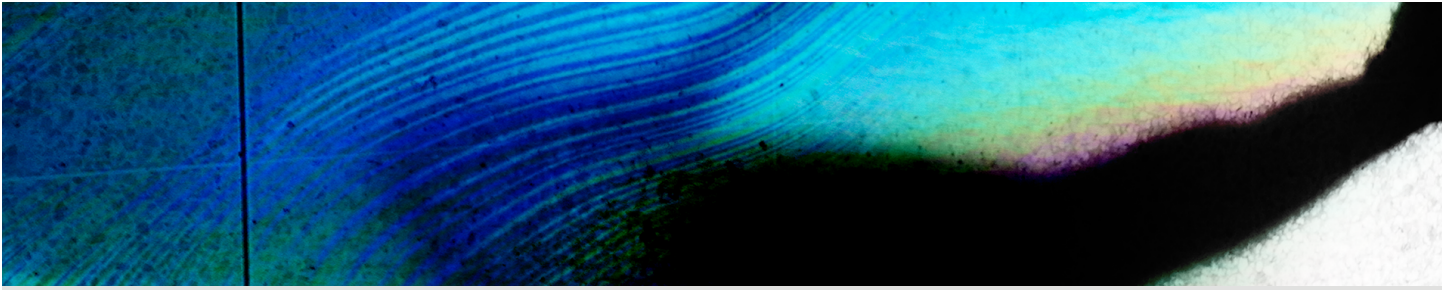


## The CEO's Guide to Tech Trends 2025

Two years after Generative AI became the buzzword-du-jour, our latest research in *Tech Trends 2025* confirms that a step change has taken place. Experimentation with AI that can create images, video, and text has given way to a focus on realizing enterprise value from all forms of AI transformation (generative, agentic, or otherwise). AI is already pervasive in market reports, strategy, and leadership discussions, and *CEOs will likely need to play a critical role in shaping their own company's AI-powered future.*

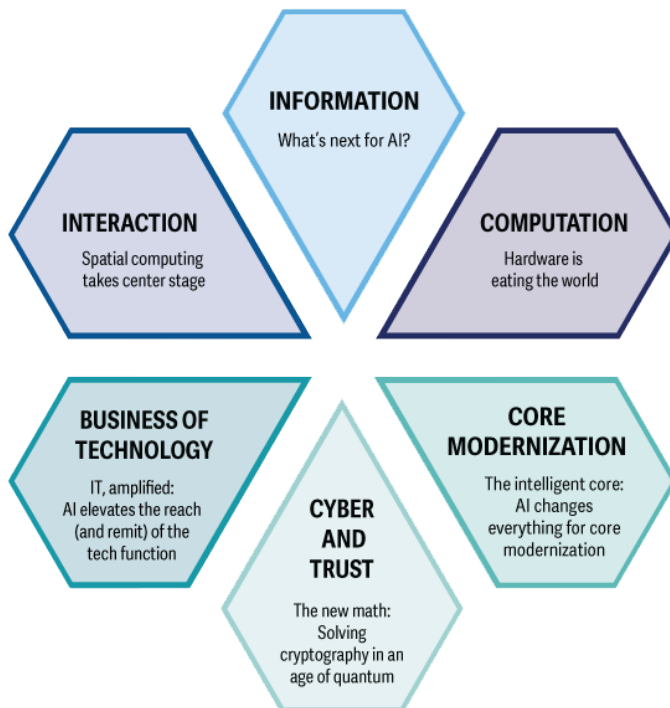
AI will become so fundamentally woven into the fabric of our lives that it's everywhere—and so foundational that we stop noticing it. AI may soon quietly hum along in the background, optimizing traffic in our cities, personalizing our health care, and creating adaptative lesson plans in education. For that reason, it's more important than ever to consider the bigger picture of technology change. AI is no longer a standalone project but a contributor, teammate, or assistant to the very way we work. CEOs who understand developing technologies and their implications are better positioned to harness AI's potential and guide their companies toward growth and resilience.



