Deloitte.

Tech Trends 2025 | Deloitte Insights

Life Sciences & Healthcare Perspective

Deloitte Tech Trends

- **An annual publication** providing insights into nascent and maturing technologies, exploring their potential impact on businesses
- **The 16th annual report** shines a light on the trends that are poised to graduate from sensational to foundational
- **The theme of this year's trends:** the ubiquitous nature of today's AI technology
- **This report presents a life sciences industry view**, evaluating each trend through the industry lens
- **We highlight some of the impactful use-cases and examples** we are seeing transform the Pharmaceutical, Biomedical, Medical Technology, and other related sectors.

Read the full Tech Trends 2025 report[1]

Trending the trends

	INTERACTION		INFORMATION		COMPUTATION		BUSINESS OF TECHNOLOGY		CYBER AND TRUST	CORE MODERNIZATION
2025	Spatial computing takes center stage		What's next for AI?		Hardware is eating the world		IT, amplified		The new math	The intelligent core
2024	Interfaces in new places		Genie out of the bottle		Smarter, not harder		From DevOps to DevEx		Defending reality	Core workout
2023	Through the glass		Opening up to AI		Above the clouds		Flexibility, the best ability		In us we trust	Connect and extend
2022			Data sharing made easy		Blockchain: Ready for business	Cloud goes vertical	DEI tech: Tools for equity	The tech stack goes physical	Cyber AI	IT, disrupt thyself
2021	Rebooting the digital workplace	Bespoke for billions	Machine data revolution	ML Ops: Industrialized AI			Strategy, engineered	Supply unchained	Zero trust	Core revival
2020	Human experience platforms		Digital twins				Finance and the future of AI	Architecture awakens	Ethical technology and trust	
2019	Intelligent interfaces	Beyond marketing	AI-fueled organizations		NoOps in a serverless world		Connectivity of tomorrow		DevSecOps and the cyber imperative	
2018	Digital reality		Enterprise data sovereignty		API imperative	Blockchain to blockchains	No-collar workforce	Reengineering technology		The new core
2017	Mixed reality		Dark analytics	Machine intelligence	Everything as-a-service	Trust economy	IT unbounded	Inevitable architecture		
2016	Internet of Things	AR and VR go to work	Industrialized analytics		Democratized trust		Right speed IT	Autonomic platforms		Reimagining core systems

Highlights from the past decade of Deloitte Tech Trends, with trends categorised under the six macro forces that shape information technology year on year.

Tech Trends 2025 | The Six Macro Forces

Deloitte's Tech Trends 2025 have prepared a view of six macro forces divided into two key categories, the elevating forces and the grounding forces.

ELEVATING FORCES
underpins enterprise innovation and growth

INFORMATION
"What's next for AI?"

INTERACTION
"Spatial computing"

COMPUTATION
"Hardware is eating the world"

GROUNDING FORCES
helps enterprises seamlessly operate while they grow

BUSINESS OF TECHNOLOGY
"IT, amplified"

CYBER & TRUST
"The new math"

CORE MODERNISATION
"The intelligent core"

We anticipate the future of technology to be **ubiquitous AI.**

AI touches on many of this year's macro forces, and we predict it will be so fundamentally woven into the fabric of our lives, and so foundational that we stop noticing it.

Tech Trends 2025 | Overview

Read the full Tech Trends 2025 report[1]

ELEVATING FORCES

underpins enterprise innovation and growth

INTERACTION

Spatial computing takes center stage:

With real-time simulations as just the start, new, exciting use cases can reshape industries

INFORMATION

What's next for AI?:

Exploring a new slate of models and agents to complement and outperform large language models (LLMs)

COMPUTATION

Hardware is eating the world:

AI's promise hinges on a hardware revolution, unleashing intelligent devices and advanced robotics

GROUNDING FORCES

helps enterprises seamlessly operate while they grow

BUSINESS OF TECHNOLOGY

IT, amplified:

AI elevates the reach (and remit) of the tech function

CYBER & TRUST

The new math:

Solving cryptography in an age of quantum

CORE MODERNISATION

The intelligent core:

Reshaping the core of enterprise systems through AI-driven modernisation

INFORMATION

What’s next for AI?

Enterprises move beyond a one-size-fits-all approach

Information | What's next for AI

Exploring new types of models and agents to complement and outperform LLMs

Read the full Tech Trends 2025 report[1]

What is next for AI...

Turning to hyperscalers for large language models, instead of building from scratch, has helped many enterprises accelerate their AI adoption. But size isn't everything — and sometimes it stands in the way of specialisation and flexibility. Some organisations are turning to smaller, purpose-built models for improved security, energy use, as well as unlocking other agent-to-agent capabilities. Thanks to small and open-source models, yesterday's 'there's an app for that' may become tomorrow's 'there's an agent for that'.

Tech Trend Overview

NOW

While large language models (LLMs) hold immense promise, their successful implementation hinges on strong foundations. To date, many enterprises have chosen to buy over build, and although LLMs are powerful, they are not a one-size-fits-all solution.

NEW

Organisations are beginning to realise that the **true potential can only be unlocked with high-quality, domain-specific data** and the **key to lower costs are to introduce a diverse AI toolkit**; encompassing large language models (LLMs that we are most familiar with), small language models (SLMs, more specialised cost-effective models), multi modal models (models that can work with text and/or image inputs), and **agentic systems (an army of connected agents/bots using AI technologies).** These emerging AI pillars are offering a more nuanced and effective approach to solving real-world business problems.

