

Gartner Insights

AI Use Cases Are Evolving, But Business Value Is Elusive

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By: Robert Hetu, Priyanka Shukla, Pulkit Pandey, Ellen Eichhorn, Mandi Bishop, Kimberly Harris-Ferrante, Alexander Hoeppe, Simon Cushing, Jo-Ann Clynch, Shivani Palepu, Lachezar Manasiev

Initiatives: Technologies and Markets

AI investments unmoored from measurable business value and core platform transformation are a high-risk gambit. However, CIOs and AI leaders can deploy AI with sustained momentum, limit new technical debt, and scale AI for business transformation by focusing on industry-specific use cases with clear strategic business alignment.

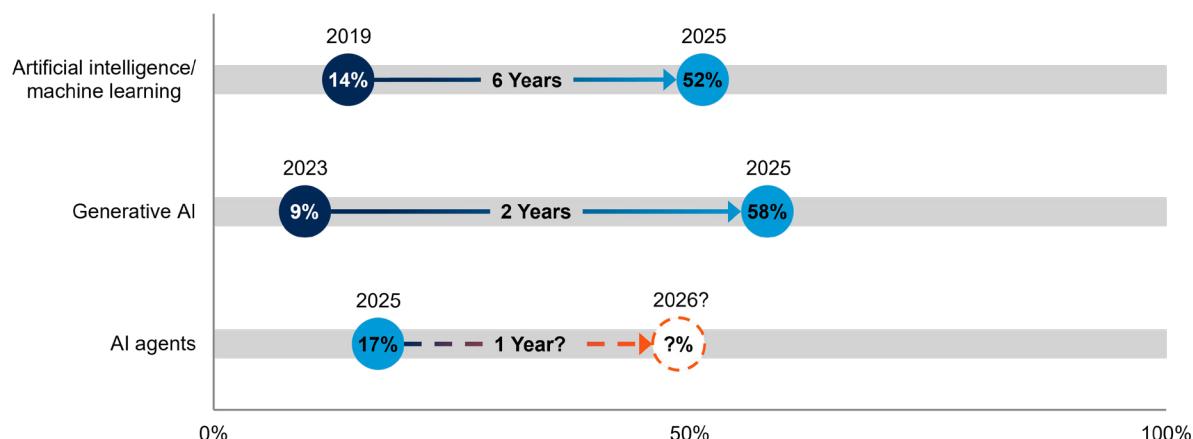
Analysis

The AI Race Is Accelerating

Generative AI (GenAI) deployment is surging in more than half of organizations, surpassing that of traditional AI/machine learning (AI/ML) techniques across almost every industry. This shift in focus to GenAI deployment has happened at an accelerated pace — three times faster than the timeline of (nongenerative) AI/ML deployments from the past several years (see Figure 1).

Figure 1: GenAI Deployment Levels Have Accelerated Three Times Faster Than Traditional AI

GenAI Deployment Levels Have Accelerated Three Times Faster Than Traditional AI
Percentage of respondents who have already deployed technology



Note: Data represents the first data point and most recent results from our 2026 Gartner CIO and Technology Executive Survey. Represents the length of time to surpass 50% of organization's having deployed the technology.
Source: Gartner
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However, by focusing too narrowly on GenAI, some organizations overlook the advantages of a holistic AI approach, resulting in missed opportunities for early wins and broader impact.

Successful deployment of any AI technique, including GenAI and agentic AI, requires a focus on achieving business value for the organization, starting with an understanding of the organization's strategies and goals. Use cases should drive selection of AI techniques that combine to form a holistic approach. **Start by selecting AI use cases that create true business value rather than focusing on technology for its own sake. Then, make sure those use cases align with the broader enterprise goals of modernizing and transforming your core systems in a hypercompetitive AI world (see How to Navigate a 4-Stage Journey to Modernize Industry Core Systems in the Age of AI).**

Agentic AI: Hype Is Everywhere, but Use-Case Examples Are Coming to Light

Agentic AI is significantly hyped across industries, but AI agents could be on track to surpass 50% deployment in some industries by 2026. Agentic AI adoption will accelerate at varying rates due to differences in data availability and processes across industries, and in highly regulated industries. Gartner has gathered many agentic AI use-case examples that are leveraging intermediate and advanced AI agents to automate workflows, synthesize data, and boost productivity across customer-facing processes and internal operations. Analysis of 107 production deployments further shows organizations realizing multimillion-dollar returns through workflow orchestration, data synthesis, and autonomous decision making (see Mastering Agentic AI: Multimillion-Dollar ROI Lessons From 107 Deployments).

By relieving highly skilled workers — such as engineers, underwriters, developers, and scientists — from repetitive administrative tasks through agentic AI, companies can significantly enhance employee productivity and shift focus toward strategic, creative problem solving.

As part of process automation and efficiency, agentic AI may help address business goals aimed at operational cost reductions. The path to agentic AI starts with leveraging AI assistants and AI agents. According to the 2026 Gartner CIO and Technology Executive Survey, only 17% of organizations have deployed AI agents, but over 40% plan to deploy in the next 12 months. ¹ One reason is that **large AI models may scale, but they won't differentiate; domain-specific models are the only path to proprietary industry advantage.** Despite the appeal of agentic AI to improve operational efficiency, most enterprises face data and process challenges and security risks that will likely prevent highly complex autonomous operations before 2030.