## Introducing the 2025 trends

For 16 years, Deloitte has been chronicling emerging technologies that will have an impact in the next 18-24 months. Half of this year's six trends underpin innovation and growth. The other half help enterprises operate while they grow. AI is diffused throughout nearly every trend this year, with the exception of one chapter that covers the cybersecurity implications of a different disruptive technology—quantum computing (Figure 1).

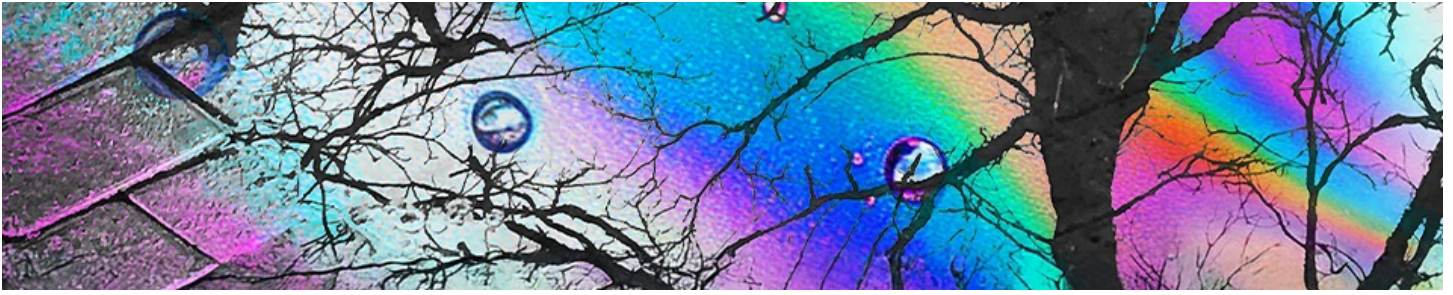
Figure 1. Six macro forces of information technology



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“AI will become so fundamentally woven into the fabric of our lives that it’s everywhere—and so foundational that we stop noticing it.”

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### **Interaction:** Spatial computing takes center stage

Future AI advancements will enhance spatial-computing simulations, eventually leading to seamless, visual, and intuitive interactions with AI agents

### **Information:** What's next for AI?

As AI evolves, the enterprise focus on large language models is giving way to small language models, multimodal models, AI-based simulations, and agents that can execute discrete tasks, with implications for CEOs shaping their enterprise vision and strategy.

### **Computation:** Hardware is eating the world

After years of software dominance, hardware is reclaiming the spotlight as a strategic differentiator, largely due to AI's impact on computing chips and its integration into end-user devices, the Internet of Things, and robotics.

### **Business of technology:** AI elevates the reach (and remit) of tech talent

AI's applicability to writing code, testing software, and augmenting tech talent is transforming IT, creating opportunities for leaner tech organizations. At the same time, with AI being embedded everywhere across the organization, IT will have a wider purview and be more integrated into the business.

### **Cyber and trust:** Solving cryptography in an age of quantum

Quantum computers are likely to pose a threat to today's encryption practices, and updating encryption has never been more important.

### **Core modernization:** AI creates an intelligent core

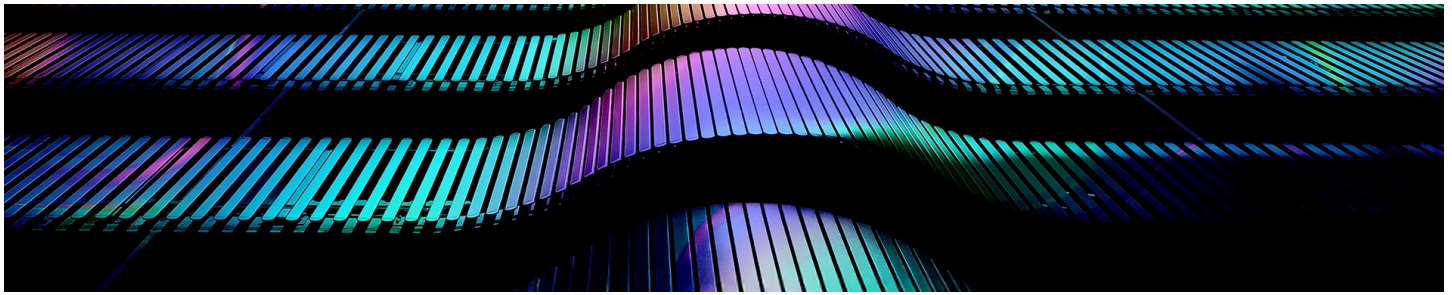
Core systems providers have invested heavily in AI, enabling simpler and more agile access to data and analysis across the organization.