NEXT

Looking ahead, the focus of AI is likely to shift from augmenting human capabilities to autonomous execution. Imagine a future where AI agents, organised like a corporate hierarchy, seamlessly collaborate to complete complex tasks based on simple human instructions. Ultimately, realising the transformative potential of AI requires courageous leadership willing to embrace new ways of working and organising data in an AI-enabled world.

Information | What's next for AI

Exploring new types of models and agents to complement and outperform LLMs

Read the full Tech Trends 2025 report[1]

How are life sciences & healthcare exploring this trend?

The life sciences and healthcare industry is witnessing a surge in AI adoption, with organisations exploring its potential across various functions and product lines[2]. This goes beyond efficiency gains where the next evolution of AI, in conjunction with agentic possibilities, are driving fundamental capability enhancements.

Accelerated BioPharma Research

AI is revolutionising early drug discovery phases. By streamlining **literature reviews**, **automating drug discovery processes**, and **accelerating software development.** AI systems designed to act autonomously as agents (Agentic AI) are leading to impressive results, with some organisations reporting **80-90% success rates for AI-discovered drugs.**

Resilient Supply Chains

Traditional supply chains are often rigid and vulnerable to disruptions. Agentic AI offers a path to '**self-healing' supply chains** by leveraging predictive capabilities and enabling autonomous corrective actions. This translates to **smoother operations**, **greater resilience**, and **a more agile response** to changing market dynamics.

Personalised Experiences

Today, healthcare consumers are becoming the CEOs of their own health, where **personalised engagement is paramount.** Agentic AI empowers organisations to **deliver these tailored experiences** by efficiently analysing vast customer datasets, unlocking **deeper insights into individual needs and preferences,** and tailoring consumer connections.

Agentic AI offers significant potential, but successful implementation presents challenges related to maintaining **high-quality data assets** essential in training AI models, **scaling these technologies**, **managing their costs**, and **establishing effective governance** to ensure value creation throughout all stages of AI development and deployment.

Information | What's next for AI

Exploring new types of models and agents to complement and outperform LLMs

Read the full Tech Trends 2025 report[1]

Real world stories

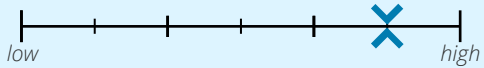
While the potential of Agentic AI is vast, realising its full potential requires a strategic approach. Organisations are finding success by **combining the strengths of newer generative AI with the reliability of traditional, deterministic AI models**. This hybrid approach allows for sophisticated orchestration of AI agents, driving tangible benefits.

A multinational healthcare corporation has revolutionised their **Inventory Optimisation Processes** and broader **Supply Chain Performance Diagnostics** using an **AI-powered tool**, enabling rapid analysis of inventory data. This transformation is projected generate over $190 million in working capital benefits, at the same time as enhancing customer satisfaction.

In pharmaceuticals, AI is demonstrating value through **AI-driven drug discovery** showcasing significantly higher success rates in early clinical trials compared to traditional methods[3]. Combined with the growth of decentralised clinical trials, these applications of AI, offer a **faster, more efficient path in the development of novel therapies**.

Trend maturity within the LSHC industry

The number of organisations that are actively exploring and investing in this trend



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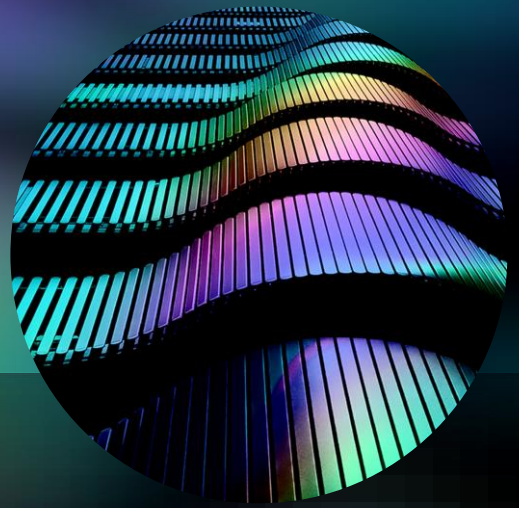
COMPUTATION

Hardware is eating the world

The promise of AI depends on more than software



Computation | Hardware is eating the world

AI's promise hinges on a hardware revolution, unleashing intelligent devices and advanced robotics

Read the full Tech Trends 2025 report[1]

Where does AI and hardware intersect...

AI isn't just software anymore. Manufacturers are pioneering a **new generation of chips that embed AI models into PCs and edge devices** for localised, offline use, not only supercharging user capabilities but future-proofing the tech infrastructure. Onboard AI can also make the Internet of Things (IoT) more robust in areas like medical devices and robotics. It isn't just processors that are improving; they're becoming more energy efficient as well, a major consideration given the growing energy appetite of global computing.

Tech Trend Overview

NOW

The tech world is experiencing a hardware renaissance, driven by the insatiable demands of AI. Specialised chips, **particularly graphics-processing units (GPUs),** have become essential for training complex AI models. While GPUs remain crucial for handling the heavy workloads of **large language models (LLMs)** and content generation, a new breed of chip, **the neural processing unit (NPU)**, is gaining traction. NPUs, designed to mimic the brain's neural network, **excel at accelerating smaller AI workloads with greater efficiency and lower power demands.** This shift enables enterprises to move AI applications away from the cloud and apply AI locally to sensitive data, paving the way for a future of embedded AI in everyday devices.

