

Innovation at the Intersection: AI transforming Healthcare

A perspective paper

October 2024

The healthcare industry is embracing the transformative potential of AI

Healthcare organizations are beginning to realize the game-changing opportunities AI presents, from improving patient outcomes to optimizing healthcare delivery. As AI matures, it's poised to reshape diagnostics, personalized medicine, and operational efficiency, paving the way for more predictive, personalized, and cost-effective healthcare.

However, much like other industries, healthcare faces unique challenges in fully harnessing AI's potential. From navigating regulatory frameworks to managing data privacy and ensuring ethical use, healthcare leaders must balance innovation with responsibility.



Key takeaways

The global AI in healthcare market is expected to grow at a 47% CAGR between 2023 and 2028, driven by growing demand for efficiency due to a stagnating care workforce and increasing demand for care

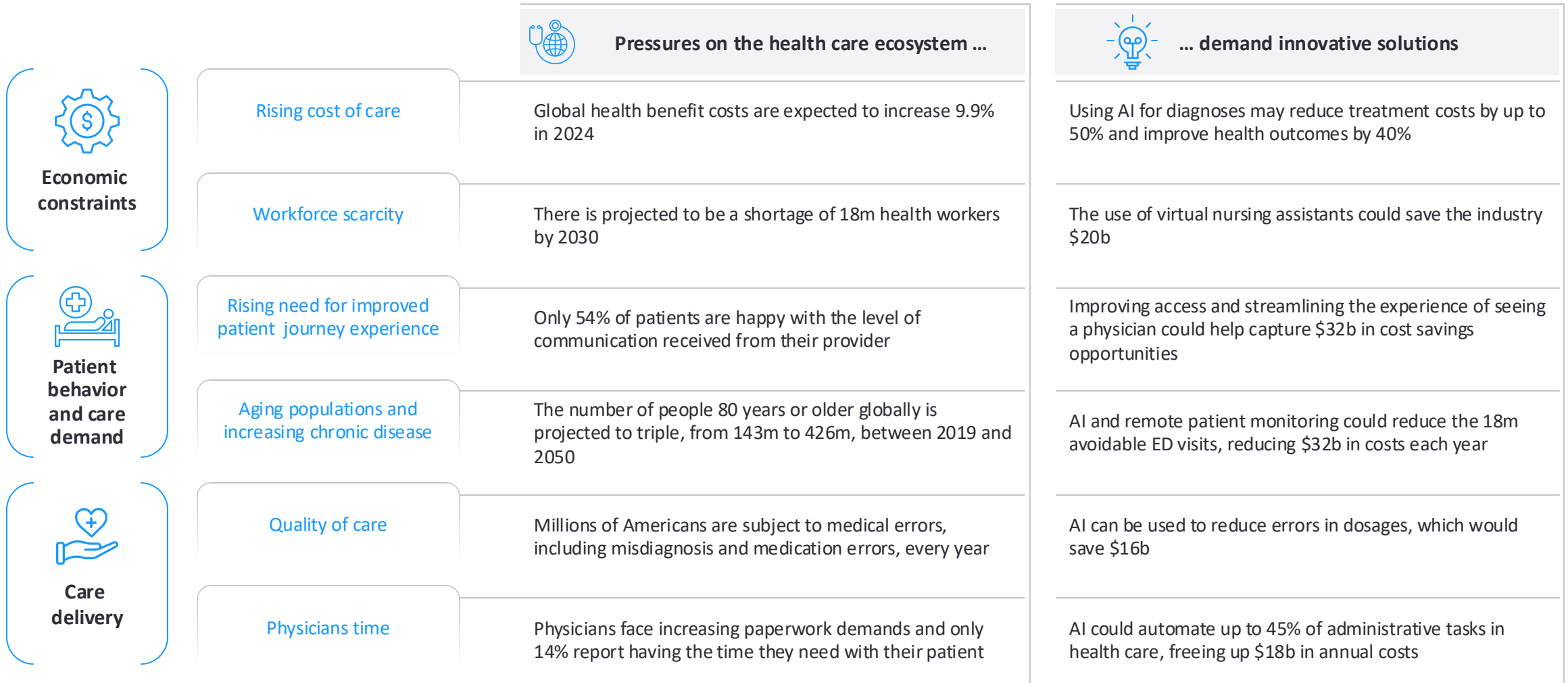
Integrating AI technologies presents a significant opportunity to enhance operational efficiency, improve patient outcomes, and unlock new revenue streams

To create tangible value beyond the hype, healthcare organizations need to

- 1 Design for future value, not just incremental gains
- 2 Invest strategically to balance value and cost
- 3 Claim your position in the AI driven ecosystem
- 4 Build, buy or partner: Craft your AI roadmap with purpose