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“To strategically plan their organization’s future, CEOs must continuously monitor the evolution of these and other trends.”

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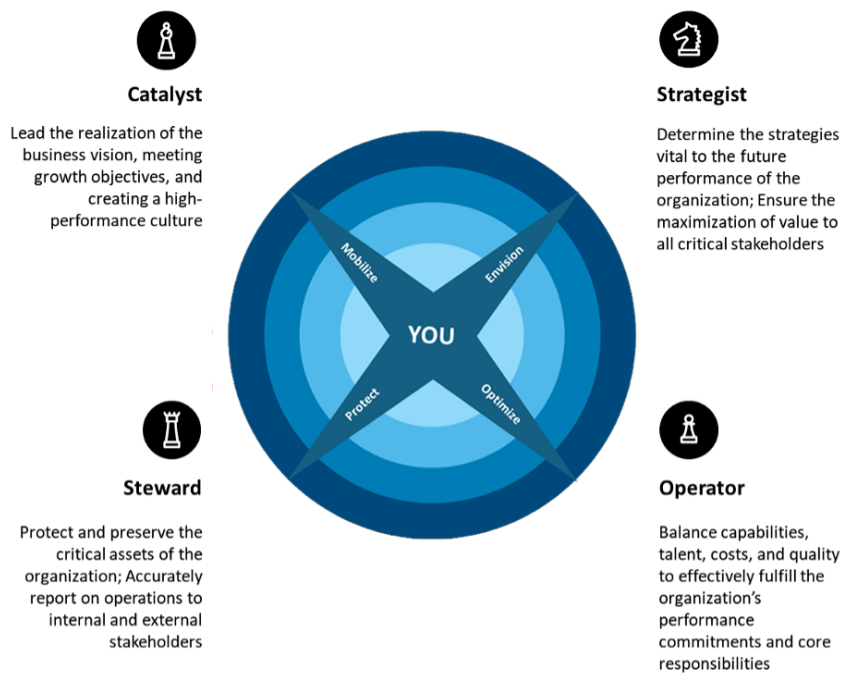




## Introducing the 2025 trends (continued)

To strategically plan their organization's future, CEOs must continuously monitor the evolution of these and other trends. They should allocate the time needed to keep abreast of such technology trends and their implications for value creation. In our work with CEOs, we often use the [Four Faces framework](#) to help them determine how to allocate their time (Figure 2).

Figure 2. Four faces framework



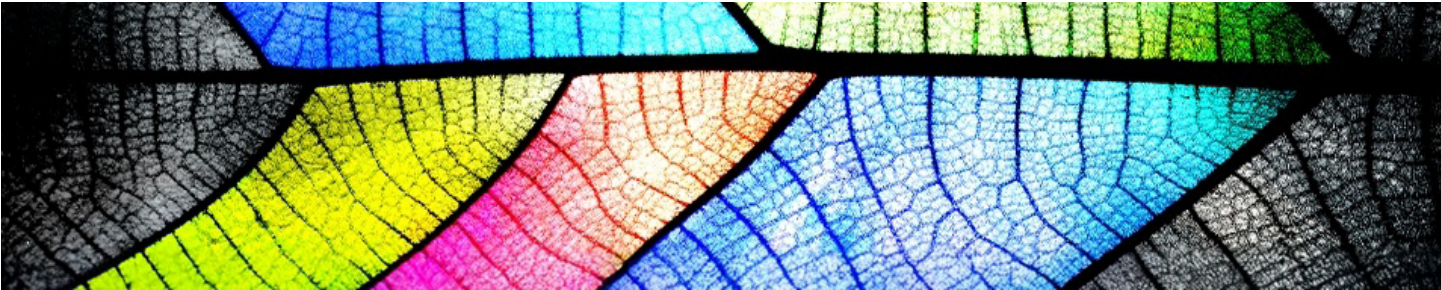

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“Most CEOs strive to spend the majority of their time ... as Strategists and Catalysts focusing on growth and change.”