To help industry CIOs, Gartner has compiled extensive use cases from all major industries, as well as roadmaps for developing a comprehensive AI strategy. Prioritizing AI use cases must begin with a rigorous alignment to the organization's overarching business strategy, ensuring every initiative reinforces a clearly defined AI vision that drives measurable business outcomes. Leverage the AI Use Case Insights Platform to build a customized view of AI use cases.

Research Highlights

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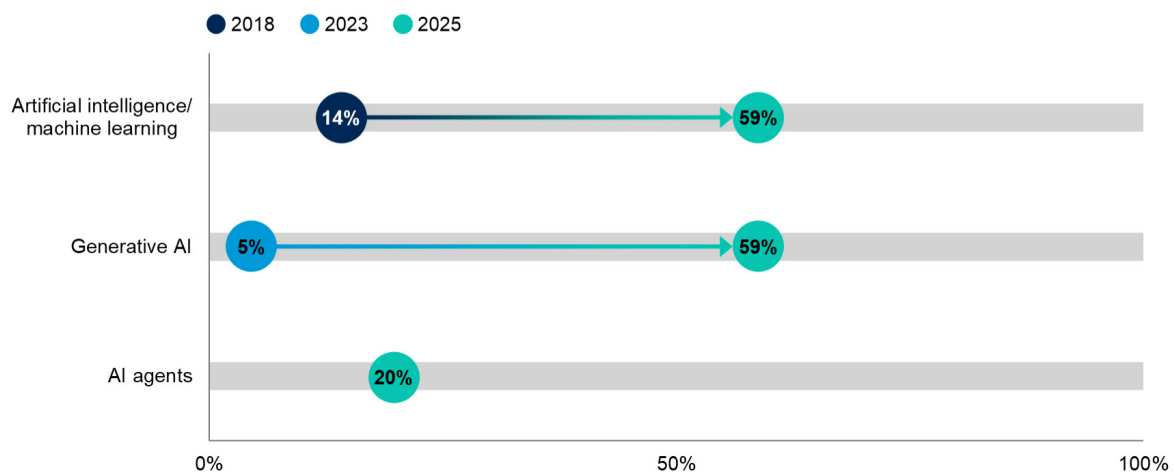
Banking and Investment Services

Analysis by: Priyanka Shukla

Strategic Planning Assumption: By year-end 2028, 25% of total customer service interactions between customers and their banks will be enabled by machine customers.

Figure 2: Banking and Investment Services

Banking and Investment Services



Source: Gartner
840191

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AI is no longer experimental — it's a competitive mandate. Fifty-nine percent of banks and investment services firms have deployed AI and GenAI, moving beyond traditional use in risk management and algorithmic trading. GenAI use is shifting from productivity tools to strategic enablers, transforming high-value workflows like loan origination, client onboarding, and AI-managed portfolios. Top use cases include code generation, intelligent document processing, contact center assistants, and due diligence reporting. The next frontier is AI agents, which are already adopted by 20% of firms to drive efficiency, customer engagement, and risk mitigation. For CIOs across the industry, AI is redefining decision making and operational models.

► Hype Cycle for Artificial Intelligence in Banking, 2026 (added 12 August 2026) ► AI in Banking: The Value Captured to Date (added 11 May 2026) ► Top Strategic AI Technology Trends in Banking, 2026 (added 11 May 2026) ► Generative AI Use-Case Assessment to Prioritize Banking Investments (added 11 May 2026) ► AI Use-Case Assessment for Banking ► AI Agents: Case Examples From Banking ► Banking Predicts 2026: AI Agents and Autonomous Business Will Transform Customer Experience ► AI Agents: Use-Case Examples for Investment Services ► Maximize Generative AI Outcomes With Banking and Investment Services Use Cases