NEW

Infrastructure is now a strategic asset, with specialised hardware crucial for **AI-embedded devices, data centres, and advanced robotics**. New GPUs and NPUs have already saved energy and cost for organisations, and innovation is not stalling. In the near term, enterprises face key decisions about edge device adoption and data centre strategies, balancing cost, capability, and sustainability as they navigate the evolving landscape of AI hardware

NEXT

Looking ahead, the hardware revolution will extend beyond IT, ushering in an era of advanced robotics and truly intelligent devices. Smart factories, **powered by interconnected AI-embedded systems**, will transform manufacturing. As hardware evolves from enabling AI to embodying it, businesses may consider a future where robots are no longer a promise but are a reality.

Computation | Hardware is eating the world

AI's promise hinges on a hardware revolution, unleashing intelligent devices and advanced robotics

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How are life sciences & healthcare exploring this trend?

The life sciences industry is still early in exploring AI-embedded hardware; however, there is significant potential for **medical devices:**

Real-time diagnostic tools

NPUs could power **portable diagnostic tools, real-time patient monitoring devices, or even smart prosthetics** with advanced capabilities.

This shift towards edge computing in healthcare promises **faster diagnosis, personalised treatments, and improved accessibility**.

Robotic transformation

Humanoid robots represent a transformative force in life sciences, with the potential to revolutionise healthcare delivery. We might envision these robots taking on everything from hazardous waste disposal to assisting in operating rooms, ultimately reshaping how we approach patient care and medical research.

While AI and robotics hold vast potential for the industry, the importance of navigating challenges related to data privacy, regulatory compliance, and ethical considerations cannot be forgotten. While exploring these aspects, the industry can lay the groundwork, and the guardrails needed to unlock significant benefits and the value of AI.

Computation | Hardware is eating the world

AI's promise hinges on a hardware revolution, unleashing intelligent devices and advanced robotics

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Real world stories

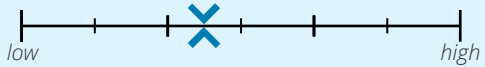
A multinational pharmaceutical and biotechnology company has utilised AWS to enhance its drug discovery process, achieving a significant reduction in traditional 9-month discovery timelines. The company developed an AI-driven drug discovery platform, using Amazon ECS with NVIDIA GPUs. This enabled rapid genomic data processing, contributing to over 51 billion statistical tests in less than 24 hours for various drug discovery projects.

A surgical robotics company, is developing the world's first bi-manual/dual-instrument robot for eye surgery. This company has successfully completed its first clinical study with the Luca™ surgical robot for vitrectomy procedures.

A medical data company is exploring the potential of smart ortho implants in remote patient monitoring. This company's smart ortho implant developer has logged 1,000 years' worth of day-by-day follow-up data on joint replacement patients. Its remote patient monitoring system (with battery embedded in the implant) measures and analyses post-op recovery and implant performance.

Trend maturity within the LSHC industry

The number of organisations that are actively exploring and investing in this trend



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INTERACTION

Spatial computing takes centre stage

Exciting new use cases can reshape industries

Interaction | Spatial computing takes centre stage

With real-time simulations as just the start, new, exciting use cases can reshape the life sciences industry

Read the full Tech Trends 2025 report[1]

What is Spatial Computing...

Spatial computing blends the physical and digital worlds, creating immersive experiences. It goes beyond VR by using sensors, IoT, and 3D data to create digital replicas of real-world operations, viewable on screens, AR glasses, or VR headsets. This allows for advanced simulations, data-driven insights, and enhanced interactions with digital systems across industries.

Tech Trend Overview

NOW

Spatial computing has evolved beyond just virtual reality (VR) and augmented reality (AR). **We're already seeing organisations find success with use cases like advanced simulations** that enable the testing of different scenarios to see how various conditions will impact their operations. We are seeing digital twins evolve from mere representations to powerful tools for scenario testing and optimisation.

NEW

The differentiator in this evolving landscape is undoubtedly data. The challenge lies in overcoming data silos and interoperability issues to create a unified spatial data ecosystem. **The rise of AI and multimodal data promises to bridge the gap** between spatial and biological / medical data, **extracting valuable insights from a diverse combination of sources**.

NEXT

In coming years, advancements in AI could lead to seamless spatial computing experiences and improved interoperability, ultimately enabling AI agents to anticipate and proactively meet user needs. This convergence of AI and spatial computing will render current devices almost archaic, replaced by intuitive, gesture-based interfaces. While the full realisation of this vision may be years away, **businesses can prepare by investing in robust data pipelines and embracing the transformative potential of spatial computing**.

Interaction | Spatial computing takes centre stage

With real-time simulations as just the start, new, exciting use cases can reshape the life sciences industry

Read the full Tech Trends 2025 report[1]

How are life sciences & healthcare exploring this trend?

The life sciences and healthcare industry, with its diverse data sources, user types, and complex interactions, is **uniquely positioned to benefit from spatial computing**. Technologies like virtual reality (VR), augmented reality (AR), and mixed reality (MR) offer powerful tools to model intricate biological processes, simulate patient care, and optimise medical device development, **accelerating innovation and improving patient outcomes**.

Pharmaceuticals

Virtual molecule visualisation **accelerates drug discovery**, enabling efficient design and virtual testing. **Virtual environments** enhance patient recruitment and data collection, **improving clinical trial efficiency**. Beyond R&D, spatial computing is also key in Manufacturing & Supply Chain.

Healthcare

Healthcare organisations are already creating **virtual representations, like simulations, of patients**. This allows them to **experiment with different care models** and see how these changes would impact things like wait times and overall patient access to care.

MedTech

Digital twins can enable virtual prototyping and faster innovation cycles during **product R&D,** allowing MedTech's to innovate without physical designs. Simulation can also **optimise manufacturing and repair processes,** enabling technicians to execute workflows in virtual reality for better accuracy and faster manufacturing and repair times.