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Most CEOs strive to spend the majority of their time in the top half of the framework, as Strategists and Catalysts focusing on growth and change. However, they may need to engage in a more hands-on approach in company management at certain times, such as during the early phase of their tenure as CEO, or during a period of intense transformation. This would require them to spend more time in the bottom half of the framework, as Stewards and Operators grounded in optimizing and protecting the business.

Applying the Four Faces lens to the technology trends can enable executives to understand where and how emerging technologies fit into the different roles they balance. The six trends align with the Four Faces framework as follows.



Face	Trend
Strategist	What's next for AI?
Strategist	Hardware is eating the world
Catalyst	Spatial computing takes center stage
Operator	AI elevates the reach (and remit) of tech talent
Operator	AI creates an intelligent core
Steward	Solving cryptography in an age of quantum

**Strategist:** Creating new visions in light of the latest AI advancements and constraints

For CEOs, setting the vision of an AI-enabled enterprise can put their organization ahead in a world of seemingly limitless options for implementation. As AI matures, businesses are fast realizing that the customer that analyzes your financial data doesn't need to be the same model that replies to customer inquiries. Rather, when it comes to [AI models](#), there's a need for *different horses for different courses*. These options include small language models (purpose-built and more efficient than LLMs), multimodal models (especially for marketing use cases), and agentic AI, which represents a fundamental shift in AI from augmenting knowledge to augmenting execution. *The recent uptick in market interest around agents indicates that this development may consume the lion's share of AI investment in the coming years.*

Of course, beyond determining what kinds of AI projects can bring the most value to stakeholders, CEOs must reckon with a slew of other considerations. Human-AI collaboration, privacy, and security are all salient, but foremost is resource allocation. AI investments will need to fit into the CEO's larger blueprint for maintaining costs as the organization scales or survives economic uncertainty.

[We've written previously](#) on the CEO's role in negotiating access to AI chips and talent in this new era. The heady cloud-computing highs of near-unlimited access are giving way to a resource-constrained era. [Enterprise infrastructure \(for example, PCs\) will be strategic once again](#), not merely a utility. To ensure that investments in talent and capabilities are consistent with their vision for the enterprise, the CEO will need to guide the CIO in making decisions about the rollout of AI-embedded devices to boost the workforce, whether to build or buy AI capabilities, the sustainability of data center usage, and other critical choices. For example, some executives may look toward cheaper models as a means of lowering costs. However, trust in AI is important, and CEOs will need to consider accuracy, quality, and security in satisfying their stakeholders.

Imaginative, courageous leaders should dare to take AI from best practices to the creation of "next practices," where we find new ways of organizing and augmenting ourselves and our data toward an AI-enabled world. Above all, CEOs should continue to evolve their thinking on AI-powered value creation models that will define the future of the entire enterprise.

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“... when it comes to AI models, there’s a need for different horses for different courses.”

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## Catalyst: Mobilizing organizational change through AI-enabled interactions

Creating a clear and compelling vision is only one part of the challenge for leaders. To realize this vision, CEOs should communicate and catalyze the change necessary and mobilize the organization, often requiring changes in structures and processes, as well as hearts and minds. Powered by advances in AI, extended reality technologies can help CEOs tell compelling narratives by offering an ability to view, interpret, and present data through different mediums.

[Spatial computing](#) blends the physical and digital worlds by combining real-time operational data (from the Internet of Things, asset performance databases, and monitoring applications) and standard business data (documents, images, and videos) with three-dimensional data (computer-aided design, 3D meshes, light detection and ranging, and point clouds) to create digital representations that mirror the real world. The promise of this new mode of interaction is the ability to serve super-contextualized information—the right information at the right time with the right view, through a natural, humanized, three-dimensional medium. CEOs could engage employees in a virtual environment that visualizes the company's goals and strategy. Or they could provide quarterly updates to shareholders and analysts using real-time simulations of the company's operations.