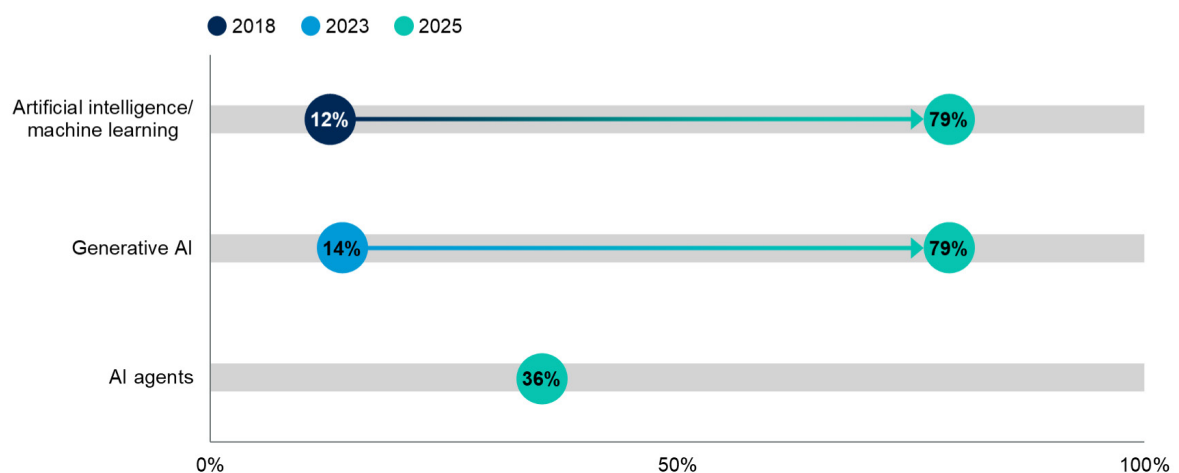
Communications Service Providers

Analysis by: Pulkit Pandey

Strategic Planning Assumption: By 2027, 50% of CSPs will use AI to achieve their carbon-footprint-related goals.

Figure 3: Communications Service Providers

Communications Service Providers



Source: Gartner
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AI deployment in communications service providers (CSPs) has grown rapidly, with 79% having already deployed AI and GenAI. Top use cases for CSPs include customer service and support, sales and go to market (GTM), enterprise operations automation, network automation, and network monitoring and observability. Adoption of domain telco models is also gaining significance among CSPs. However, there are some challenges, including data quality and workforce reskilling, which are slowing down the adoption of AI and GenAI. CSPs are working with vendors and hyperscalers to mitigate these risks. Some up-and-coming areas where CSPs are expressing interest include AI agents and autonomous networks.

► AI Use-Case Assessment for CSPs 2026 (added 11 May 2026) ► AI Agents: Case Examples for Communications Service Providers ► CSP Innovations Highlight Practical Value of AI, Automation, and D&A ► Generative AI Use-Case Assessment for CSPs ► Market Trend: Agentic AI for CSP Autonomous Network Operations

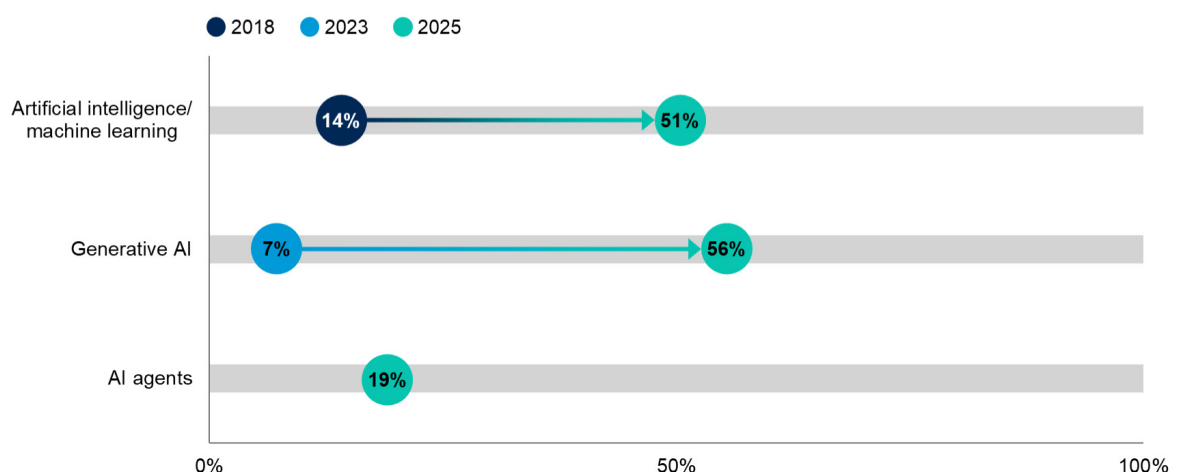
Consumer Goods

Analysis by: Ellen Eichhorn

Strategic Planning Assumption: By 2028, half of the top 10 luxury brands will enable consumers to use AI-enabled apps on their mobile devices to identify counterfeit merchandise.

Figure 4: Consumer Goods

Consumer Goods



Source: Gartner
840191

AI is reshaping the consumer goods landscape. Organizations are accelerating investments in AI, GenAI, and analytics to gain efficiency and a competitive edge. Robotic process automation (RPA) remains a core AI use, delivering major reliability and productivity gains when paired with process redesign. Computer vision and machine learning also play key roles. Although AI offers higher measurable ROI, GenAI's potential is so compelling that some ERP and OT budgets are shifting toward it. GenAI dominates in content creation for marketing and customer experience, while AI agents are emerging in customer service and are poised to drive process automation and new product introductions.