Interaction | Spatial computing takes centre stage

With real-time simulations as just the start, new, exciting use cases can reshape the life sciences industry

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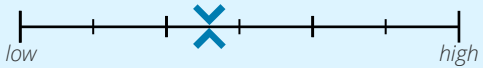
Real world stories

In pharmaceuticals, an innovative global healthcare company use digital twins to test novel drug candidates during the early phases of drug development. The company also employs AI programs with improved predictive modelling to shorten R&D time from weeks to hours.

A publicly funded healthcare provider is pioneering the use of simulation models. Their system-wide digital twin visualises patient movement and simulates care models, improving patient access.

Trend maturity within the LSHC industry

The number of organisations that are actively exploring and investing in this trend



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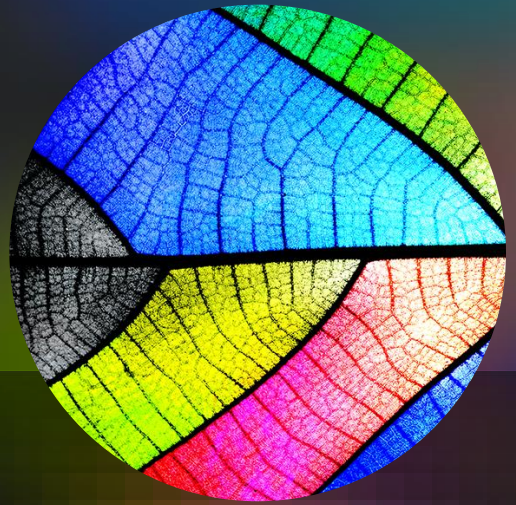


BUSINESS OF TECHNOLOGY

IT, amplified

AI elevates the reach (and remit) of the tech function

Business of IT | IT, amplified

AI elevates the reach (and remit) of the tech function

Read the full Tech Trends 2025 report[1]

What is the evolving role of IT...

The increasing integration of AI is poised to revolutionise the IT sector, shifting it from a cost centre to a strategic differentiator. While this challenges the old 'thin IT' model, a new form may arise as AI democratises development and pushes IT towards an 'outcome-as-a-service' future delivered by a blend of human and artificial intelligence. This evolution demands that tech leaders embrace new skills, including process knowledge and ethical AI expertise, to navigate their organisations through this transformative period.

Tech Trend Overview

NOW

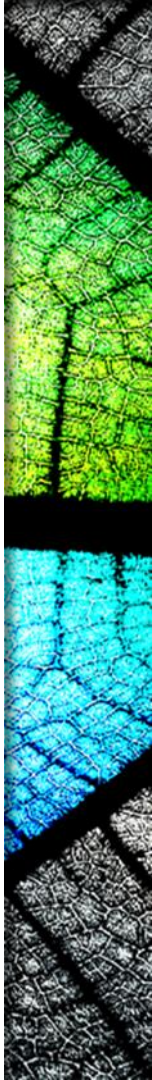
Driven by AI's potential, organisations are increasing technology investments, modernising infrastructure and data management. This shift empowers leaner IT functions with broader responsibilities, deeply integrated with business strategy. **CIOs now act as strategic partners to CEOs, prioritising value-driven investments and shaping AI strategy**. This elevates IT from a cost-saving function to a strategic driver of business value, **enabled by centres for enablement, citizen development, and the democratisation of AI capabilities.**

NEW

As GenAI becomes increasingly embedded into organisations' digital product/software footprints, IT functions may experience significant structural changes in the way they organise themselves and execute work. Manual, inefficient aspects of traditional software development will be automated, and human-in the-loop code generation and review may become the standard. This will allow IT teams to focus on innovation and higher value activities, improving business outcomes and agility.

NEXT

The current surge in AI adoption means IT departments are evolving into drivers of competitive advantage, ushering in a new type of 'lean IT' over the next decade. This transition necessitates a democratisation of AI, where IT operates as an internal service provider, offering reusable code blocks and AI-powered platforms to empower citizen developers. Crucially, the role of IT may shift from building and maintaining to orchestrating and innovating.



Business of IT | IT, amplified

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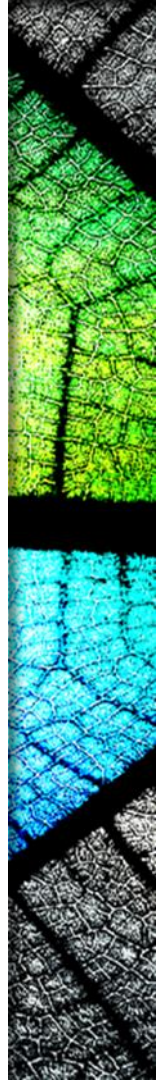

How are life sciences & healthcare exploring this trend?

Optimising operating models is a top priority for life sciences organisations as they face significant pressure to enhance productivity in response to the growing costs of developing new drugs and devices. While traditional operating model optimisation focused on cost-cutting through restructuring and outsourcing, a new era of AI-powered enablement is emerging.

Driving Value for the Business with C4Es

Centres for Enablement (C4Es) are transitioning traditional siloes, **empowering business users** to participate, explore, and ultimately innovate with technology.

By providing wide access to tech platforms and services, such as low-code-no-code and GenAI platforms, IT functions are driving value by:

a. **Cultivating a self-service** mindset
b. **Increasing agility** and digital DNA
c. **Refining NextGen platform-product** ways of working
d. **Reducing tech debt** for key platforms

An AI-Powered IT Function

GenAI is fundamentally reshaping the IT function, automating tasks across the software development lifecycle. This includes **code generation**, **testing**, **documentation**, and even **augmenting the capabilities of product owners**.

