

Harnessing the value of generative AI

2nd edition: Top use cases across sectors

Table of Content



Executive Summary

Increased maturity and investment: Organizations are embracing generative AI, which is reflected in an uptick in investment levels. The vast majority (80%) of organizations in our survey have increased their investment in generative AI from 2023, 20% have maintained their investment level, and not one organization decreased their investment from last year. Larger enterprises lead the charge, and overall, nearly one-quarter (24%) of organizations have integrated this technology into some or most of their operations, an acceleration from 6% reported just 12 months ago. This increase in generative AI adoption since 2023 spans all sectors. For example, in retail, implementation increased to 40%, more than doubling from 17% in 2023.

Pervasive integration across functions: Generative AI permeates organizations, catalyzing a shift in operational paradigms. In the past year, there has been an increase in its adoption across all organizational domains, from sales and marketing to IT, operations, R&D, finance, and logistics.

Moreover, generative AI adoption among employees is robust in most organizations, with the majority allowing its use. Only 3% of surveyed organizations enforce a complete ban on public generative AI tools in the workplace.

Tangible benefits and strategic shifts: Early adopters of generative AI are seeing benefits in areas in which generative AI has been piloted or deployed, from improved operational efficiency to enhanced customer experience. For example, on average, organizations realized a 7.8% improvement in productivity and a 6.7% improvement in customer engagement and satisfaction, over the past year. Organizations anticipate that generative AI will drive adjustments to their strategic approaches and business models. With a belief that the technology will be a key driver of revenue growth and innovation, organizations are exploring new ways of harnessing its capabilities.

The rise of AI agents: The emergence of AI agents marks a shift, with potential to enhance automation and productivity across sectors, business processes, and along the entire value chain. These AI agents have evolved from supportive

Executive Summary

tools to autonomous entities capable of executing tasks independently. Organizations are eager to adopt AI agents, with a strong majority (82%) intending to integrate them within 1–3 years. There is a level of trust in AI agents for specific tasks, such as generating work emails, coding, and data analysis. However, organizations are also mindful of the need to establish guardrails to validate AI-made decisions, ensuring transparency and accountability.

Empower your generative AI journey: Organizations should:

- Establish a robust framework for data governance and management
- Strengthen the data platform and cultivate trust to ensure reliable outcomes
- Cultivate expertise through strategic training and talent development
- Acquire understanding and expertise of the generative AI ecosystem
- Deploy a generative AI platform to manage use cases at scale
- Fortify against cybersecurity threats
- Embrace emerging trends such as AI agents to boost competitiveness and innovation.

This report is a part of Capgemini Research Institute's series on Generative AI



To find out more, please go to <https://www.capgemini.com/insights/research-institute/>

*Upcoming reports

Who should read this report and why?

This report offers an overview of the transformative potential of generative AI for large organizations across sectors such as automotive, consumer products, retail, financial services, telecom, energy and utilities, aerospace and defense, high tech, industrial manufacturing, pharma and healthcare, and the public sector/government. It is the second installment in an annual research series and identifies shifts in trends from 2023.

The report will help business executives identify use cases that illustrate the applications of generative AI across functions, including IT, sales, marketing, and product design/R&D. The report draws on the comprehensive analysis of a survey of 1,100 leaders (director level and above) across 14 countries. Finally, it offers recommendations for business leaders to accelerate their organizations' generative AI journeys.

Introduction

Generative AI is rapidly transforming the way we interact with technology. Machines are now capable of mimicking creative human thought processes and synthesizing tailored content of increasingly high quality. This has significant implications for driving innovation, operational efficiency, and growth.

This report is the second in the Capgemini Research Institute's annual research series that examines generative AI trends and use cases. In the first report of this series, "**Harnessing the value of generative AI: Top use cases across industries**," we explored the transformative potential of generative AI, highlighting the function- and sector-specific use cases with the greatest potential, and comparing adoption rates across sectors. In our 2023 research, we discovered that, while still in its infancy in terms of scaled adoption and implementation, generative AI was on the agenda in 96% of boardrooms globally. We found that nearly 60% of organizations said their leaders are strong advocates of generative AI, and only 39% were taking a "wait-and-watch" approach.

This year's research highlights a quickening of the pace of implementation. Notably, nearly one-quarter (24%) of

organizations are now integrating generative AI into some or most of their locations or functions, up from just 6% in 2023. In this year's report, we analyze shifts in generative AI adoption and take a closer look at the investment levels and benefits organizations have realized. We also turn the spotlight on AI agents, a quickly evolving technology with potential to drive innovation.