► Top Trends for Consumer Goods CIOs in 2026 (added 12 August 2026)► How Consumer Goods CIOs Create Lasting Value With Agentic AI (added 12 August 2026)► Retail and Consumer Goods in the Era of Agentic AI-Driven Consumer Outcomes► Predicts 2026: AI-Driven Acceleration in Consumer Goods ► Generative AI Use-Case Assessment to Prioritize Consumer Goods Investments► Roadmap to Accelerate AI Strategy for Consumer Goods CIOs► Hype Cycle for Consumer Goods, 2026

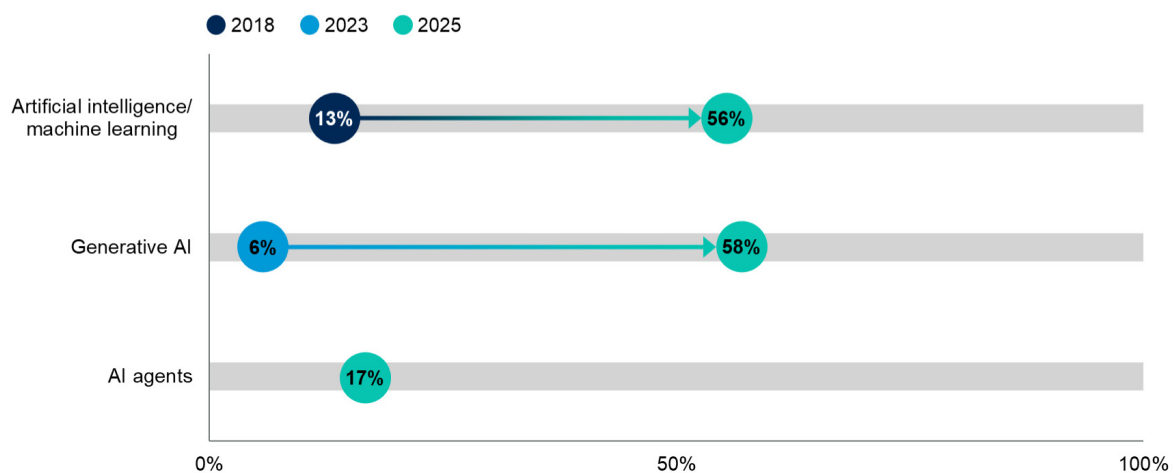
Healthcare and Life Sciences

Analysis by: Mandi Bishop

Strategic Planning Assumption: By 2030, 40% of clinical patient data will be collected through ambient intelligence, utilizing a combination of sensors, such as automated medical devices, computer vision, and environmental Internet of Things (IoT).

Figure 5: Healthcare and Life Sciences

Healthcare and Life Sciences



Source: Gartner
840191

Gartner

The industry is one of the fastest adopters and scalers of AI and is deploying it to support, augment, and automate a broad spectrum of administrative, operational, clinical, engagement, and R&D functions. Since 2023, GenAI adoption has exploded, surpassing traditional AI deployments — and Gartner interactions and cross-survey data indicate that implementations of AI agents will accelerate similarly. Top use cases include insight synthesis across vast universes of health and scientific data; accelerated clinical trial development; virtual care support for symptom triage, scheduling, and question answering; clinical, educational, marketing, and regulatory documentation development; and workflow automation to address operational inefficiencies and workforce shortages.

► Hype Cycle for Healthcare and Life Science Data, Analytics and AI, 2026 (added 12 August 2026)► Healthcare Provider Market Signals: Product and GTM Insights for Competitive Advantage, 2026 (added 12 August 2026)► Innovation Insight: Unlocking AI Innovation With Healthcare Agent Platform Gateways (added 11 May 2026)► Predicts 2026: The Promises and Perils of Healthcare's AI Era► AI Agents: Case Examples for Healthcare Providers► AI Agents in the Life Sciences: Use Case Examples► AI Agents: Use-Case Examples for Health Insurers► AI and Digital Twins in Healthcare and Life Sciences: Eye on Innovation Case Examples► Top Practices for Healthcare RCM Optimization Using GenAI► U.S. Healthcare Payer Use-Case Examples to Build Your Generative AI Strategy

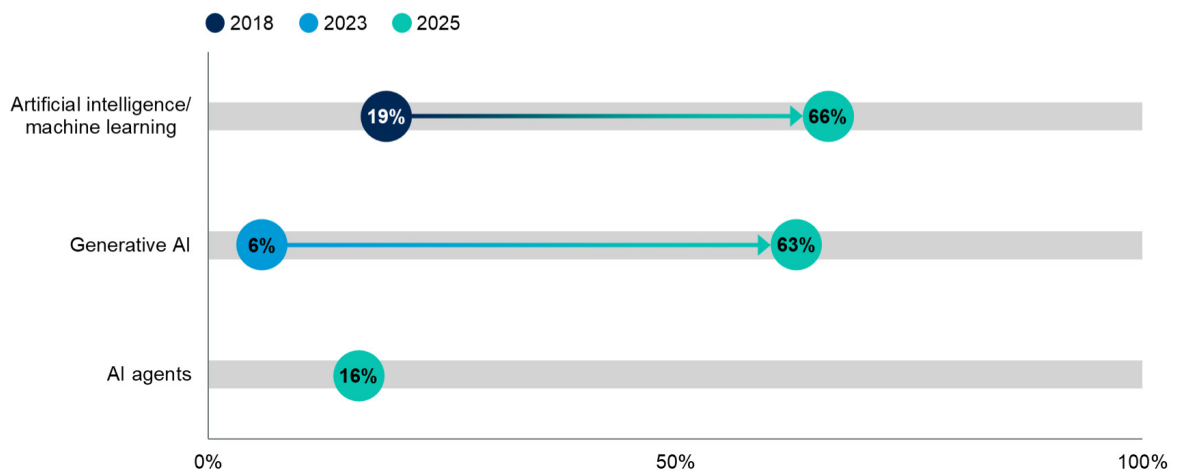
Insurance

Analysis by: Kimberly Harris-Ferrante

Strategic Planning Assumption: By 2028, insurers will find that technical debt from AI, and generative AI (GenAI) will accumulate at four times the speed of conventional technical debt in their n-tier application architectures.