Embedding AI successfully and reliably extends beyond use case deployment across value chains. It also requires **carefully crafted guardrails and strategies around prompting** that can mitigate risks, such as output hallucination.

IT functions should focus on **establishing standards and best practices** to guide developers in their adoption of AI, ensuring outputs are high-quality, reliable, and scalable.

The Evolving IT Function

The current AI wave presents a unique opportunity for IT to **transition from a cost centre to a strategic driver of competitive advantage**. This requires IT leaders to actively shape GenAI business strategies, guide 'buy vs. build' decisions, and ensure value realisation.

CIO and CTOs are building a view of their AI maturity curve to meet the business' vision for growth, **demanding IT quickly evolve existing capabilities and skills**.

The future of IT is not just about managing technology but **empowering organisation-wide innovation** through a decentralised, AI-powered ecosystem.

Business of IT | IT, amplified

AI elevates the reach (and remit) of the tech function

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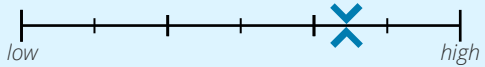
Real world stories

Deloitte has developed AI Assist[4] a suite of GenAI tools designed to streamline the entire software development lifecycle (SDLC). End-to-end assistants and agents have been found to reduce development times drastically, sometimes providing ~50% reductions to code completion times. Innovation platforms like these, empower teams across all stage of software development, from product owners and architects to quality assurance specialists and developers, significantly enhancing efficiency and productivity.

A leading pharmaceutical company successfully transitioned from a traditional Centre of Excellence (CoE) to a Centre for Enablement (C4E) model, empowering citizen developers (through low-code-no-code) and democratising platform development. This shift reduced the reliance on enterprise IT, improving agility by enabling business users to self-service their needs, releasing platform team capacity to focus on future capabilities and revising key processes across the product-platform teams within established architecture and security guardrails. This new model redefined the relationship between business and IT, empowering the platform teams to engage the entire organisation at pace and focus on Tech innovation.

Trend maturity within the LSHC industry

The number of organisations that are actively exploring and investing in this trend



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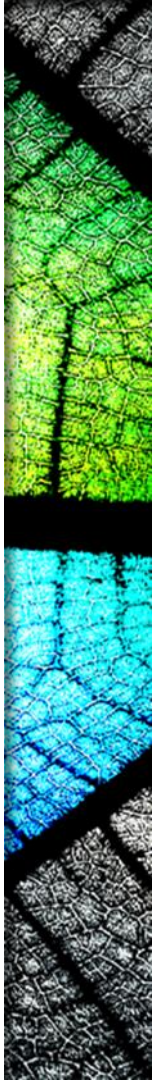
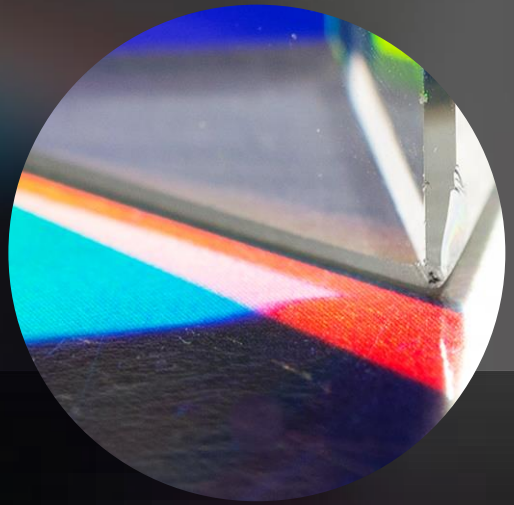


CYBER AND TRUST

The new math

Solving cryptography in an age of quantum



Cyber & Trust | The new math

Solving cryptography in an age of quantum

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The threat on the horizon...

Quantum computers, an emerging technology, harness the unique qualities of quantum mechanics to solve problems **beyond the capabilities of even the most powerful classical computers**. However, quantum computing's march toward maturity also represents a march toward unprecedented decryption power, **potentially placing current cybersecurity practices at risk**. Organisations will need to reimagine their cybersecurity strategies to address both current and future threats posed by this rapidly advancing technology.

Tech Trend Overview

NOW

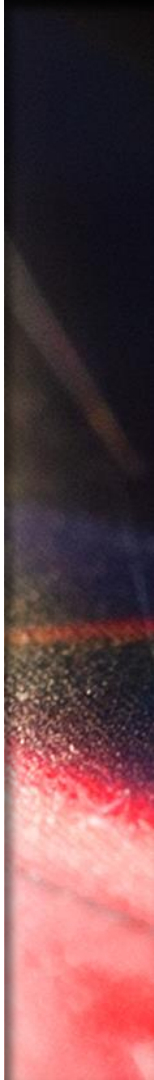
While cybersecurity professionals grapple with immediate threats, a less visible but potentially devastating risk is on the horizon: cryptographically relevant quantum computers (CRQCs). These machines have the potential to break the cryptographic foundations that underpin our digital world, affecting everything from online transactions to user identities. Although the exact arrival of CRQCs remains uncertain, experts predict their emergence within the next decade, imposing an impending threat and demanding organisations take a proactive approach to quantum-resistant cryptography.

NEW

The transition to quantum-resistant cryptography requires proper planning and execution where organisations should establish governance, assess their exposure, and develop a roadmap for upgrades. New quantum-resistant encryption algorithms, like those from the National Institute of Standards and Technology (NIST), provide a path forward with many major institutions and technology companies already implementing algorithms and standards, signalling the broader industry shift.