To gauge perceptions of generative AI, we conducted a global survey of 1,100 executives at organizations with annual revenue above \$1 billion. We invited public-sector organizations and government entities with an annual budget of at least \$50 million to participate. Organizations are headquartered in 14 countries: Australia, Canada, France, Germany, India, Italy, Japan, the Netherlands, Norway, Singapore, Spain, Sweden, the UK, and the US. Organizations surveyed operate across 11 key sectors: aerospace and defense, automotive, consumer products, energy and utilities, financial services, high tech, pharma and healthcare, industrial manufacturing, retail, telecom, and the public sector/government. For more details on the survey sample, please refer to the research methodology.

Introduction

This report comprises five sections:



Organizations are
deploying generative
AI at pace



Generative AI
is pervading
organizations



Generative AI is
already driving
benefits



AI agents: The new
technology frontier



How organizations
can accelerate
their generative AI
journeys

01

Organizations are deploying
generative AI at pace

80%

of organizations have increased their investment in generative AI from last year

Investment in generative AI is increasing

According to our research, 80% of organizations have increased their investment in generative AI from last year. Remarkably, not a single organization decreased their investment, while the remaining 20% maintained the same investment level. This trend echoes across all sectors and organization sizes in the research. For example:

- In aerospace and defense, almost nine in 10 organizations have (88%) boosted their investment in generative AI;
- Within retail, the lowest proportion among all sectors in our survey, 66% have invested in generative AI;
- 73% of organizations with \$1–5 billion in annual revenue have increased their investment, and 89% of organizations with over \$20 billion in revenue have done so.

Dave Chen, Head of Global Technology Investment Banking at Morgan Stanley, says: "*Though cost savings and operational efficiencies remain a priority for large enterprises, they are also showing a willingness to spend, especially on generative AI and traditional AI hardware and software that may [in the medium to long term] help reduce costs and increase productivity and revenue.*"¹ Recently, The Coca-Cola Company committed \$1.1 billion over a five-year period to accelerate cloud and generative AI initiatives.²

In the past year, implementation of generative AI has accelerated

Across our total survey sample of 1,100 organizations, only 6% of organizations are yet to begin exploring generative AI. Out of those who have at least begun to do so (n=1,031), nearly one-quarter (24%) are now integrating this technology into some or most of their locations or functions. This marks an increase from just 6% reported last year, indicating widespread recognition of the benefits (see Figure 1).

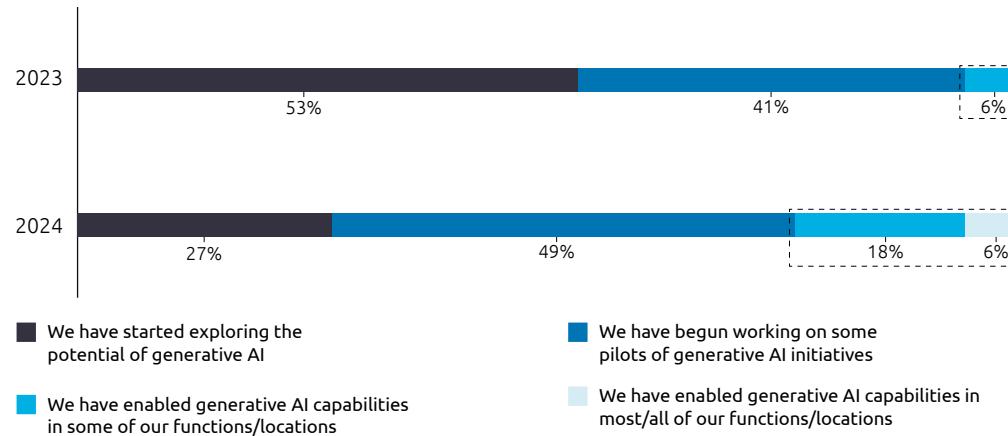
Only 10% of smaller organizations in our research, with annual revenue of \$1–5 billion, have implemented generative AI across some or most of their locations and functions. In contrast, 49% of organizations with annual revenue surpassing \$20 billion have implemented the technology.

Jack Forestell, Chief Product and Strategy Officer at Visa, says: *"While much of generative AI so far has been focused on tasks and content creation, this technology will soon not only reshape how we live and work, but it will also meaningfully change commerce in ways we have yet to fully understand."*³

Figure 1.

More organizations have increased their maturity in generative AI

% of organizations who agree with the statement on generative AI maturity



Source: Capgemini Research Institute, Generative AI executive survey, April 2023, N = 800 organizations; Generative AI executive survey, May–June 2024, N = 940 organizations that are at least exploring generative AI capabilities.