Figure 6: Insurance

Insurance



Source: Gartner
840191

Gartner.

Insurers are entering a new AI era. After years of leveraging ML for pricing and risk, the spotlight has shifted to GenAI to unlock unstructured data and boost employee productivity. Likely “win” use cases such as policy summarization, legacy modernization, and code generation are giving way to high-value, calculated-risk use cases in claims and underwriting. This is fueling true transformation and greater business value. Use cases for AI agents are also emerging, but implementations are semiautonomous with human oversight due to regulatory and cultural constraints. The near-term focus will remain on administrative tasks, customer service, and claims operations as firms prepare for a future of deeper automation and decision intelligence.

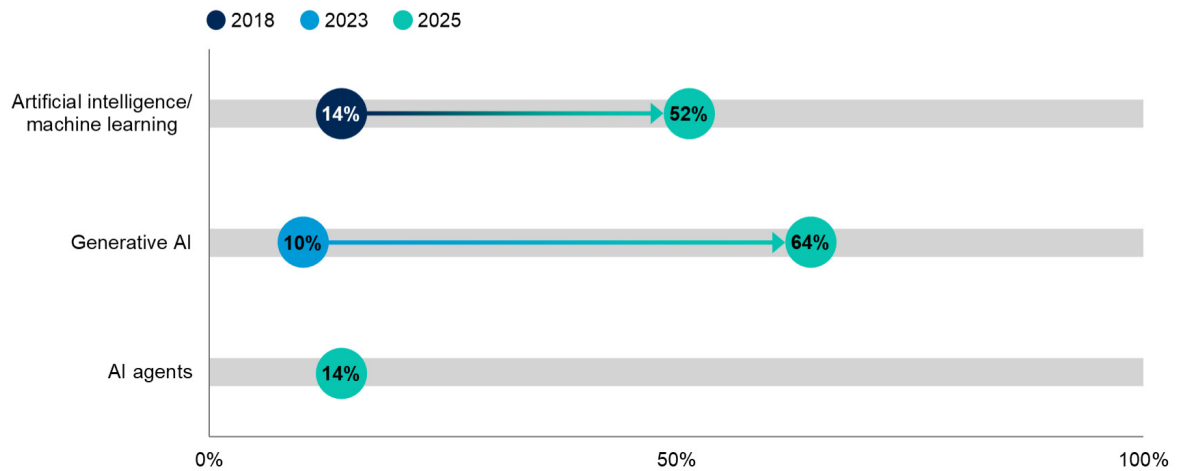
► Insurance Industry Market Signals: Product and GTM Insights for Competitive Advantage, 2026 (added 12 August 2026)► Hype Cycle for Artificial Intelligence in Insurance, 2026 (added 12 August 2026)► AI in Insurance: Case Examples From the 2025 Eye on Innovation Awards (added 11 May 2026)► How Insurance Innovators Are Using AI: 5 Trends► AI Use-Case Assessment for P&C and Life Insurance Industry► AI Agents: Case Examples for P&C and Life Insurance► Insurance Executives’ Top Priorities and AI Initiatives in 2Q25► Insurance Case Examples to Build Your GenAI Strategy

Manufacturing

Analysis by: Alexander Hoeppe

Strategic Planning Assumption: By 2030, frontline workers will require only two weeks to onboard due to advancements in GenAI and agentic AI technologies, a reduction from six months in 2025.

Figure 7: Manufacturing

Manufacturing

Source: Gartner
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Gartner

Manufacturing is moving from efficiency to agility. Investments in AI/ML, computer vision, and RPA continue to rise as product and process complexity grows. GenAI adoption is accelerating, extending AI's impact beyond core functions to engineering and smart factory operations. Key use cases (to some extent also augmented by AI agents) include product design optimization, production process optimization, connected factory worker, in-process quality monitoring, and asset performance management. Recent supply chain disruptions, energy costs, tariffs, and labor shortages have made dynamic scheduling and integrated planning critical. Manufacturers now rely on AI to predict and simulate disruptions, shifting the focus from productivity to resilience and adaptability.