NEXT

Upgrading to quantum-resistant cryptography **presents an opportunity for organisations to reassess and strengthen their overall cybersecurity posture**. Beyond quantum-resistant algorithms, organisations should also focus on enhancing their governance, implementing zero-trust strategies, and modernising legacy systems to **embed security-focused practices and build an agile security posture, prepared for the quantum era as well as for future threats.**



Cyber & Trust | The new math

Solving cryptography in an age of quantum

Read the full Tech Trends 2025 report[1]

How are life sciences & healthcare exploring this trend?

While early access to CRQC's may be limited, the urgency for LSHC organisations to understand the risks posed can be significant. In addition to **growing pressures from regulatory bodies** leading up to the quantum era, some players in the LSHC industry may find **opportunities to strategically differentiate** through quantum-secure best practises.

Regulation Driven

For the LSHC industry, widespread adoption of quantum-resistant solutions will ultimately be **driven by evolving regulatory requirements and industry standards**.

NIST has provided guidance on quantum-resistant encryption algorithms, providing many with a clear path toward a quantum resistant security landscape.

Future proof quantum device security

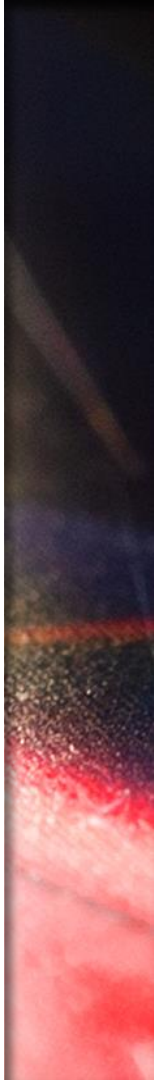
Building products with quantum-resistant security can provide a **significant competitive advantage**. It can build strong **consumer trust** by ensuring **future proof security**.

This is especially important for **products with long lifecycles** (such as pacemakers) or networks and services that **manage sensitive information**.

Ensuring confidentiality of sensitive information

For many organisations, prioritising the confidentiality of **highly sensitive information and intellectual property** is critical.

Furthermore, adopting quantum-secure practices can **position organisations as security leaders**, a key factor in **building consumer trust** and especially crucial for **direct-to-consumer models** where privacy is paramount.



Cyber & Trust | The new math

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Real world stories

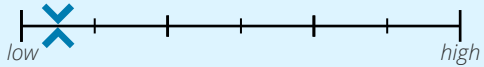
A significant **82% of surveyed organisations across various industries are investing in strategies and initiatives focused on quantum-secure technologies**[5]**.** This trend is led by major tech companies like Apple, which has **enhanced its iMessage application with quantum-secure encryption**, and Google and IBM, both of which are introducing new cryptography standards across their products.

In LSHC, **a global medical device manufacturer is exploring quantum-secure health devices** for products that have an extensive lifecycle and involve invasive procedures, ensuring future iterations will be quantum-secure. They are simultaneously taking the opportunity to strengthen their **overall cyber posture**; assessing their vulnerabilities and developing comprehensive strategies.

The LSHC industry are not widely adopting quantum-secure practices yet, however awareness of quantum risks and opportunities will be crucial. Quantum-security offers a valuable opportunity for organisations to **bolster cybersecurity**, **strengthen technology foundations**, and **gather valuable experience with quantum technologies**, preparing them for future advancements, such as quantum computing and quantum simulation.

Trend maturity within the LSHC industry

The number of organisations that are actively exploring and investing in this trend



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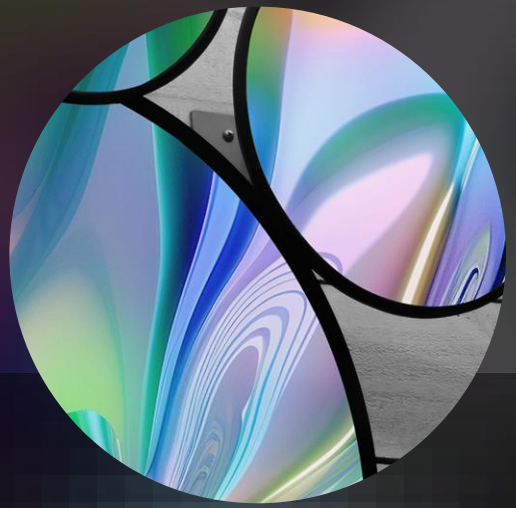


CORE MODERNISATION

The Intelligent Core

AI changes everything for the core

Core Modernisation | The intelligent core

Reshaping the core of enterprise systems through AI-driven modernisation

Read the full Tech Trends 2025 report[1]

The intelligent core...

Integrating AI into core enterprise systems is **driving a profound shift from static data repositories to dynamic, intelligent hubs**. To achieve a streamlined and intelligent user experience, complex orchestration across legacy systems, ERP, and cloud solutions are required. As AI learns from data across the organisation, it can reshape the very concept of 'core' by integrating deeply into existing architectures, paving the way for AI-driven autonomous decision-making and a future of unprecedented business agility.

Tech Trend Overview

NOW

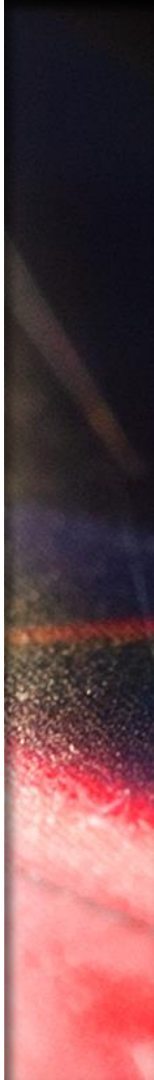
Forward-thinking businesses are already leveraging AI to augment their core systems, driving new efficiencies and revenue growth. ERP systems are critical assets for businesses seeking efficiency and data-driven decision making but can often be inflexible and one-size-fits-all. AI has the potential to change this.