*In the 2024 data points respondents from India and the public sector/government are excluded as they were not included in the 2023 research.

All sectors have progressed in their implementation of generative AI

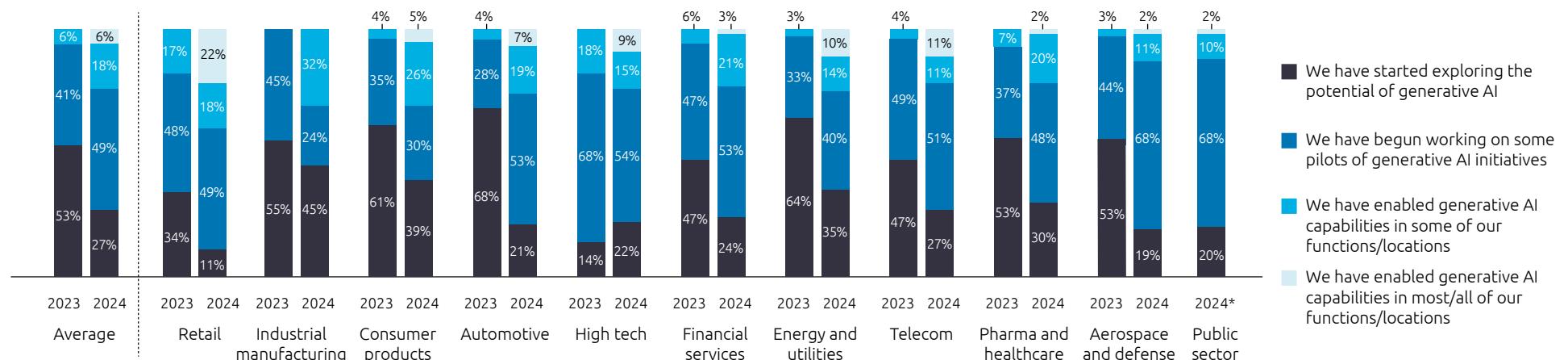
Generative AI integration has increased across all sectors since 2023. For example, 40% of organizations in the retail sector have implemented generative AI across some or most functions/locations, more than doubling from 17% in 2023

(see Figure 2). For a detailed listing of use cases by sector and associated implementation data, please refer to Appendix.

Figure 2.

Over the past year, there has been an increase in the maturity of generative AI across sectors

% of organizations who agree with the statement on generative AI maturity, by sector



Source: Capgemini Research Institute, Generative AI executive survey, April 2023, N = 800 organizations; Generative AI executive survey, May–June 2024, N = 1,031 organizations that are at least exploring generative AI capabilities; N varies per sector use case ranging from 50 to 189. *Respondents from the public sector were not included in the 2023 research. **Excluded from Figure 2 is the percentage of organizations that have started exploring the potential of generative AI.

David M. Reese, Executive Vice-president and Chief Technology Officer at Amgen, a US biopharmaceutical company, says: *"Generative AI is transforming drug discovery by allowing us to build sophisticated models and seamlessly integrate AI into the antibody design process."*⁴ Natarajan Chandrasekaran, Chairperson of Tata Group, states: *"In e-commerce, generative AI is being used to generate product catalogs, deliver conversational shopping experiences, and provide personalized offers."*⁵ Michael Smith, Chief Information Officer at The Estée Lauder Companies, says: *"The generative AI chatbot developed with [a partner] helps us quickly find products that address concerns relevant to specific regions and emerging markets. We will continue to explore other ways we can harness the wealth of data across products, ingredients, and more, in tandem with the power of generative AI."*⁶

Highlighting the gradual scaling of generative AI in financial services, Asim Tewary, former Chief AI Officer, PayPal, comments: *"You have to be able to explain why certain decisions were made — why a credit limit was set at that amount, for example. There's an absoluteness that's expected from regulators about being able to explain how the decision was made. Anytime you impact the consumer or introduce a system risk, regulators get very concerned."* Also concerning to the financial sector is the increased sophistication of deepfakes which can deceive customers into transferring funds to seemingly legitimate accounts, whether virtual or human agent mimicked. This underscores the imperative of ensuring both accuracy in customer-facing AI products and robust security measures in customer interactions.⁷



Investment in generative AI increases with organization size

On average, organizations surveyed have allocated around \$110 million to generative AI for the current fiscal year. Thirty-four percent of organizations in our survey have allocated \$50 million or less to generative AI, while 11% have allocated \$250 million or more.

