

Gartner 2024 Hype Cycle for Emerging Technologies Highlights Developer Productivity, Total Experience, AI and Security

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Leaders Should Examine Technologies with Transformational Potential for Their Business

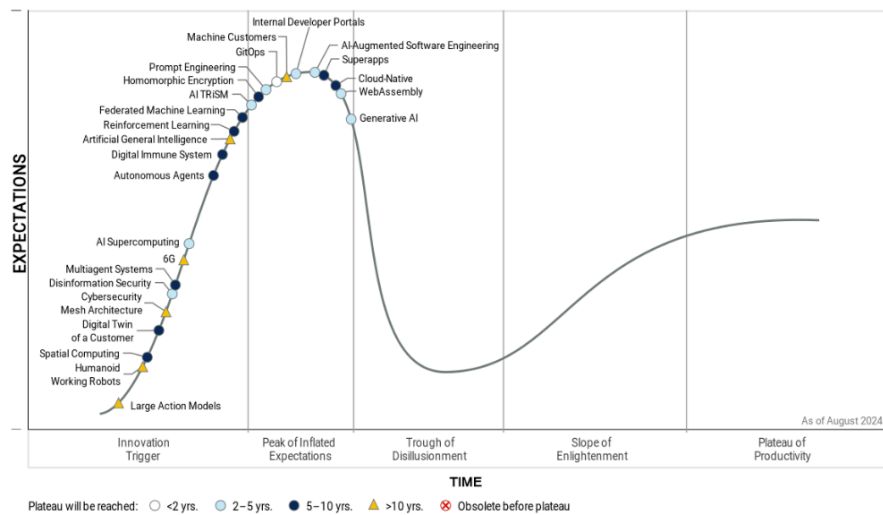
The 25 disruptive technologies to watch on the Gartner, Inc. **Hype Cycle for Emerging Technologies, 2024** (<https://www.gartner.com/document/5652523>) fall into four key areas: autonomous **AI** (<https://www.gartner.com/en/information-technology/topics/ai-strategy-for-business>), developer productivity, total experience, and human-centric **security** (</en/cybersecurity/topics/cybersecurity-program>) and privacy programs.

“**Generative AI** (</en/insights/generative-ai-for-business>) (GenAI) is over the Peak of Inflated Expectations as business focus continues to shift from excitement around foundation models to use cases that drive ROI,” said **Arun Chandrasekaran** (</en/experts/arun-chandrasekaran>), Distinguished VP Analyst at Gartner. “This is accelerating autonomous AI. While the current generation of AI models lack agency, AI research labs are rapidly releasing agents which can dynamically interact with their environment to achieve goals, although this development will be a gradual process.

“Even as AI continues to grab the attention, CIOs and other IT executives must also examine other **emerging technologies** (</en/industries/high-tech/topics/emerging-tech-trends>) with transformational potential for developers, security and customer and employee experience and strategize how to exploit these technologies in line with their organizations’ ability to handle unproven technologies,” said Chandrasekaran.

The Hype Cycle for Emerging Technologies is unique among Gartner Hype Cycles because it distills key insights from more than 2,000 technologies and applied frameworks that Gartner profiles each year into a succinct set of “must-know” emerging technologies. These technologies have potential to deliver transformational benefits over the next two to 10 years (see Figure 1).

Figure 1. Hype Cycle for Emerging Technologies, 2024



Gartner.

Source: Gartner (August 2024)

Four Themes of Emerging Technology Trends

Autonomous AI: AI's fast evolution is producing autonomous AI systems that can operate with minimal human oversight, improve themselves and become effective at decision-making in complex environments. These advanced AI systems that can perform any task a human can perform are beginning to move slowly from science fiction to reality. These technologies include multiagent systems, large action models, **machine customers** (</en/newsroom/press-releases/03-16-2023-gartner-says-machine-customers-represent-one-of-the-biggest-new-growth-opportunities-of-the-decade>), humanoid working robots, autonomous agents, and reinforcement learning.

Boost Developer Productivity: Developer (</en/software-engineering/topics/developer-experience>) productivity is about more than writing code quickly. It's influenced by developers' effective communication and collaboration, and their feeling of energized focus, full involvement and enjoyment (being in the "flow state").

"Technology is revolutionizing the way developers design and deliver software, making them more productive than ever," said Chandrasekaran. "It's ensuring they deliver higher-quality products quickly while maximizing gains by improving developer satisfaction, collaboration, and flow."

Emerging technologies enabling developer productivity include AI-augmented **software engineering** (</en/newsroom/press-releases/2024-05-16-gartner-identifies-the-top-five-strategic-technology-trends-in-software-engineering-for-2024>), cloud-native, GitOps, internal developer portals, prompt engineering and WebAssembly.

Empower With Total Experience: Total experience is a strategy that creates superior shared experiences by intertwining customer experience, employee experience, multiexperience and user experience practices. It uses technology to address critical interactions, empowering both customers and employees, with the goal of driving greater confidence, satisfaction, loyalty and advocacy. Technologies to assess include digital twin of a customer, **spatial computing** (</en/articles/spatial-computing>), superapps and 6G.

Deliver Human-Centric Security and Privacy: Organizations will become more resilient by using **security** (</en/newsroom/press-releases/2024-06-03-gartner-identifies-three-areas-for-cis-to-augment-their-cybersecurity-approach>) and privacy techniques that

create a culture of mutual trust and awareness of shared risks between teams.

“Security practices too often rely on the premise that humans can behave in a completely safe and secure way. But when employees must make a choice between security and business delivery, they often choose business delivery, sometimes bypassing too-stringent security controls,” said Chandrasekaran. “Human-centric security and privacy weaves a tight security and privacy fabric into the organization’s digital design.”

Emerging technologies supporting human-centric security and privacy include AI TRISM, cybersecurity mesh architecture, digital immune system, **disinformation security** (</en/articles/disinformation-security>), federated machine learning and homomorphic encryption.

Gartner clients can read more in “**Hype Cycle for Emerging Technologies, 2024.**” (<https://www.gartner.com/document/5652523>)

Additional analysis on emerging technologies will be presented during (<https://www.gartner.com/en/conferences/hub/cio-conferences>) **Gartner IT Symposium/Xpo** (</en/conferences/hub/cio-conferences>), the world’s most important conference for CIOs and other IT executives. Gartner analysts and attendees will explore the technology, insights and trends shaping the future of IT and business, including AI, business transformation, cybersecurity, customer experience, data analytics, executive leadership and more. Follow news and updates from the conferences on X using **#GartnerSYM** (<https://twitter.com/search?q=%23GartnerSYM&src=typd>), and on the **Gartner Newsroom** (</en/newsroom/topics/information-technology>).

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