NEW

By integrating AI into existing workflows, companies can potentially reduce their reliance on monolithic ERP implementations, but this shift requires a strategic approach to AI orchestration, data security, and human oversight. Ultimately, the true power of AI lies in its ability to learn from data across the entire enterprise, driving business process innovations that extend beyond incremental improvements and unlock significant value.

NEXT

Unlike previous upgrades, AI-driven modernisation requires a more agile and adaptable strategy, as AI modules interact with core systems and as business processes adapt to leverage AI capabilities. This shift necessitates a deeper understanding of business problems by IT teams and a focus on managing and overseeing AI agents that increasingly automate core functions. While this presents complexities, the potential benefits include reduced technical debt, a cleaner core, and ultimately, a reshaping of how businesses operate at a fundamental level.



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How are life sciences & healthcare exploring this trend?

The LSHC industry is undergoing a period of significant transformation where **modernising legacy systems presents substantial opportunities and challenges**. Organisations that have **not yet begun their modernisation journey** may find they are in a valuable position and can consider leveraging AI from the outset. **Those further along** should identify areas where AI can accelerate progress and mitigate existing challenges.

Accelerate Transformation

Organisations are increasingly using AI-powered tools to **accelerate modernisation and transformation initiatives**. By automating the extraction and analysis of legacy systems and documentation, businesses can **gain rapid insights** into functionality, data mappings, service dependencies, and overall purpose, significantly **reducing analysis time from days to seconds.**

AI Enhanced Core

AI-embedded solutions are becoming increasingly accessible, with **major vendors offering growing suites of off-the-shelf AI use cases**, to provide not just automation but also intelligence capabilities.

Organisations with **mature AI strategies and appropriate licensing models** are well-positioned to extract significant value from these readily available solutions.

Architecting & Organising for AI

While AI brings speed and efficiency, companies face key **'buy vs build' decisions** with significant cost, control, and flexibility implications.

Organisational adaptability is key as AI evolves. Composable architectures that seamlessly integrate existing and emerging AI tools are vital for organisations to remain agile and harness the full potential of AI.

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Real world stories

A global chemical manufacturer, aiming to maximise value from their S/4HANA implementation, partnered with Deloitte to deploy an innovative value capture analytic solution called xBambi. This solution **intelligently tracks and dynamically enhances business cases throughout the SAP implementation lifecycle** by capturing real-time insights from workshops and mining valuable information from program documentation.

A global pharmaceutical company streamlined knowledge sharing across its core functions by implementing an intelligent AI Service platform. It allows users to search and query using natural language, drawing from a central layer of information and data from their many core systems (GBS, HR, Finance, etc.). AI agents assist by gathering, summarising, and tailoring information based on specific user contexts, such as language, country, and business function relevance.

A global airline is leveraging GenAI to **accelerate the modernisation of their core travel booking system**. By leveraging AI tools to **rapidly analyse legacy systems** and **extract business rules**, the airline **reduced their modernisation planning from months to seconds**, enabling a more agile approach that directly enhances the customer experience and drives business growth.

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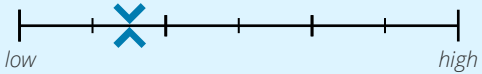

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What next?

Continue the conversation.
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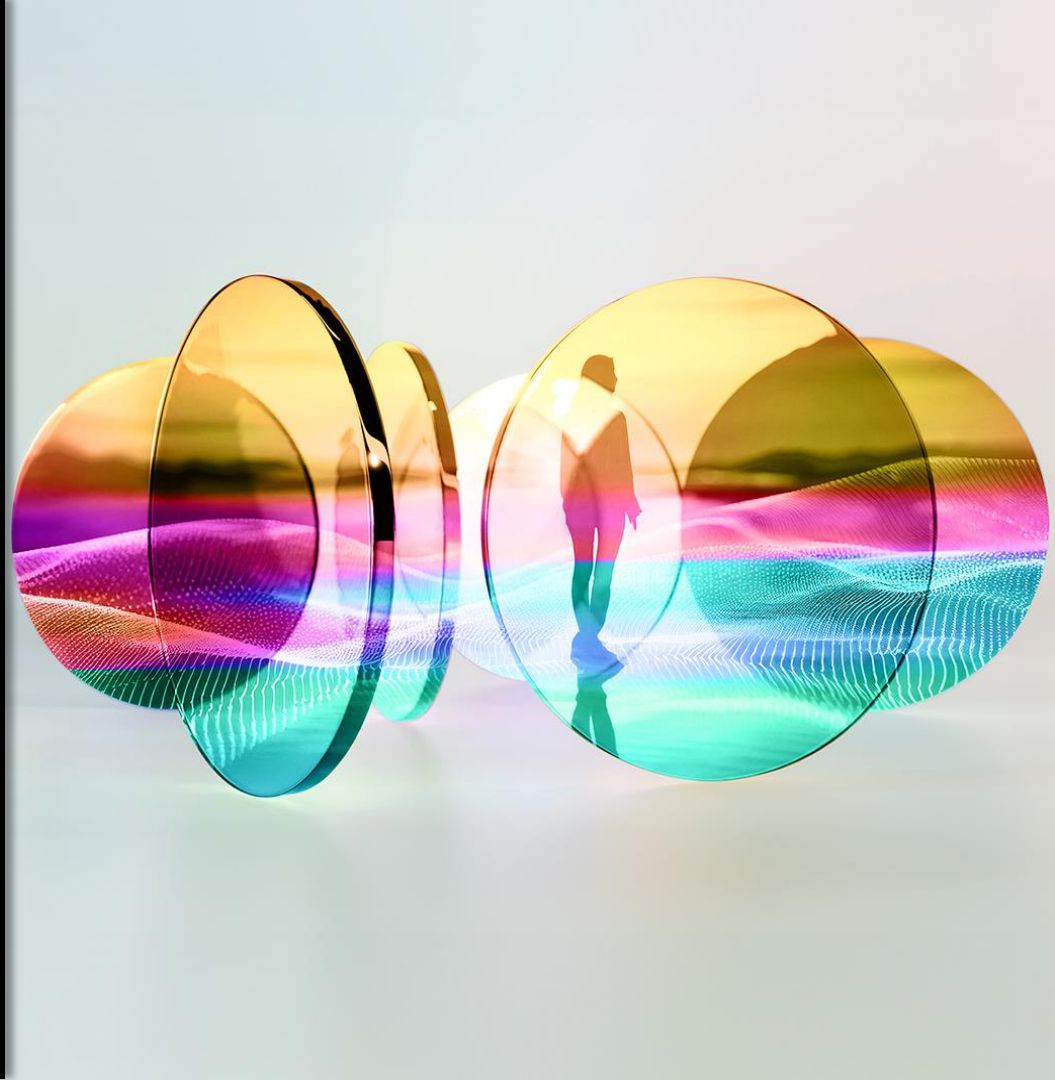