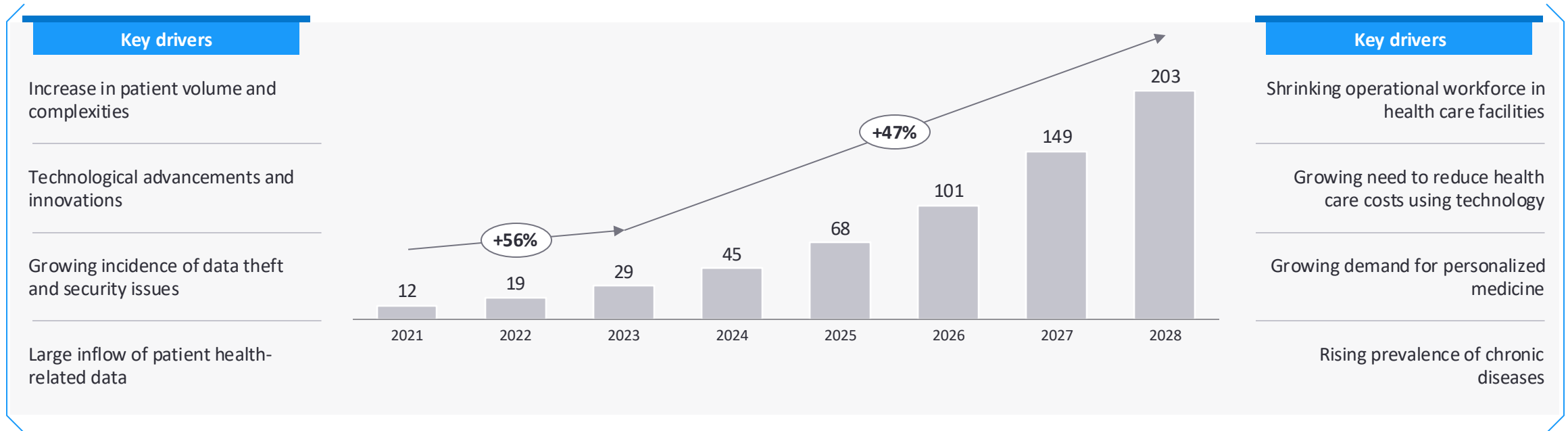
Healthcare organizations must seize the opportunity to leverage AI, transforming care delivery models and enhancing efficiency across the patient journey

Healthcare ecosystem pressures



The global AI in healthcare market is expected to grow at a CAGR of 47% between 2023 and 2028, driven by growing demand for efficiency due to a stagnating care workforce

Global AI in health care market size in US\$ billion

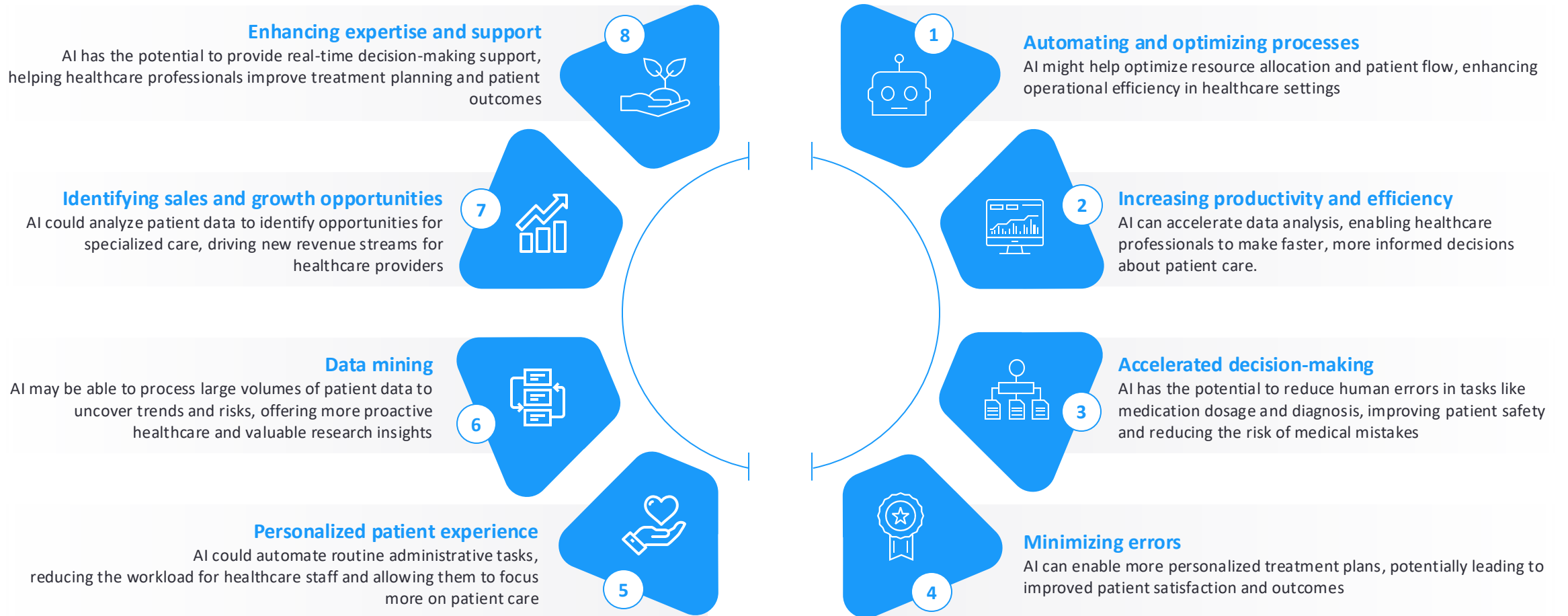


Competitive landscape for AI in health care

Medical imaging and diagnosis	Hospital workflow management	Surgical assistance	Medical error reduction	Precision medicine	Digital therapeutics
zebra AliveCor	amazon Google	INTUITIVE SURGICAL Medtronic	MedAware med eye	Alphabet biocel therapeutics	happify HEALTH Livongo


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Key benefits of AI in Healthcare



