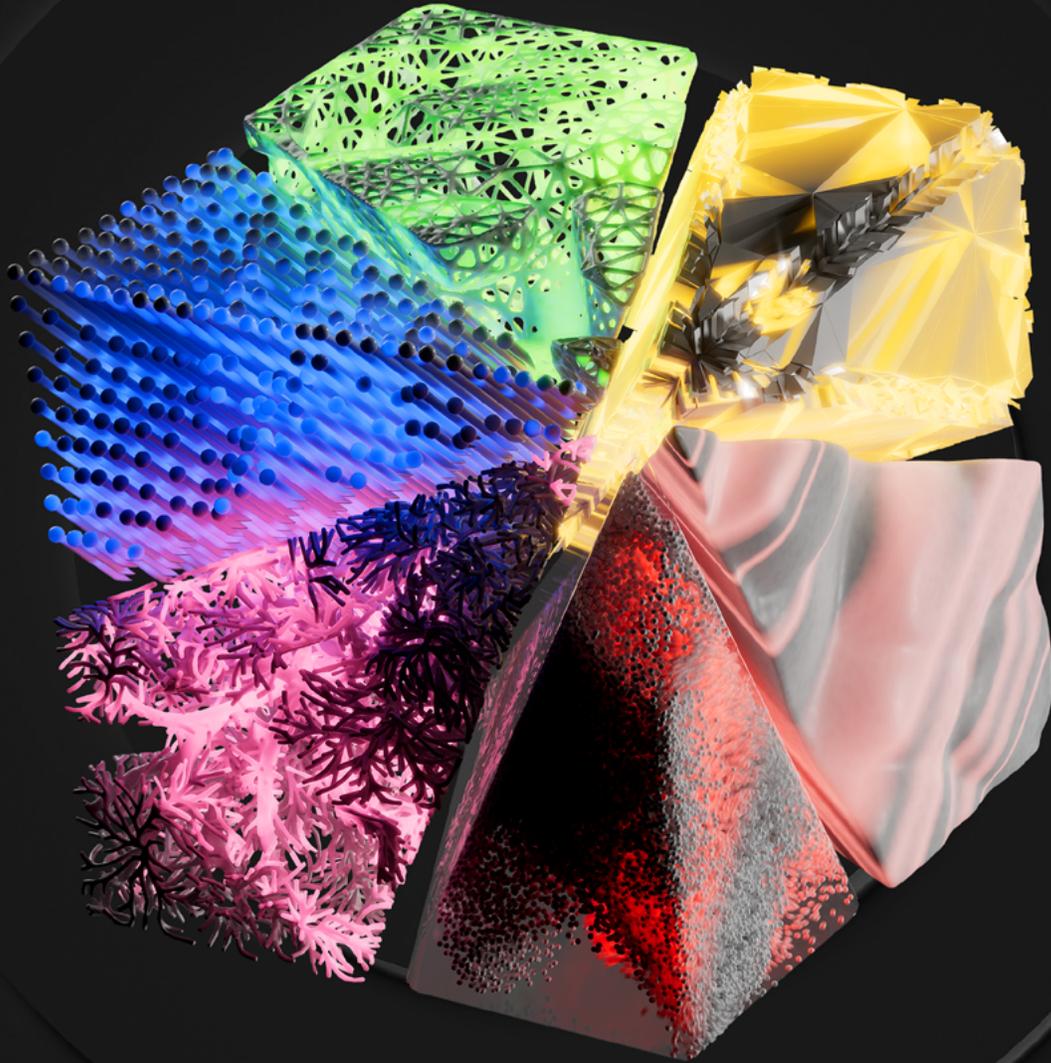


Tech Trends 2024

Executive summary

Deloitte's 15th annual Tech Trends report helps business and technology leaders separate signal from noise and embrace technology's evolution as a tool to revolutionize business.



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Three elevating forces (interaction, information, and computation) and three grounding forces (business of technology, core modernization, and cyber and trust) continue to be the bedrock upon which we build *Tech Trends*, Deloitte’s annual exploration of the impact of emerging technologies. In *Tech Trends 2024*, our 15th annual foray, we highlight the stories of pioneering organizations that are ahead of the curve in using new technologies and approaches that stand to become the norm within 18 to 24 months. We also project where the trends could be headed during the coming decade.