With the help of AI, digital interactions can translate technical matters into digestible insights and better integrate data from disparate sources. Imagine the ability to combine standard business data with sensors, image, video, and other 3D data types to create “digital twins” of business operations and provide real-time, visual reports. Such a paradigm shift in human-machine interaction offers the chief executive a bevy of new options to set and communicate their vision, demonstrate progress, and influence stakeholders.

## Operator: Optimizing IT and core systems

78% of leaders in a recent Deloitte survey expect to increase their overall AI spending in the next fiscal year. CEOs will seek to ensure that these increased AI investments lead to a requisite ROI through optimization of IT and core systems.

IT can be encouraged to meet [AI optimization goals across five key pillars](#): engineering, talent, cloud financial operations, infrastructure, and cyber risk. As AI becomes more capable and ubiquitous, each of these aspects of tech delivery should see a shift from human in charge to human in the loop, enabling a more efficient and effective IT that is closely aligned to business requirements.

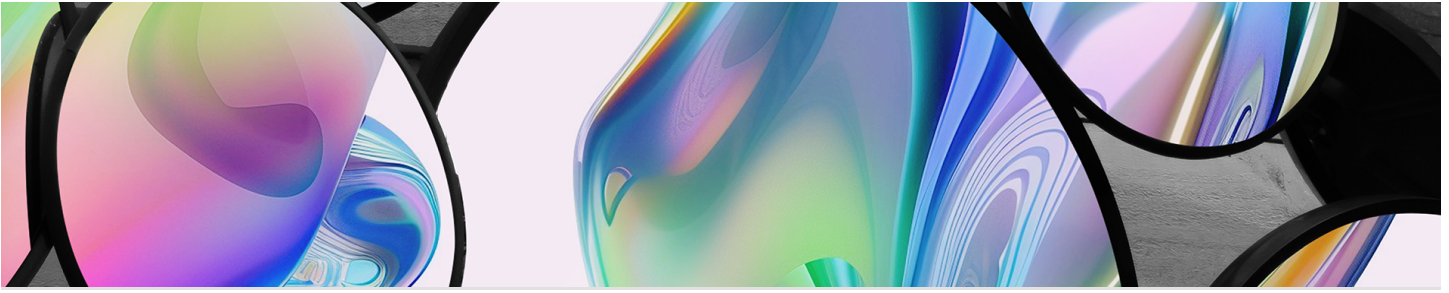
AI also holds immense potential to optimize [legacy technologies](#). For decades, the core and the enterprise resource planning tools that sit on top of it were most businesses' systems of record—the single source of truth. AI tools can serve as an interaction layer above these systems, enabling employees to retrieve, analyze, and understand enterprise operations faster than before, without the need for specialized skillsets. As more and more of the enterprise becomes [autonomous](#), CEOs and others can reap the benefits of cleaner, leaner core systems that can be accessed and analyzed in an agile manner.

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“Imagine the ability to combine standard business data with sensors, image, video, and other 3D data types to create ‘digital twins’ of business operations and provide real-time, visual reports.”

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## Steward: Protecting the organization in a quantum future

Many organizations are (understandably) busy protecting against social engineering hacks and [AI-generated content](#) today. But forward-looking CEOs will also begin preparing for [quantum computing](#). A sufficiently advanced quantum computer will someday be able to break much of the current public-key cryptography that businesses rely upon to establish online sessions, verify transactions, and assure user identity. In fact, there's some indication that bad actors are engaging in what's known as "harvest now, decrypt later" attacks—stealing encrypted data with the notion of unlocking it whenever more mature quantum computers arrive.<sup>2</sup>

Fortunately, new recommendations from governments around the world could help to neutralize the problem before it becomes costly.<sup>3</sup> But starting now is crucial, as the timeline to powerful and accessible quantum computers is unclear. Some CEOs are already upgrading security systems to meet the challenges of the future, given that significant time and effort will be required for quantum-ready protection.