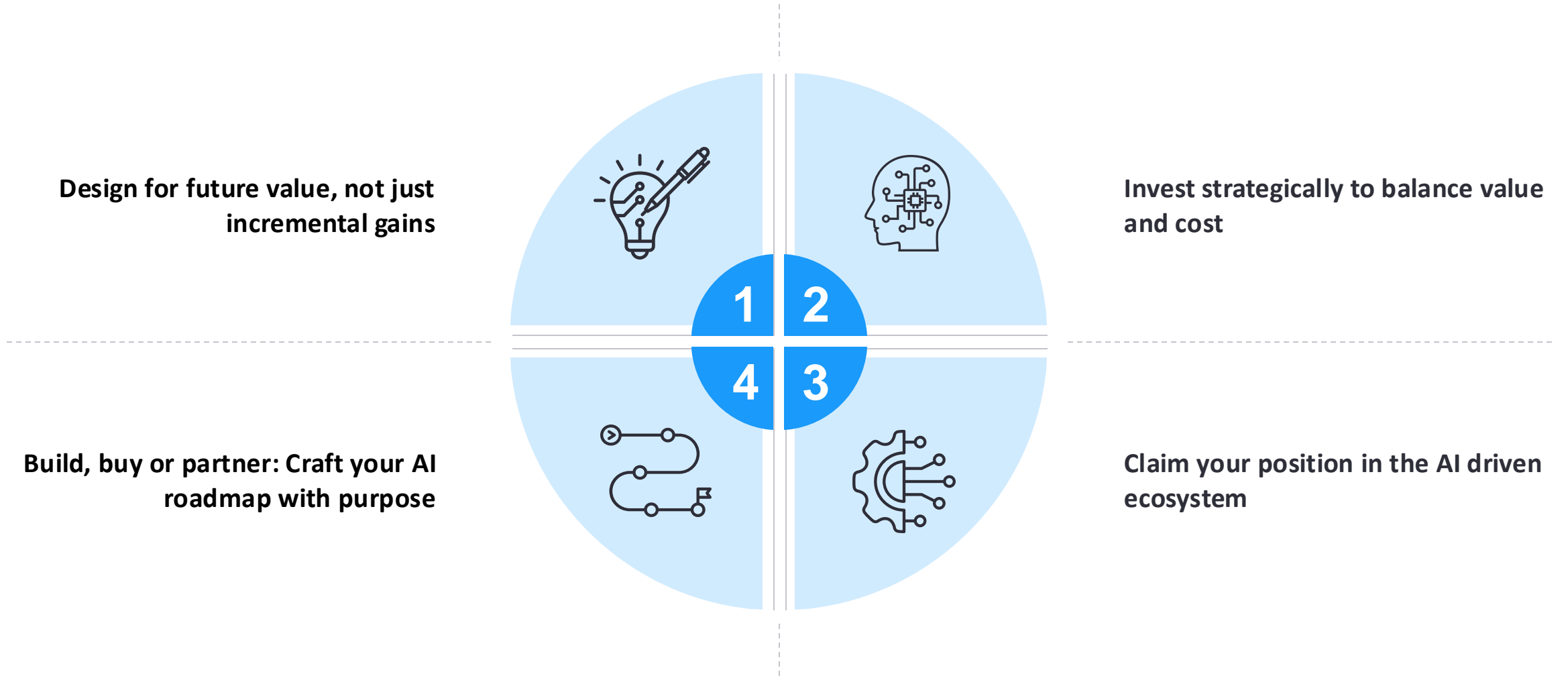
... however, there are a series of factors specific to the healthcare industry that may deter or delay the adoption of AI

AI barriers to adoption

Barrier	Importance	Perspective
Efficacy and stakeholder skepticism		<ul style="list-style-type: none"> ▶ Today, AI models typically have less than 100% accuracy with respect to health care data analysis and related outputs; there may also be concerns around “ethical AI” ▶ Patients and providers are likely to resist implementation of these models as they may be received as less trustworthy than human capital.
Regulation, privacy and litigation		<ul style="list-style-type: none"> ▶ Attaining regulatory approvals from boards, such as the Food and Drug Administration, and remaining in compliance with evolving HIPAA and other compliance measures can be onerous and slow. ▶ There is little legal precedent on determining medical liability when AI models are used in care delivery. Ambiguity around these topics may deter adoption
Lack of high-quality data		<ul style="list-style-type: none"> ▶ Healthcare organizations struggle to acquire and maintain high-quality data, which is the primary component required for robust AI and machine learning (ML) model training.
Budget and internal resources and capabilities		<ul style="list-style-type: none"> ▶ Healthcare organizations are facing tightening margins and may view investments in newer technology and processes as lower priority than simply staying afloat ▶ It can be difficult to find the dedicated talent required to perform health care AI-related workflows
Shift to value-based care		<ul style="list-style-type: none"> ▶ The overarching shift to a value-based care model has an ambiguous impact on the uptake of AI solutions. While the shift may eliminate some administrative tasks, the need to improve care quality could also lead to further uptake

Healthcare organizations require 360° view when they are designing their AI roadmap, to navigate the challenges towards tangible value beyond the hype