Elevating forces

The history of IT has been defined by pioneering advances in interaction, information, and computation, which together serve as an enduring source of innovation.

Interaction

Interfaces in new places: Spatial computing and the industrial metaverse

Augmented and virtual reality for consumer applications have garnered a lot of attention, but these technologies are making their biggest impact in industrial settings. Companies are using the industrial metaverse to power things such as digital twins, spatial simulation, augmented work instructions, and collaborative digital spaces that make factories and businesses safer and more efficient. Factory workers, designers, and engineers are benefiting from immersive 3D interaction—through tested devices such as tablets and experimental ones such as smart glasses—in ways that traditional knowledge workers haven’t yet. Accessible, high-fidelity 3D assets are paving the way to an operationalized spatial web, where a digital layer atop reality accelerates ways of working. Eventually, autonomous machines, advanced networking, and even simpler devices can lead to breakthrough spatial web applications, such as remote surgeries or entire factory floors being overseen by a single well-connected worker.

Information

Genie out of the bottle: Generative AI as growth catalyst

Philosophers have long debated whether machines are capable of thought, but generative AI makes the question

moot. The underlying operation of these models shares much in common with earlier machine learning tools, but thanks to enhanced computing power, better training data, and clever coding, generative AI technology can imitate human cognition in a number of ways. Regardless of whether it possesses intelligence in the philosophical sense, it does in a practical sense, creating the opportunity for huge productivity and efficiency gains in enterprise settings. Now that machines can behave, comprehend, and narrate like humans, the question becomes how this will impact business and the world broadly.

Computation

Smarter, not harder: Beyond brute force compute

As technology has become a bigger differentiator for enterprises, businesses have built ever-more complex workloads. Typical cloud services still provide more than enough functionality for most business-as-usual operations, but for the cutting-edge use cases that drive competitive advantage, a new need for specialized hardware is emerging. Training AI models, performing complex simulations, and building digital twins of real-world environments require different kinds of computing power. Leading businesses today are finding new ways to get more out of their existing infrastructure and adding cutting-edge hardware to further speed up processes. Soon, some will be looking beyond traditional binary computing entirely.

Grounding forces

Existing systems and investments—represented by the business of technology, core modernization, and cyber

and trust—will need to integrate well with pioneering innovations so that businesses can seamlessly operate while they grow.

Business of tech

From DevOps to DevEx: Empowering the engineering experience

As emerging technology is increasingly viewed as a differentiator and crucial part of the business, tech talent is becoming more important than ever. Yet, ways of working are far from efficient: In most companies, developers only spend 30 to 40 percent of their time on feature development. But now, a new focus is emerging for companies that are dedicated to attracting and retaining the best tech talent: developer experience, or DevEx, a developer-first mindset that aims to improve software engineers' day-to-day productivity and satisfaction by considering their every touchpoint with the organization. In the years to come, DevEx can lead to a future of integrated, intuitive tools that enable citizen developers across the business to drive tech value.

Cyber and trust

Defending reality: Truth in an age of synthetic media

With the proliferation of AI tools, it's now easier than ever for bad actors to impersonate and deceive their targets. We're seeing deepfakes being used to get around voice and facial recognition access controls. They're also being used in phishing attempts. Security risks are multiplying with every new content-generation tool that hits the internet. However, leading organizations are responding through a mix of policies and technologies designed

to identify harmful content and make their employees more aware of the risks.

Core modernization

Core workout: From technical debt to technical wellness

After years of investments in once-cutting-edge technologies, companies are grappling with an expanded set of core technologies, including mainframes, networks, and data centers, that are in dire need of modernization.

Those that want to lead in the future need to forgo piecemeal approaches to technical debt for a new holistic frame of technical wellness. Preventative wellness assessments, rooted in business impact, can help teams prioritize which areas of the tech stack need treatment and which can continue serving IT's needs. In the years to come, companies are likely to develop a highly customized and integrated wellness plan across the tech stack, including investments in self-healing technologies that reduce tomorrow's modernization needs.



Trend Lines

The future is already here, albeit unevenly distributed

Our technology case studies form a collage of how pioneering leaders and organizations are building distinct facets of the future, today, through emerging technology innovation.

Explore the collection at deloitte.com/us/trendlines



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