References & Additional Reading

Ref	Links to Additional Documents & Reports	Relevant Section
1	Deloitte Tech Trends 2025	All Sections
2	Accelerating the Future | Deloitte Switzerland	Information
3	Measuring the return from pharmaceutical innovation 2025 | Deloitte Switzerland	Information
4	The Future of Health in Europe | Deloitte Switzerland	Information
5	Important IT considerations for successful M&A transactions in Life Sciences | Deloitte Switzerland	Information
6	The Life Sciences and healthcare AI Dossier	Information
7	The convergence of AI technologies and human expertise in pharma R&D	Information
8	Deloitte AI Assist: GenAI for software development	Business of IT
9	Tech Trends: The new math	Cyber & Trust
10	2025 life sciences outlook	All Sections
11	Life Sciences and Healthcare Predictions 2030	All Sections
12	2025 life sciences outlook: top priorities and insights	All Sections

Glossary

Term	Description
3D data	Information about objects represented in a three-dimensional space, often used for visualisation, simulation, and analysis.
Advanced robotics	Robots with sophisticated capabilities like sensing and processing, as well as acting autonomously in complex environments.
Agentic AI	A sub-field of Artificial Intelligence, and Generative AI, that possess a high degree of autonomy and goal-directed behaviour compared to traditional AI systems.
Augmented Reality (AR)	A technology that enhances the user's perception of the real world by overlaying computer-generated information, images, videos, and other data.
Cryptographically Relevant Quantum Computers (CRQCs)	Quantum computers with sufficient computational power to break widely used cryptographic algorithms.
Cryptography	Techniques used to secure communications, encompassing encryption and decryption methods to ensure confidentiality, integrity, and authenticity of data and transmissions.
Deterministic AI	A sub-field of Artificial Intelligence, designed to learn patterns from historical data to make predictions and/or forecasts about future outcomes.
Digital twins	Virtual representations of physical assets, processes, or systems, used for simulation, monitoring, and analysis.
Enterprise Resource Planning (ERP) systems	Software applications designed to integrate and manage core business processes within an organisation.
Generative AI (GenAI)	A sub-field of Artificial Intelligence that focuses on creating new content, such as text, images, music, or code, by learning patterns from existing data.
Graphics Processing Unit (GPU)	A specialised electronic circuit designed to rapidly manipulate and alter memory and accelerate the creation of images for output to a display.

Glossary

Term	Description
Hyperscalers	Large-scale cloud computing providers that operate massive data centres with vast computing, storage, and networking resources.
Internet of Things (IoT)	A network of interconnected physical objects (things) embedded with sensors, software, and connectivity, enabling them to collect, exchange, and act upon data.
Large Language Model (LLM)	A type of Artificial Intelligence model trained on massive datasets, enabling it to understand and generate human-like language.
Multi-Modal AI	A sub-field of Artificial Intelligence, and Generative AI, that can take different types of information as inputs, such as text, images, audio, and sensor data.
Neural Processing Unit (NPU)	A specialised electronic circuit designed to accelerate AI algorithms, particularly artificial neural networks.
Open-source	Software whose source code is freely available for use, modification, and distribution.
Quantum computing	A type of computing that utilises quantum-mechanical phenomena, such as superposition and entanglement, to perform operations on data.
Small Language Model (SLM)	A type of language model that is smaller in scale and complexity compared to large language models (LLMs). SLMs are typically trained on smaller datasets and have fewer parameters, making them more computationally efficient and easier to deploy on devices with limited resources.
Spatial computing	An umbrella term encompassing technologies that blend digital content with the physical world, creating immersive and interactive experiences. Spatial computing encompasses augmented reality (AR), virtual reality (VR), and mixed reality (MR), blurring the lines between digital and physical.
Virtual Reality (VR)	Technology that creates immersive, computer-generated environments, often experienced through headsets.
Zero-trust strategies	A security framework that assumes no user or device within or outside an organisation's network can be trusted by default.

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