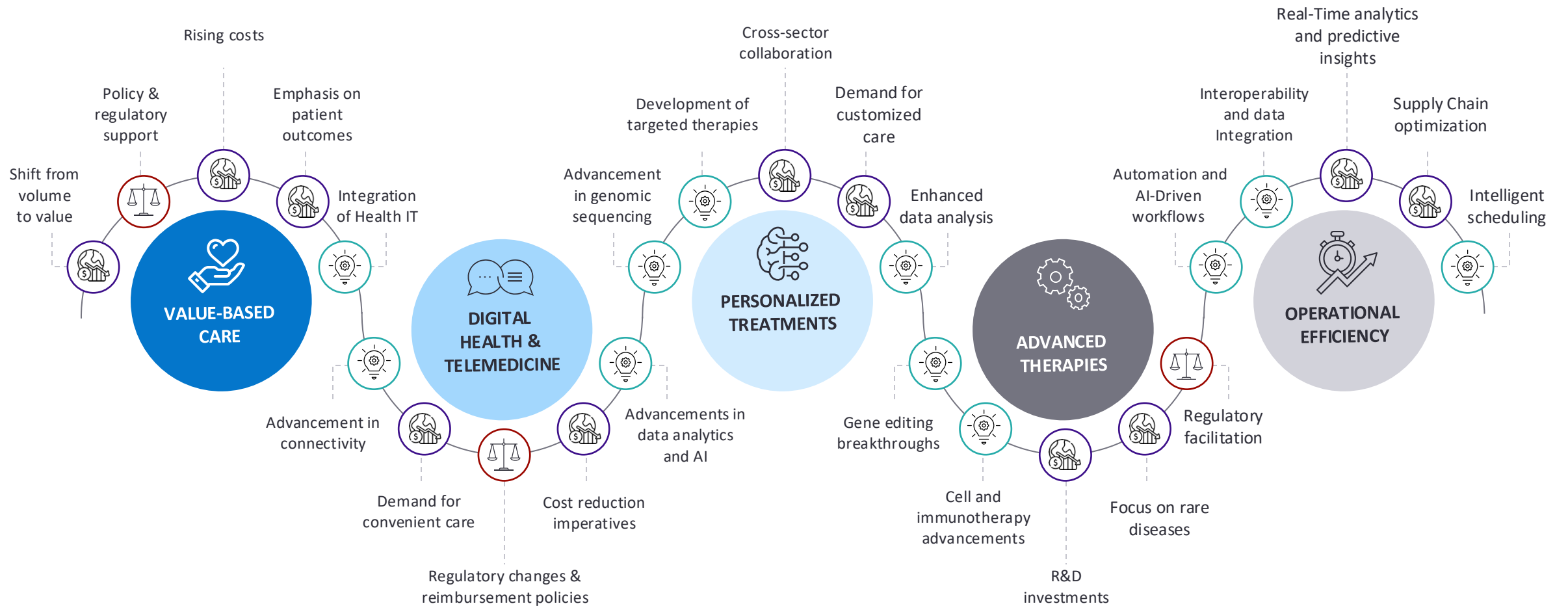
Considerations on the deployment of AI within healthcare



To capture long-term value, the AI strategy of should be driven by the emerging healthcare value pools ...

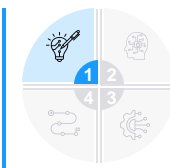


Emerging value pools in Healthcare



○ Tech & scientific innovations
 ○ Economic pressures & patient demands
 ○ Regulatory and policy environment

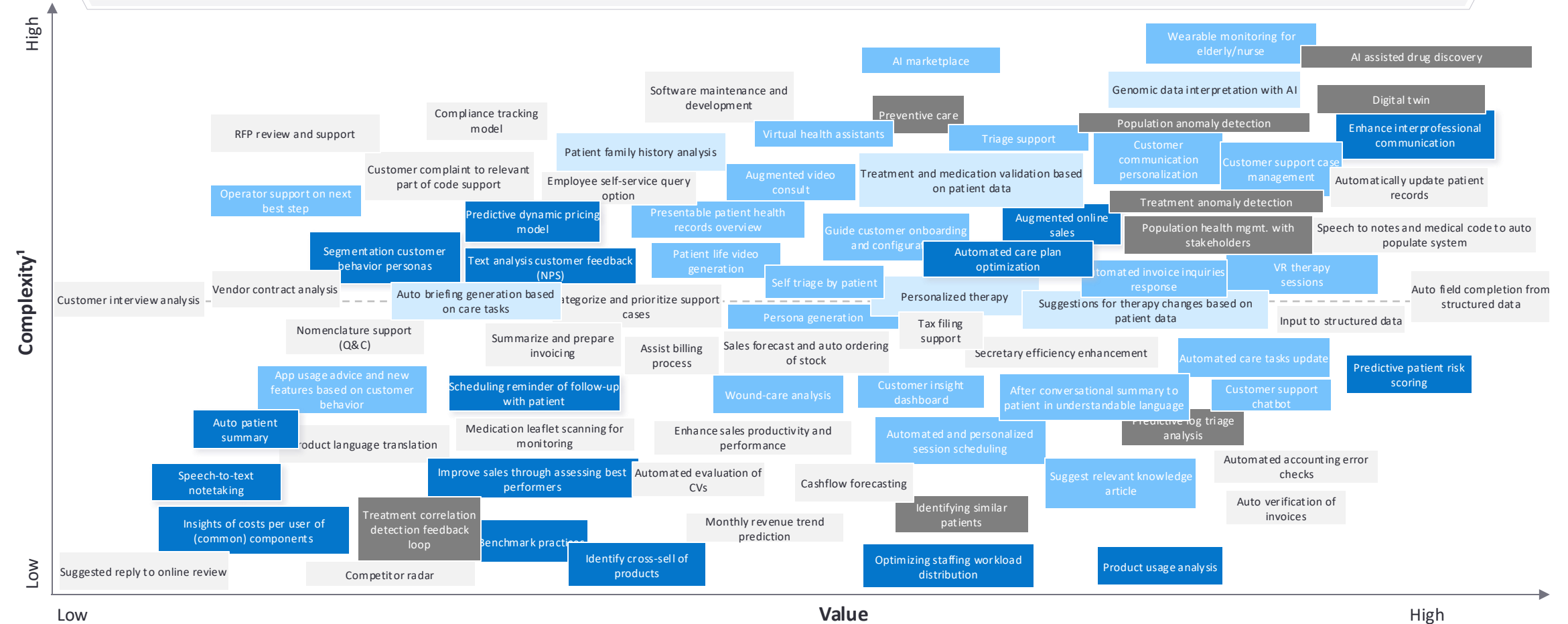
... but supported by a conscious path to value that acknowledges the complexity and execution challenges of more transformative use cases



Design for future value, not just incremental gains

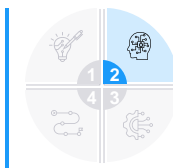
Deep dive: use-case study e-Health providers

Value vs. complexity matrix of quantifiable use cases



- Value based care
- Digital health & telemedicine
- Personalized treatments
- Advanced therapies
- Operational efficiency

Rising Generative AI spend is driving higher implementation costs, increasingly recognized by the C-suite as a critical concern ...