The amount of generative AI investment increases with company size. For example, on average, organizations with annual revenue of \$1–5 billion allocate \$85 million and those with more than \$20 billion allocate \$158 million (see Figure 3).

Given that the amount of investment allocated to generative AI increases with organization size, larger organizations widely agree that generative AI is more than just a passing trend, serving as a pivotal cornerstone in their enterprise evolution. Large organizations are increasingly embracing the transformative potential of generative AI technology more fervently than perhaps other recent technological advancement. A striking 71% of organizations with annual revenues exceeding

\$20 billion believe that failing to adopt generative AI will place them at a considerable disadvantage relative to their competitors. This sentiment is lower among organizations with annual revenues under \$5 billion (56%)⁸.

Our average investment of \$110 million is higher than some recently published analyst reports and likely reflects the broad categories of enterprise spend including hardware, software, licensing, training, among others. According to Gartner, software development is the function with the highest rate of investment in generative AI, followed closely by marketing and customer service.⁸ Additionally, a significant majority of organizations are investing in partnerships with external providers of generative AI applications. According to our research, 70% of organizations are exclusively using external applications or a combination of external and in-house solutions. Commonly used tools include OpenAI's ChatGPT, GitHub Copilot, Scribe, Microsoft Copilot, and AWS Gen AI.

Figure 3.

Investment in generative AI trends upward with organization size

Average investment dedicated to generative AI, by annual revenue, 2024



Source: Capgemini Research Institute, AI executive survey, May–June 2024, N = 981 organizations who are at least exploring generative AI capabilities, excluding the public sector.

02

Generative AI is pervading organizations

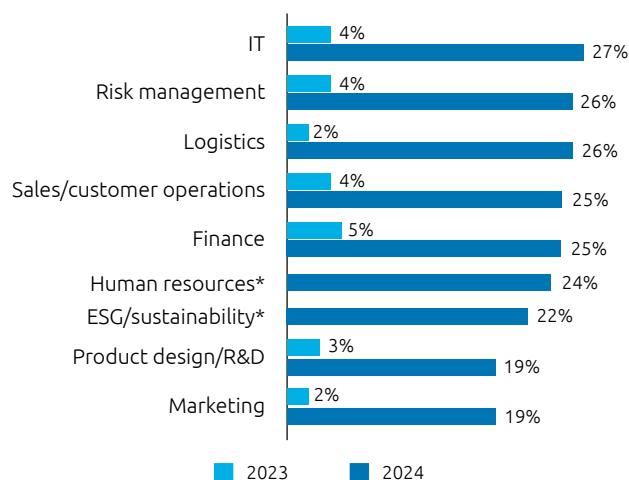
Generative AI makes inroads across functions

Our research indicates an increase in generative AI adoption across all facets of organizations over the past 12 months. Examining individual functions, in the IT domain for example, the adoption rate has increased to 27% from 4% the previous year (see Figure 4). Hitachi successfully integrated generative AI tools by leveraging its detailed system-design knowledge with Microsoft's AI services, achieving a 70%–90% success rate in generating application source code.⁹ For a detailed listing of use cases by function and associated implementation data, please refer to the Appendix.

Figure 4.

Over the past year, adoption of generative AI has grown across functions

% of organizations implementing generative AI use cases, by function



Source: Capgemini Research Institute, Generative AI executive survey, April 2023, N = 800 organizations; Generative AI executive survey, May–June 2024, N = 1,031 organizations that are at least exploring generative AI capabilities; N varies per functional use case, ranging from 499 to 716.

*ESG/sustainability and human resources were excluded from the 2023 research.

** "Implementation" refers to organizations that have partially scaled the functional use case in question.

***In the 2024 averages, respondents from the public sector and India are excluded, as they were not included in the 2023 research.

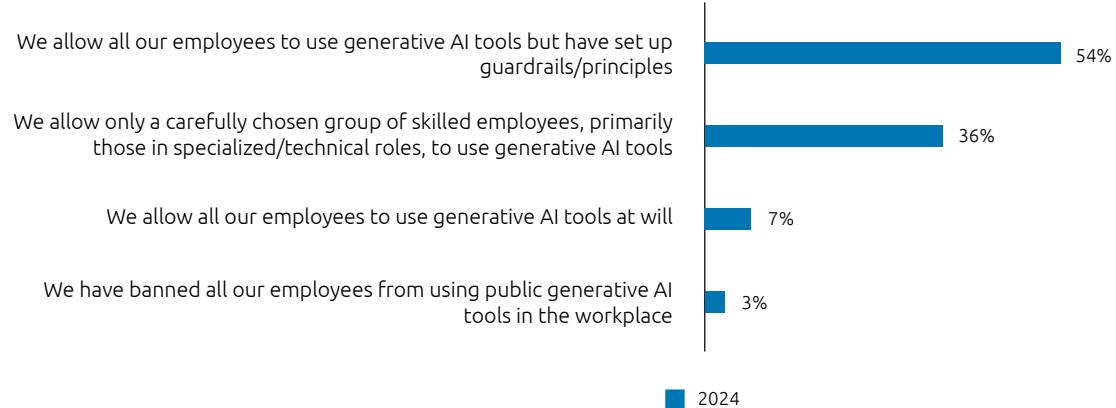
Generative AI is used by employees in most organizations