## Conclusion

Companies have long relied on innovation-driven revenue streams, synergies created through mergers and acquisitions, and strategic business partnerships to drive new growth. These pursuits of [breadth over depth](#) are further encouraged by the six trends in Tech Trends 2025, which prove that today's technologies and industries are far from separate and isolated. This convergence can help uncover two key perspectives:

1. Insight into adjacent industries whose current research and development efforts might hold the keys to an organization's future. Consider that life sciences companies are producing pharmaceuticals in space to achieve higher quality, while clothing retailer lululemon is partnering with biotech companies such as LanzaTech and Samsara Eco to develop more sustainable fabrics.<sup>4</sup>
2. Clarity on how different technologies might be combined so that the sum is greater than its respective parts. For example, AI enables robots to operate autonomously, so they collect more data about the world and their movement, which, in turn, improves the AI algorithm, creating a flywheel effect of compound growth.

CEOs and business leaders should build bridges between teams or divisions in their organizations. As AI becomes as ubiquitous as electricity, the second- and third-order effects will likely alter the way we work, live, and communicate. The AI transformation will require big-picture thinkers and dot-connectors who can envision new intersections and opportunities for technology.

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"As AI becomes as ubiquitous as electricity, the second- and third-order effects will likely alter the way we work, live, and communicate."

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## Learn more

### Authors

For questions regarding The CEO's Guide to Tech Trends 2025, please contact:



#### **BENJAMIN FINZI**

Managing Director & Global Leader  
Chief Executive Program  
Deloitte Services LP

[bfinzi@deloitte.com](mailto:bfinzi@deloitte.com)

+1 212 492 2648

 [www.linkedin.com/in/benjamin-finzi-201553/](https://www.linkedin.com/in/benjamin-finzi-201553/)



#### **BILL BRIGGS**

Principal & Chief Technology Officer  
Deloitte Consulting LLP

[wbriggs@deloitte.com](mailto:wbriggs@deloitte.com)

+1 816 802 7350

 <https://www.linkedin.com/in/billbriggsdeloitte/>



#### **MIKE BECHTEL**

Managing Director & Chief Futurist  
Deloitte Consulting LLP

[mibechtel@deloitte.com](mailto:mibechtel@deloitte.com)

+1 630 885 7501

 <https://www.linkedin.com/in/mikebechtel/>



#### **ANH PHILLIPS**

Global CEO Program Research Director  
Deloitte Touche Tohmatsu Services, LLC

[anhphillips@deloitte.com](mailto:anhphillips@deloitte.com)

+1 404 631 3172

 [www.linkedin.com/in/anhphillips/](https://www.linkedin.com/in/anhphillips/)

### Endnotes

<sup>1</sup> [State of Generative AI in the Enterprise Quarter four report, Deloitte, January 2025](#)

<sup>2</sup> Colin Soutar, Itan Barmes, and Casper Stap, "[Don't let drivers for quantum cyber readiness take a back seat](#)," Deloitte, 2023

<sup>3</sup> National Institute of Standards and Technology (NIST), "[NIST releases first 3 finalized post-quantum encryption standards](#)," Aug. 13, 2024; European Commission, "[Commission publishes recommendation on post-quantum cryptography](#)," press release, April 11, 2024.

<sup>4</sup> Axiom Space, "[Protein crystallization](#)," accessed October 2024; *Bio. News*, "[LanzaTech x Lululemon collab births a new sustainable fashion item](#)," April 24, 2024; Lululemon, "[Lululemon and Samsara Eco unveil world's first enzymatically recycled nylon 6,6 product](#)," press release, February 20, 2024.

### Contributors

**Abhijith Ravinutala**, Manager, Office of the Chief Technology Officer (CTO), Deloitte Consulting LLP

**Caroline Brown**, Senior Manager, Office of the CTO, Deloitte Consulting LLP

**Kelly Raskovich**, Senior Manager, Client & Marketing Lead, Office of the CTO, Deloitte Consulting LLP

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