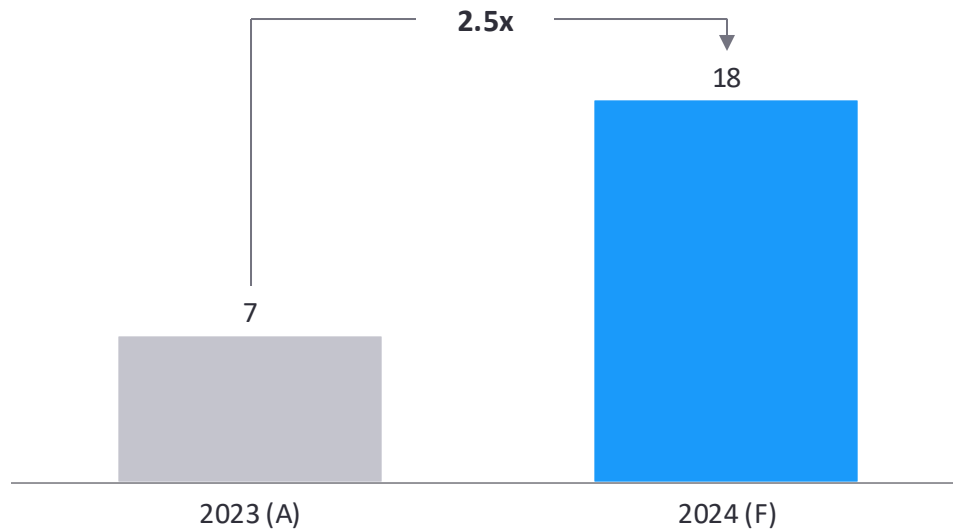


Invest strategically to balance value and cost

AI value case

Rapid elevation in spend on Generative AI...

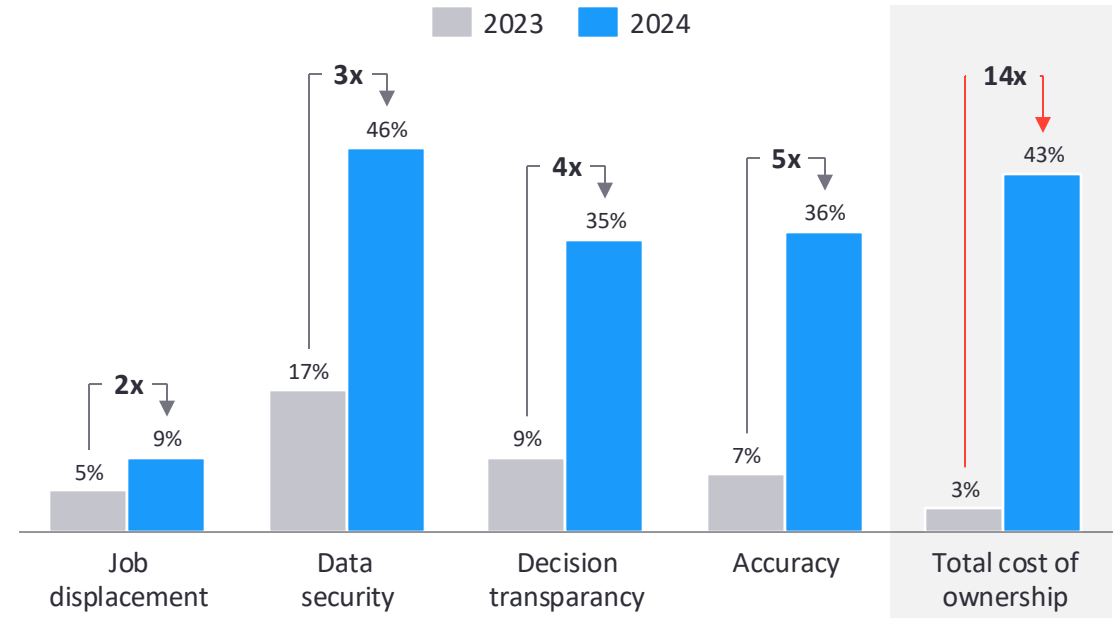
Average enterprise spend on LLM's
Actual and anticipated, in €m per year



Rapid elevation in spend on Generative AI is leading to higher emphasis on enabling a view of the “value” which is currently not available for >60% of initiatives