The majority of organizations allow employees to use generative AI in some capacity. Over half of organizations (54%) require employees to follow specific guidelines when using these tools, rather than imposing a complete ban. Three percent of surveyed organizations report a ban on public generative AI tools in the workplace. However, 7% of organizations permit unrestricted use of such tools, which may pose future risks to the organization (see Figure 5).

Figure 5.

97% of organizations allow employees to use generative AI in some capacity

% of organizations who agree with the statements



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 1,031 organizations that are at least exploring generative AI capabilities.

Despite the implementation of guardrails and policies to regulate the use of generative AI, unauthorized usage among employees is still relatively common. Among the 39% of organizations with a ban or limitation policy, half of them say there is still unauthorized usage of generative AI in the

workplace. Amazon has prohibited employees from using third-party generative AI tools, such as OpenAI's ChatGPT, particularly for handling confidential data. This policy is intended to prevent data-ownership issues and protect sensitive company information.¹⁰

In the table that follows, we highlight recent generative AI use cases across sectors and functions:

Sector	Company	Function	Example
Aerospace	Airbus	Manufacturing	Has transformed its operations and innovation processes with generative AI. AI assistants provide aircraft manufacturing instructions, enhancing accessibility to technical data, and facilitating precise task guidance. ¹¹
Automotive	Toyota	Product design/R&D	Uses generative AI to incorporate engineering constraints into vehicle design, and optimizing metrics such as aerodynamic drag, enhancing efficiency of electric-vehicle (EV) design. ¹²
Automotive	Mercedes-Benz	Customer experience/service	Leverages generative AI in its "Hey Mercedes" feature, which is in beta with 900,000 users. It offers personalized, screen-free interactions, enhancing driving experience with dynamic adjustments and real-time safety support. ¹³
Consumer products	General Mills	Customer experience/service	Launched MillsChat, a generative AI tool, to streamline customer service. This enhances efficiency, provides personalized assistance, and encourages customer engagement. ¹⁴
Consumer products	PepsiCo	Marketing and branding	Harnesses generative AI to analyze customer feedback, which it uses to refine shape design and flavor of its Cheetos branded snack, boosting market penetration by 15%. This strategy has also shortened product launch cycles and increased profitability. ¹⁵

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Sector	Company	Function	Example
Consumer product	Unilever	Legal	Uses generative AI to streamline legal processes, including research, drafting, and contract reviews. This allows legal teams to focus on strategic tasks, enhancing operational effectiveness. ¹⁶
Energy	British Petroleum (BP)	Human resources – employee productivity	Leverages generative AI to assist employees with daily tasks such as email management. Enhances employee productivity and transforms business workflows. ¹⁷
Financial services	Morgan Stanley	Customer experience/service	Used GPT-4 to create an AI tool for financial advisors, allowing rapid access to internal research. This enhances advisor efficiency and client service, simulating top investment experts on call. ¹⁸
High tech	BrainBox AI	ESG/sustainability	Uses generative AI to reduce carbon footprint of commercial buildings. Uses historical data to predict interior building temperatures, cutting heat, ventilation and air-conditioning (HVAC) energy costs by up to 25% and greenhouse gas (GHG) emissions by 40%. ¹⁹
Industrial manufacturing	Rockwell Automation	IT – coding/software development	Added generative AI into FactoryTalk Design Studio to help engineers generate code using natural language prompts, automating routine tasks and improving design efficiency. It will also empower experienced engineers to accelerate development and mentor newcomers more effectively. ²⁰