► Hype Cycle for AI in Manufacturing, 2026 (added 12 August 2026)► AI Use-Case Assessment for Manufacturing Operations (added 11 May 2026)► Agentic AI: Case Examples in Manufacturing (added 11 May 2026)► AI Use-Case Assessment for External Manufacturing (added 11 May 2026)► How to Choose the Best AI Techniques per Manufacturing Use Case (added 11 May 2026)► How to Assess AI Readiness in Manufacturing► Manufacturing CIOs: How to Use AI Agents and Avoid Hype► Manufacturing AI and GenAI Case Examples: Worker Productivity► Manufacturing AI and GenAI Case Examples: Operations and Supply Chain► Manufacturers: Select the Right AI Use Cases to Drive Business Value Today

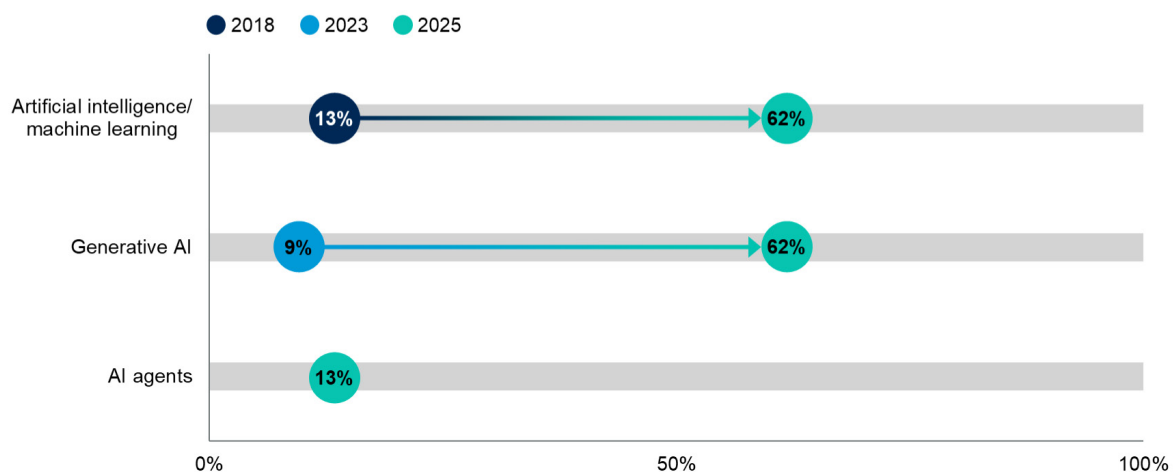
Oil and Gas

Analysis by: Simon Cushing

Strategic Planning Assumption: By 2028, 20% of exploration activities in oil and gas companies will be directed by AI because it is more cost-effective than traditional methods of reservoir modeling.

Figure 8: Oil and Gas

Oil and Gas



Source: Gartner
840191

Gartner

AI is now central to oil and gas operations. AI/ML drives predictive maintenance and production optimization, while GenAI adoption accelerates through the use of tools like Microsoft Copilot and more advanced use of historical and operational data. High-value GenAI use cases include summarizing safety and presenting active and stored safety, incident, drilling, and subsurface data, along with natural language expert advisory. Challenges — data access, quality, security, and risk — are slowing scale, but interest in agentic AI is strong. Early deployments focus on automated administrative tasks in operations, with human oversight. The next frontier: leveraging GenAI and AI agents to unlock knowledge, improve decision making, and transform operational efficiency.

► Hype Cycle for AI in Oil and Gas, 2026 (added 12 August 2026)► Oil & Gas: Innovation Case Examples in Intelligent Operations (added 11 May 2026)► Videos: Oil and Gas Technological Innovation Use Case Examples (added 11 May 2026)► Oil and Gas Predicts 2026: AI in the Fabric of Work► Generative AI Use-Case Assessment for Oil and Gas► AI Use-Case Assessment for Oil and Gas► What's Next for AI in Downstream Oil and Gas?

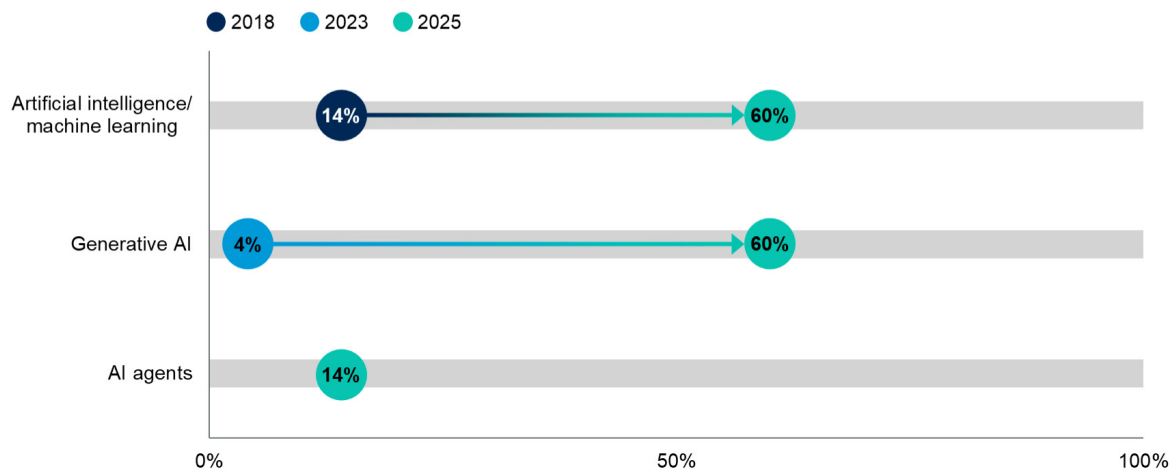
Power and Utilities

Analysis by: Jo-Ann Clynch

Strategic Planning Assumption: By 2027, 40% of power and utilities companies will deploy AI-driven operations in control rooms, reducing human error risks but increasing cyber-physical system security vulnerabilities.