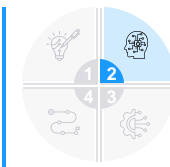
... is raising alarms for leaders

Key (Gen) AI adoption concerns for c-suite decision makers



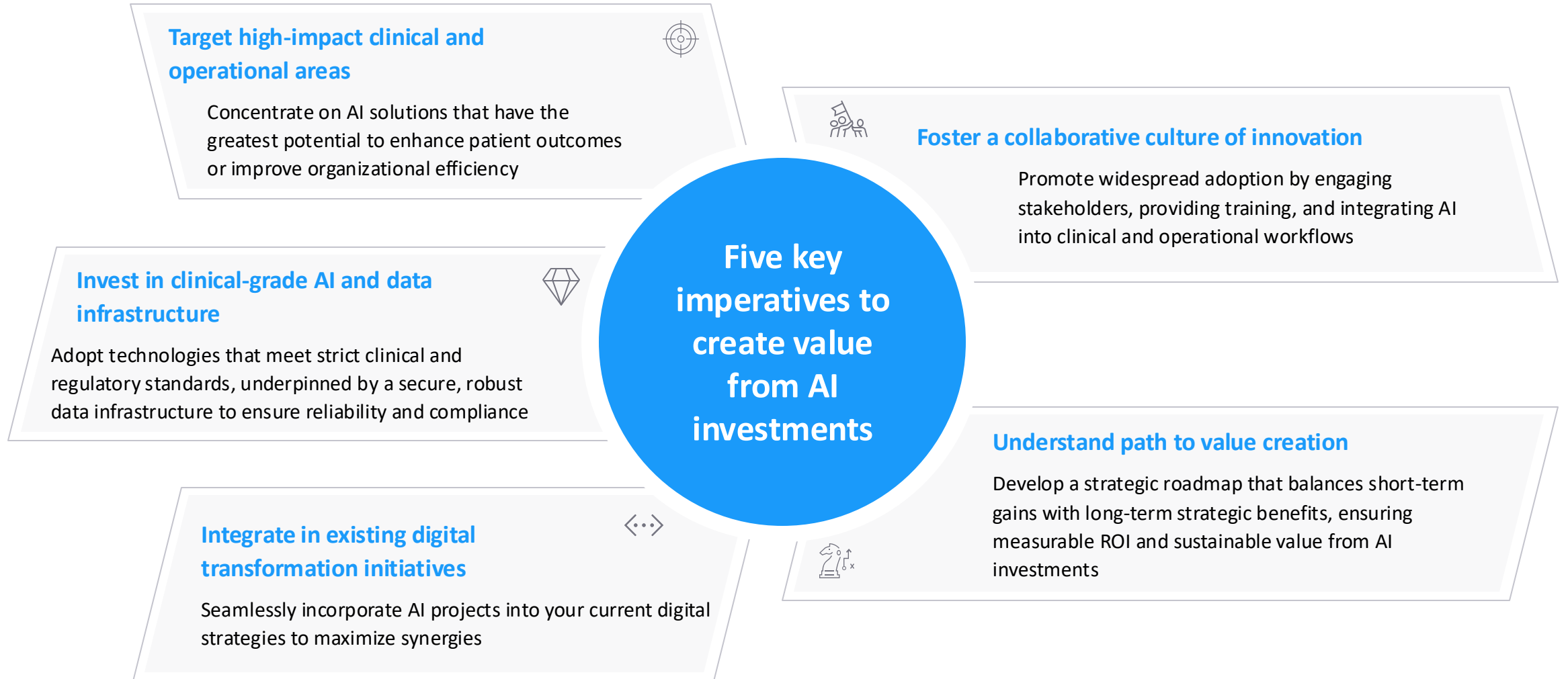
However, as the investments are growing, high implementation costs are raising alarms for leaders

... yet adopting these five key imperatives can mitigate those costs and build a strategic roadmap focused on sustainable value creation