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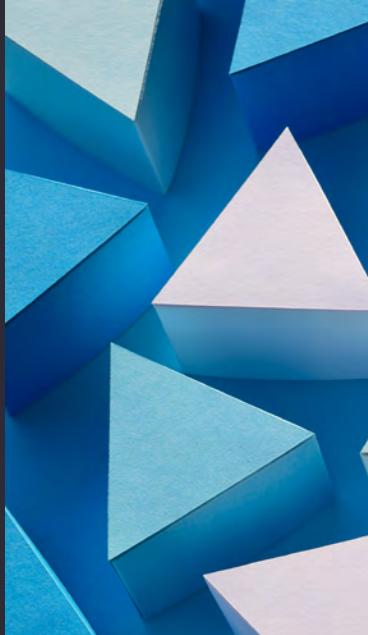
Sector	Company	Function	Example
Industrial manufacturing	Schneider Electric	Finance and accounting	Integrated generative AI into Finance Advisor, a conversational assistant for financial analysts in global finance, ensuring precise, compliant, and timely decision-making across accounting and related functions. ²¹
Logistics	UPS	Marketing	Developed the Message Response Automation (MeRA) system in-house using publicly available large language models (LLMs), to automate routine customer interactions, reducing email handling times by 50% and allowing human agents to focus on more complex issues. It also streamlines operations and improves customer satisfaction by ensuring prompt, accurate responses. ²²
Pharmaceutical and biotech	Insilico Medicine	Product design/R&D	Identified a new drug candidate, MYT1, using its generative AI platform in each step of its preclinical drug-discovery process, offering more effective, safer treatments for breast and gynecological cancers. ²³
Pharmaceutical and biotech	Moderna	Research and development	Uses generative AI tools, including the company's Dose ID GPT, which uses ChatGPT Enterprise's Advanced Data Analytics feature to further evaluate the optimal vaccine dose selected by the clinical study team. ²⁴

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Sector	Company	Function	Example
Public sector	California Department of Transportation and Department of Tax and Fee Administration	Citizen services	Plans to use generative AI to analyze traffic data to improve road safety, reduce call-center wait times, aid non-English speakers, and streamline healthcare-facility inspections. ²⁵
Public sector	State of Pennsylvania	Employee operations	Runs a generative AI pilot program for state employees, integrating the technology into government operations. Supports crafting/editing copy, updating policy language, drafting job descriptions, and generating code. ²⁶
Retail	ASOS	Sales	Uses generative AI to make fashion recommendations, customer-service interactions, and trend analysis, enhancing user engagement, personalizing customer experiences, and optimizing retail strategies. ²⁷
Retail	Walmart	ESG/sustainability	Uses generative AI to reduce food waste by helping employees make quick decisions. Employees scan a product such as produce or apparel, and a digital dashboard makes suggestions on what to do with the product based on its characteristics (e.g., ripeness, whether it's seasonal). Suggested actions could include a price change, putting it on sale, sending the item back, or donating it. ²⁸

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Sector	Company	Function	Example
Retail	Baskin Robbins	Product design/R&D	Uses generative AI, in its Seoul, South Korea, store to develop innovative ice-cream flavors. Supported the introduction of a monthly exclusive flavor, and personalized experience offered through an ice-cream docent program. ²⁹
Telecom	AT&T	Employee productivity	Employs generative AI capabilities in its Ask AT&T tool to support employees by enhancing productivity and creativity, translating documents, optimizing networks, and summarizing meetings. This leads to improved efficiency and greater innovation. ³⁰
Telecom	Vodafone	Customer experience/service	Voxi by Vodafone, a generative AI self-service experience, enhances interactions, provides personalized assistance, and optimizes customer support services, fostering satisfaction and engagement. ³¹



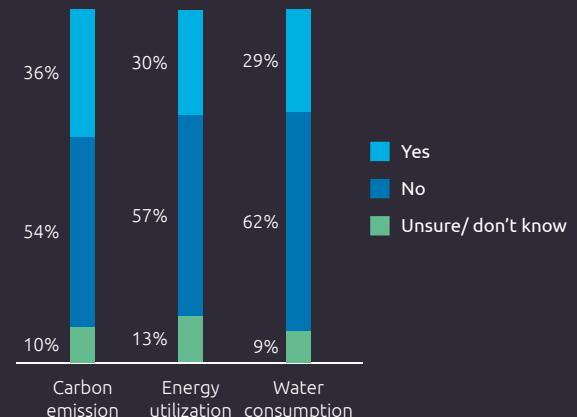
Organizations must carefully scale generative AI initiatives with a focus on environmental sustainability

Organizations must assess technological advancements in generative AI alongside their environmental consequences. They should evaluate the business value, considering implementation complexity and costs, while also scrutinizing environmental impacts such as GHG emissions, electricity usage, and water consumption. Our research indicates that, roughly a third of organizations are currently monitoring energy and water consumption, as well as carbon emissions, associated with their generative AI initiatives (see Figure 6).