Figure 9: Power and Utilities

Power and Utilities



Source: Gartner
840191

Gartner

AI is transforming power and utilities. With 60% of companies adopting AI and GenAI, these technologies are driving asset optimization, outage detection, demand forecasting, and customer operations. AI/ML powers predictive maintenance, while large language models streamline workflows for efficiency and engagement. Emerging GenAI use cases include energy flexibility, grid optimization, resiliency planning, nonrevenue lead detection, and augmented control center operations. Despite clear benefits, justifying investment with clear ROI and ensuring trustworthy, secure outputs remain challenging. As regulations and business models evolve, utilities are piloting AI agents and preparing for autonomous decision making to deliver resilient, secure, and future-ready energy services.

► Hype Cycle for Power and Utility Industry IT, 2026 (added 12 August 2026) ► Videos: Power and Utilities Technological Innovation Use Case Examples (added 11 May 2026) ► Power & Utilities: Innovation Case Examples in Intelligent Operations (added 11 May 2026) ► AI Agents: Case Examples for Power and Utilities ► Generative AI Use-Case Assessment to Prioritize Power and Utility Investments ► How Power & Utilities CIOs Are Navigating AI With Limited Budgets ► How Power and Utilities CIOs Can Tame AI Risk

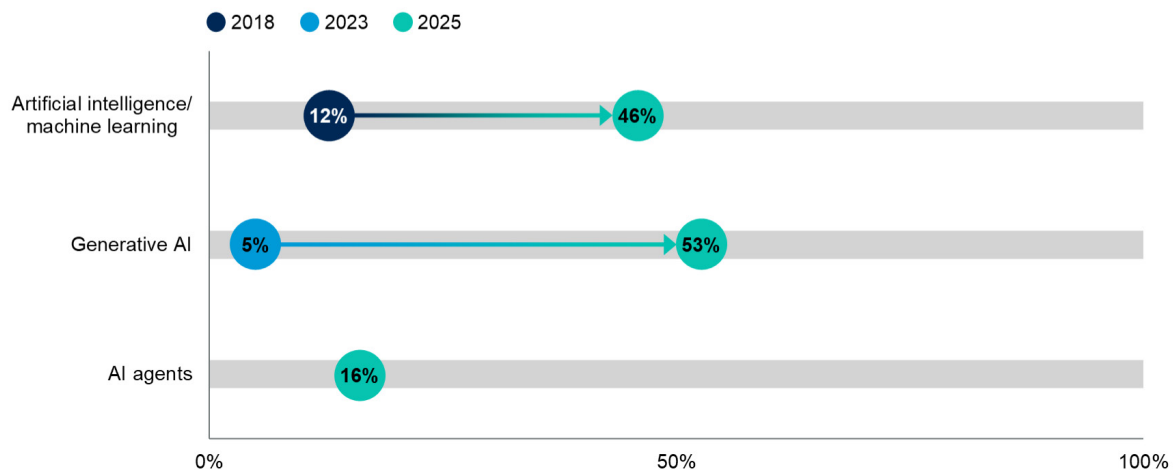
Retail

Analysis by: Robert Hetu

Strategic Planning Assumption: By 2029, up to 30% of Tier 1 retailers will deploy advanced computer-vision-based analytics in their physical store locations, tripling from less than 10% today.

Figure 10: Retail

Retail



Source: Gartner
840191

Gartner

Retail is embracing GenAI at scale. Although slightly behind other sectors, 53% of retailers have deployed GenAI and are now exploring AI agents to unlock new value. Likely “win” GenAI use cases include enhanced search and upselling, visual and text content creation, and conversational customer engagement. Workforce-focused applications – such as frontline management and expert virtual assistants – are critical given retailers’ reliance on large, in-store teams. However, the need for human labor and a fast-changing business environment complicates agentic AI use. Retailers are prioritizing hybrid AI strategies that boost productivity, improve customer experience, and lay the foundation for future agentic AI adoption.