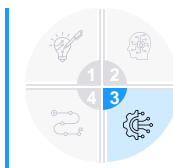


Invest strategically to balance value and cost

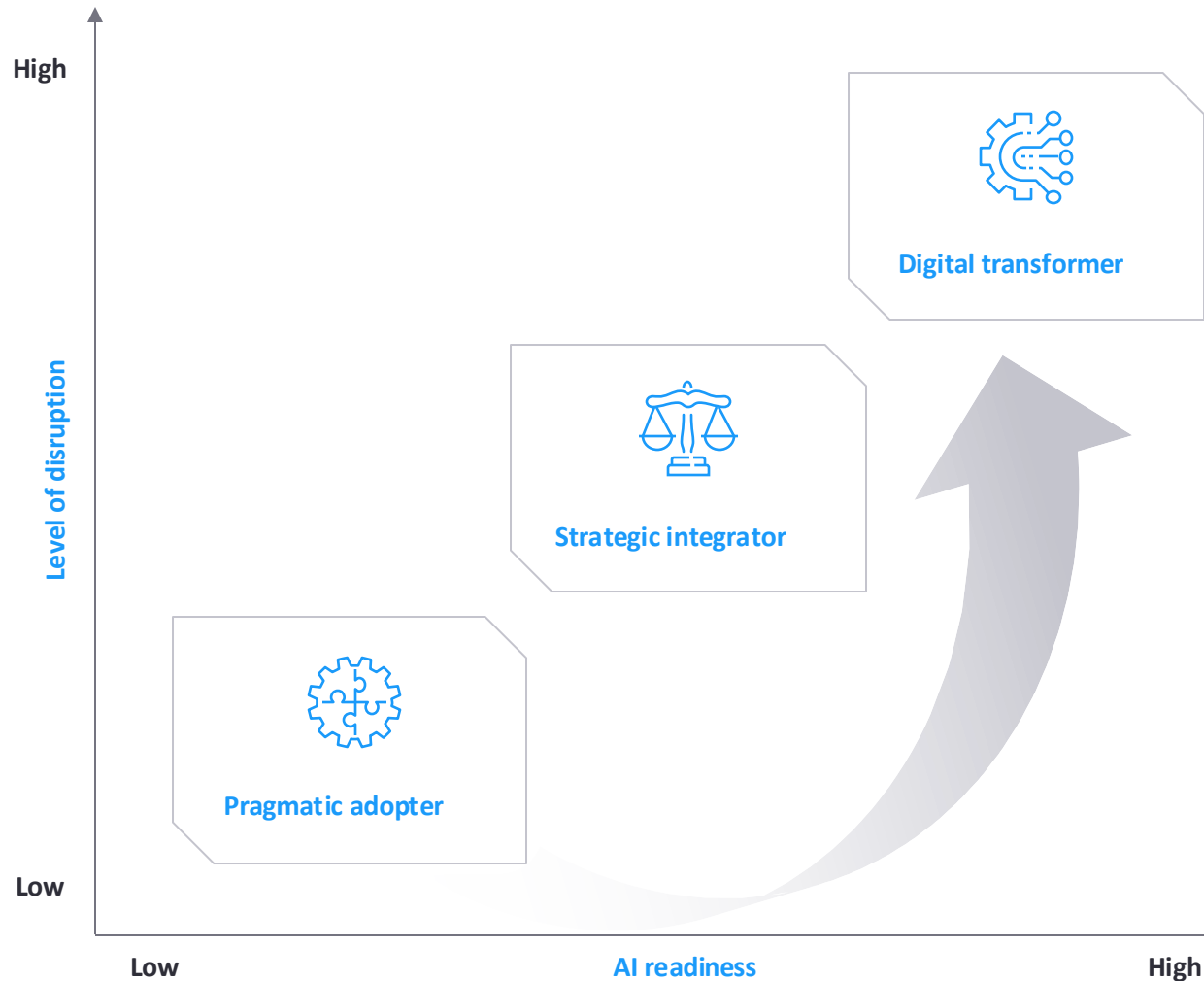
AI value case



Defining your strategic approach to AI and understanding your velocity of adoption is crucial for navigating the evolving healthcare landscape ...



Claim your position in the AI driven ecosystem



Digital transformers



Redefine the business model, characterized by a bold approach to innovation, focus on scalability, and a willingness to disrupt traditional market norms

Strategic integrators



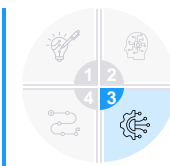
Foster innovation and practical application, characterized by a strategic balance between adopting new technologies and enhancing current operations without disrupting the core business model

Pragmatic adopters



Achieve quick wins and incremental growth, characterized by a cautious yet optimistic approach to technology adoption, prioritizing immediate ROI

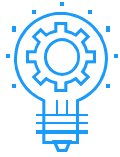
... driven by external factors and internal capabilities, ensuring a tailored and effective AI integration



Claim your position in the AI driven ecosystem

Level of disruption

AI readiness

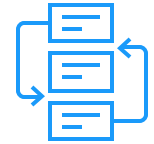


Industry susceptibility to disruption

The inherent characteristics of the industry that make it more or less prone to AI-driven changes

Data availability and quality

The extent to which the company possesses accessible, relevant, and high-quality data



Market competitiveness

The intensity of competition and the presence of AI-driven innovation within the market

Technical expertise & talent

The level of AI knowledge, skills, and experience within the organization



Customer expectations and demand

The extent to which customers expect AI-enhanced products or services

Existing IT infrastructure

The current state and scalability of the company's technology systems and platforms.

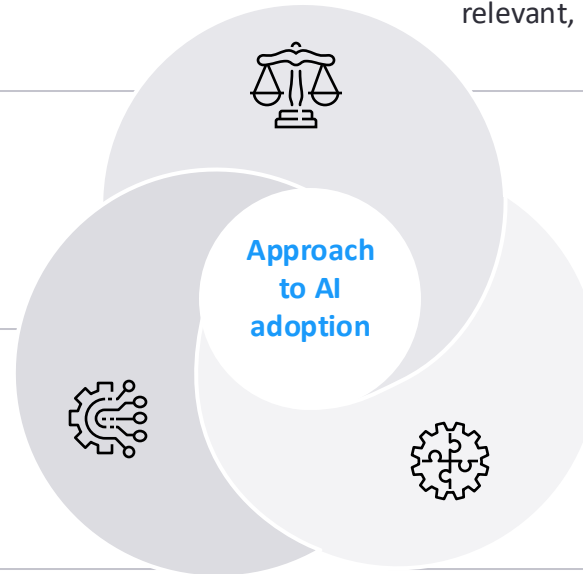


Regulatory environment

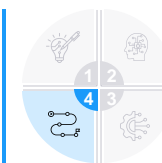
The degree to which government policies, laws, and regulations facilitate or hinder AI adoption in the industry