Figure 6.

36% of organizations are currently tracking carbon emissions from generative AI use

% of organizations currently tracking and measuring the below metrics in the use of generative AI



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 1,031 organizations that are at least exploring generative AI capabilities.

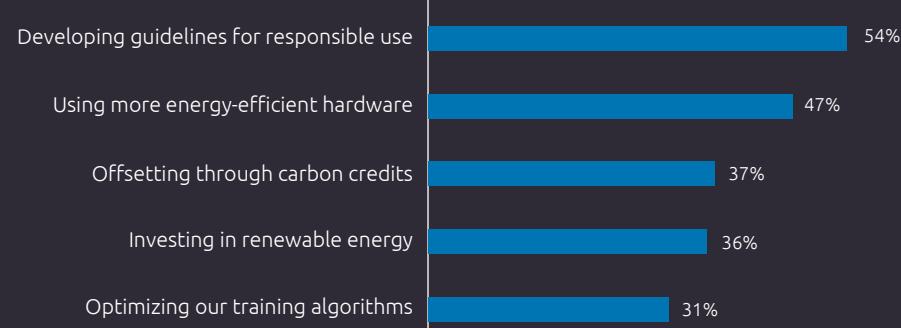
Furthermore, our research explored the measures organizations are implementing to mitigate the environmental impact of generative AI. Slightly over half of organizations (54%) are developing guidelines for responsible use of generative AI, and 47% are transitioning to more energy-efficient hardware. However, the proportion of organizations undertaking additional actions such as investing in renewable energy, offsetting emissions through carbon credits, and optimizing training algorithms remains low (see Figure 7).

Only a third of organizations are currently monitoring energy and water consumption, as well as carbon emissions, associated with their generative AI initiatives.

Figure 7.

Half of organizations are currently developing guidelines for generative AI use

% of organizations currently trying to mitigate the carbon footprint from using generative AI



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 1,031 organizations that are at least exploring generative AI capabilities.

03

Generative AI is already driving benefits

Organizations have achieved benefits

Our current research evaluates the benefits that generative AI has brought at organizational level in the past year in the areas in which generative AI has been piloted or deployed. For example, on average, organizations realized a 7.8% improvement in productivity and a 6.7% improvement in customer engagement and satisfaction over the past year (see Figure 8).

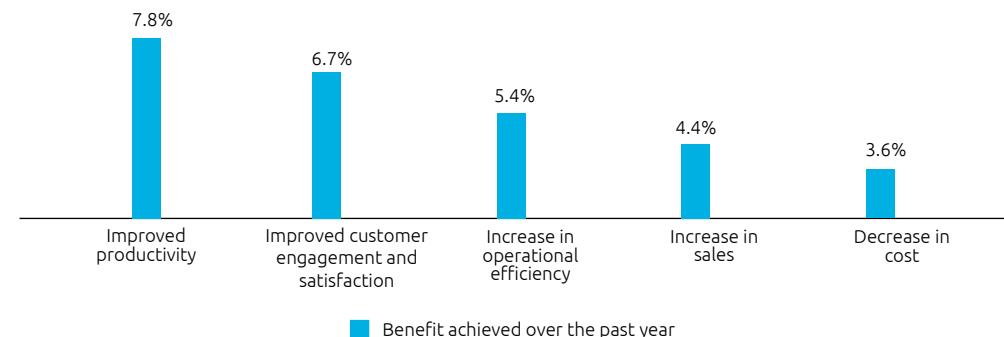
Generative AI technology has only been mainstream for roughly 18 months, and consequently, organizations are cautiously optimistic about the potential benefits of integrating generative AI into their strategies and processes. However, given the advancement and increasing integration of this technology within all functions, it is expected that the actual benefits will exceed organizations' expectations.

Moreover, our research reveals benefits that largely originate from pilots or partial scale implementations of generative AI. Benefits are poised to amplify as more organizations adopt generative AI at full scale across all operational domains.

Figure 8.