► Hype Cycle for Retail Technologies, 2026 (added 12 August 2026) ► How an Agentic AI Approach Can Transform Retail Store Operations ► Retail and Consumer Goods in the Era of Agentic AI-Driven Consumer Outcomes ► AI Use-Case Assessment to Prioritize Investments for Long-Life-Cycle Retail ► AI Use-Case Assessment for Prioritization in Short-Life-Cycle Retail ► How to Leverage AI to Enhance Retail Category Management Processes ► Six Top Practices Retail CIOs Should Master to Accelerate AI-Enabled Digital Transformation ► Generative AI Use-Case Assessment to Prioritize Retail Investments

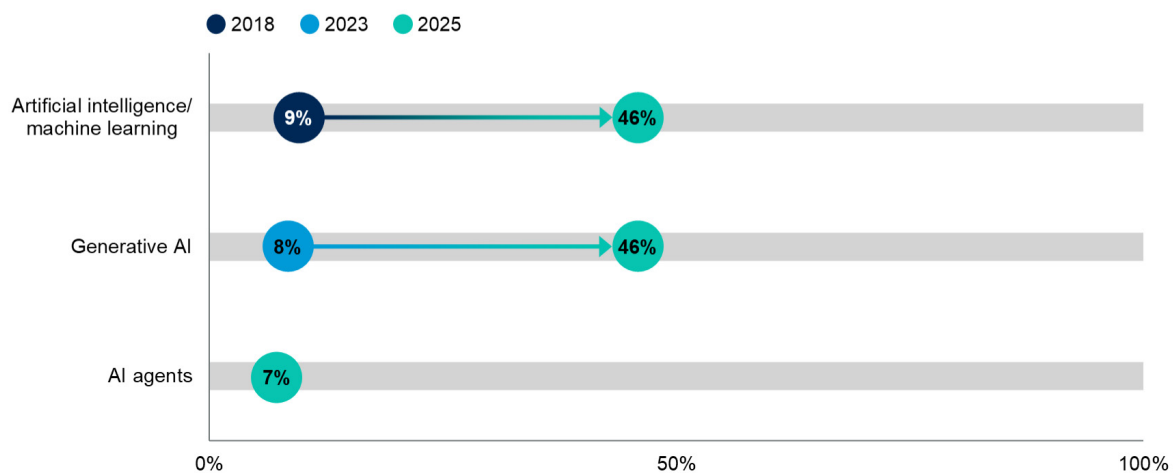
Transportation

Analysis by: Shivani Palepu

Strategic Planning Assumption: By 2030, robotaxis will have completed over 150 million rides in major urban cities, up from approximately 15 million rides in 2024.

Figure 11: Transportation

Transportation



Source: Gartner
840191

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Transportation is moving from pilots to enterprise AI. CIOs are deploying AI at scale to cut costs, optimize operations, and elevate customer experience. Likely “win” use cases include predictive maintenance, route optimization, chatbots, and virtual assistants. GenAI and AI agents are shifting from concept to enabling automation, innovation, and intelligent decision making across the transportation ecosystem. Yet, adoption hurdles remain — chiefly, defining a clear ROI framework. Although AI’s benefits are evident, quantifying them in traditional financial terms is difficult. This challenge, combined with organizational readiness gaps and low AI literacy among decision makers, underscores the need for strong governance and education.

► How to Demonstrate the ROI of AI in Transportation (added 11 May 2026) ► Predicts 2026: Transportation ► Roadmap to Accelerate AI Strategy for Transportation CIOs ► Generative AI Use-Case Assessment for Transportation ► Hype Cycle for Transportation and Smart Mobility, 2026

Evidence

¹ 2026 Gartner CIO and Technology Executive Survey. This survey was conducted online from 1 May through 30 June 2025 to help CIOs and technology executives benchmark their priorities and investment plans against those of peers worldwide. Qualified respondents led a digital/technology function and were accountable for running or improving/growing a specific area of their enterprise. In total, 2,501 CIOs and technology executives participated, with representation from all geographies, revenue bands and industry sectors (public and private). Disclaimer: The results of this survey do not represent global findings or the market as a whole, but reflect the sentiments of the respondents and companies surveyed.

Evolving Insights History

Table 1: Evolving Insights History

Update History	Update
02 September 2026	The document has been updated with new links around including notes on Agentic AI and Industry based use cases of Gen AI
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14 May 2026	The document has been updated with new links and with new language to reflect Gartner's latest guidance around incorporating AI in your core modernization efforts.
09 February 2026	The document has been updated with 11 new research notes to reflect Gartner's latest industry-specific use cases about AI, GenAI, and Agentic AI.
21 November 2025	The document was updated with links to 19 additional research notes, reflecting Gartner's latest AI guidance and use cases across industries.
16 September 2025	Initial Publish

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[Predicts 2026: Transportation](#)

Banking Predicts 2026: AI Agents and Autonomous Business Will Transform Customer Experience

Predicts 2026: U.S. Healthcare Payers Bet Big on Agentic Workforce

Predicts 2026: CSP Technology and Operations Strategies

Predicts 2026: AI-Driven Acceleration in Consumer Goods

Insurance Predicts 2026 — Emerging Technology Hype Versus Reality

Predicts 2026: Education Sector Research, Rethinking and Reinvention

Predicts 2026: The Promises and Perils of Healthcare's AI Era

Predicts 2026: Agentic AI Reshapes Competitive Advantage in Life Sciences

Predicts 2026: Building Winning Strategies in the CSP AI Race

Predicts 2026: Smart Tech, Smarter Retail — Navigating the AI Inflection Point

Oil and Gas Predicts 2026: AI in the Fabric of Work

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