Financial resources and investment capacity

The availability of capital and willingness to invest in AI initiatives

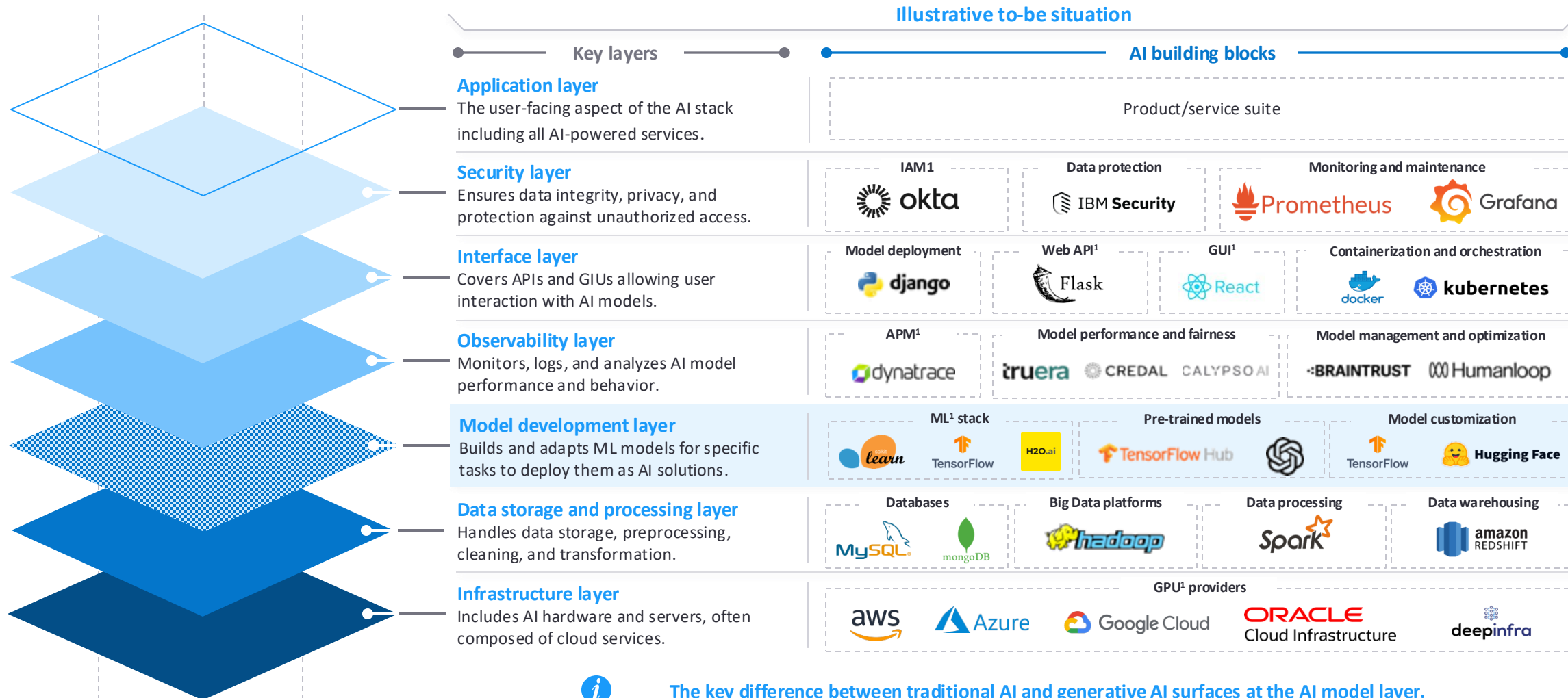


The emerging AI tech stack is different from traditional tech stacks with very specific building blocks ...



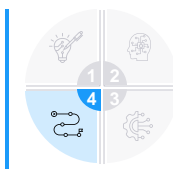
Build, buy or partner:
Craft your AI roadmap
with purpose

The modern AI tech stack

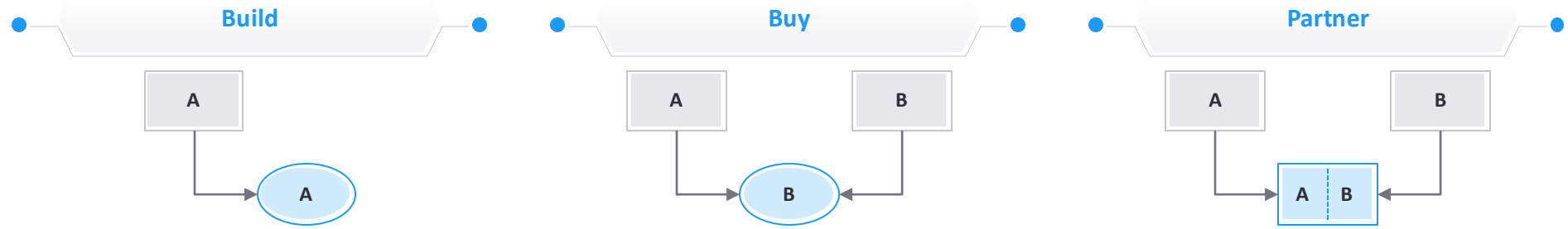


1. IAM: identify and access management; API: a application programming interface; GUI: graphical user interface; APM: application performance monitoring; ML: machine learning; GPU: graphics processing unit
Source: EY-Parthenon analysis

... which will require an evaluation of the buy, build, or partner decision on a case-by-case level



Build, buy or partner:
Craft your AI roadmap
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	Build	Buy	Partner
Cost & time to market	<ul style="list-style-type: none"> ▶ High investment needed ▶ Longest time to market 	<ul style="list-style-type: none"> ▶ Upfront costs ▶ Quickest time to market 	<ul style="list-style-type: none"> ▶ Relatively low upfront costs ▶ Medium time to market
Skills & expertise	<ul style="list-style-type: none"> ▶ Technical expertise required ▶ High resource capacity 	<ul style="list-style-type: none"> ▶ Third-party providers handle complexity ▶ Low resource capacity 	<ul style="list-style-type: none"> ▶ Technical expertise required ▶ Medium resource capacity
Customization & innovation	<ul style="list-style-type: none"> ▶ High flexibility for customization and innovation 	<ul style="list-style-type: none"> ▶ Limited customization ▶ Off-the-shelf solution 	<ul style="list-style-type: none"> ▶ Off-the-shelf solutions blended with in-house innovation
Maintenance & scalability	<ul style="list-style-type: none"> ▶ Internal maintenance, in control of integration and scalability 	<ul style="list-style-type: none"> ▶ Outsourced maintenance, limited control over scalability 	<ul style="list-style-type: none"> ▶ Hybrid maintenance, limited control over scalability

Healthcare leaders must act now to strategically embrace AI, addressing critical challenges to lead innovation, enhance patient care, and secure a competitive edge

Key AI investor questions



- ▶ What **transformative AI initiatives** can we pursue now to significantly enhance patient outcomes and **differentiate ourselves in the market**?
- ▶ How can we **align our AI strategy with emerging industry trends** to become leaders in healthcare innovation rather than lagging behind?



- ▶ Do we have the necessary infrastructure, talent, and data governance **to effectively develop and scale AI solutions**?
- ▶ How prepared are we to **navigate regulatory challenges** and ensure the ethical use of AI in our operations?



- ▶ What **business models and ROI metrics** can we establish to justify investments in AI and measure their **impact on our strategic goals**?
- ▶ How can we develop a **scalable roadmap for AI integration** that balances immediate needs with **long-term strategic objectives**?

Disruption



Describes how innovative and break-through the AI initiative is compared to alternatives



Value Retention



Describes how long the competitive advantage expected to withstand given tech trends and competition

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