaining safety and compliance. Kyndryl designs and implements end-to-end cybersecurity solutions across prevention, detection, rapid response, and recovery, establishes zero-trust architectures with 24/7 monitoring, and modernizes outdated systems to improve resiliency. Backed by more than 7,500 cyber-resilience professionals worldwide, Kyndryl Bridge helps close compliance gaps with automated playbooks and real-time alerts across complex, multi-vendor environments.

AI is beginning to transform…

AI is beginning to transform many aspects of healthcare, helping radiologists read scans more accurately, predicting patient risk earlier, and simplifying countless daily decisions. The next phase is about moving from isolated successes to system-wide adoption that reaches more patients and supports more clinicians. When AI takes on the work that keeps clinicians from truly seeing and caring for patients, it restores time for empathy, judgment, connection, and positive long-term health outcomes.

The future of healthcare will be defined by how well we use technology to bring back the human element and improve the experience for everyone.

Let’s shape a healthcare future where AI amplifies care without complicating it and every innovation brings us closer to better outcomes for all. If you’re exploring how to move toward this future, talk to a Kyndryl healthcare expert to discuss what’s possible.

Schedule a consult →

1 How AI Could Stop Surging Healthcare Costs, Morgan Stanley, 2025
2 Everest, Jul 2025
3 Shifting the focus of healthcare from consultations to conversations – an AI prescription for prevention, The Kyndryl Institute, 2025
4 Health workforce, World Health Organization
5 Kyndryl Readiness Report, 2025
6 Health workforce, World Health Organization
7 The Healthcare C-Suite's Take on AI: Sage 2025 Survey
8 Global Healthcare costs projected to rise more than 10% in 2026, World At Work, 2025
9 Kyndryl Healthcare Readiness Report, 2025
10 Global Healthcare costs projected to rise more than 10% in 2026, World At Work, 2025
11 Canada's health-care system has a data problem, experts say. And it puts patients at risk. CBC, 2022.
12 Continuity of patient care study: An investigation into the care of Greg Price, Health Quality Council of Alberta, 2013.
13 Inside Healthcare's Hottest New AI Category: Agentic AI, MedCity News, 2025
14 AI scribes save 15,000 hours—and restore the human side of medicine, AMA, 2025
15 AI screening for opioid use disorder associated with fewer hospital readmissions, NIH, 2025
16 Gartner, 2025.
17 Gartner Report, AI That Doesn't Drive Real Results Is Just Noise, By Robert Hetu, Priyanka Shukla, etc, November 2025 .
Gartner is a trademark of Gartner, Inc. and/or its affiliates

Company Headquarters
One Vanderbilt Avenue, 15th Floor
New York, New York 10017

kyndryl