Generative AI yielded benefits in the past year in the areas in which the technology has been piloted or deployed

Average benefits realized from generative AI within the past year



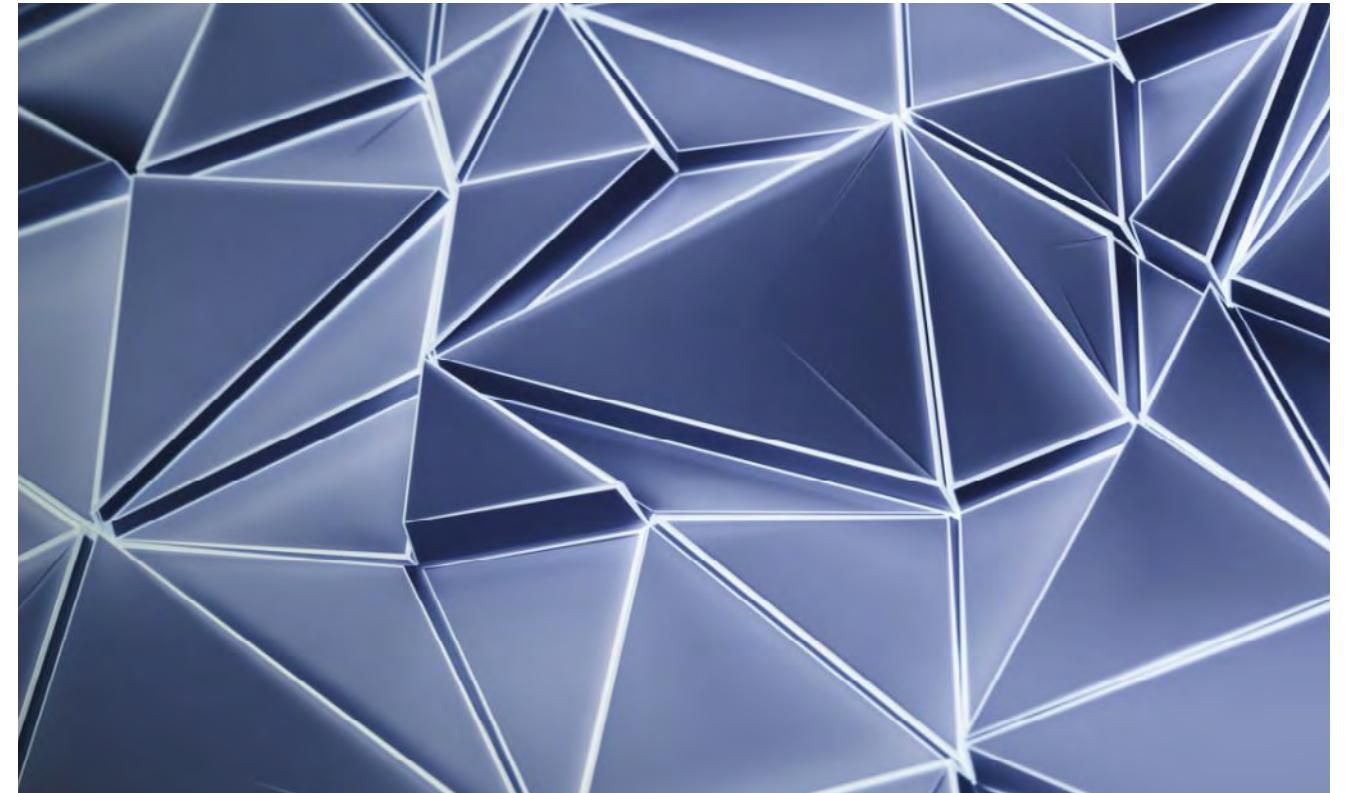
Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 940 organizations that are at least exploring generative AI capabilities.

Improved productivity: Leveraging generative AI to optimize and improve the performance of existing resources, such as machines and employees. Increase in operational efficiency: Applying generative AI to pinpoint areas of waste and inefficiency, thereby reducing the time employees spend on non-value-added activities or inefficient processes.

*Question asked: What benefits have you already achieved at an organizational level from generative AI, within the past one year?

Magnus Östberg, Chief Software Officer at Mercedes-Benz AG, discusses the benefits of generative AI on the in-car experience: *"The Mercedes-Benz user experience of tomorrow will be hyper-personalized. With generative AI, our MBUX Virtual Assistant brings more trust and empathy to the relationship between car and driver. Thanks to our chip-to-cloud architecture, our future vehicles will provide customers with exactly what they need, when they need it."*³²

Florian Tué, Head of Procurement Transformation at Carrefour, comments: *"We realized comparing three quotes would take around 30 minutes for a buyer to do manually. If we do it with ChatGPT and the PoC [proof of concept] that we've been running, it takes only 10 minutes. That's a huge productivity gain."*³³ Beryl Fleur, Head of Strategic Marketing at Carrefour, adds: *"With generative AI, we are confident of gaining significant responsiveness, along with greater consistency and, of course, budget effectiveness. For our teams, it is also the opportunity to save time on repetitive tasks and focus more on creativity and customer voice."*³⁴



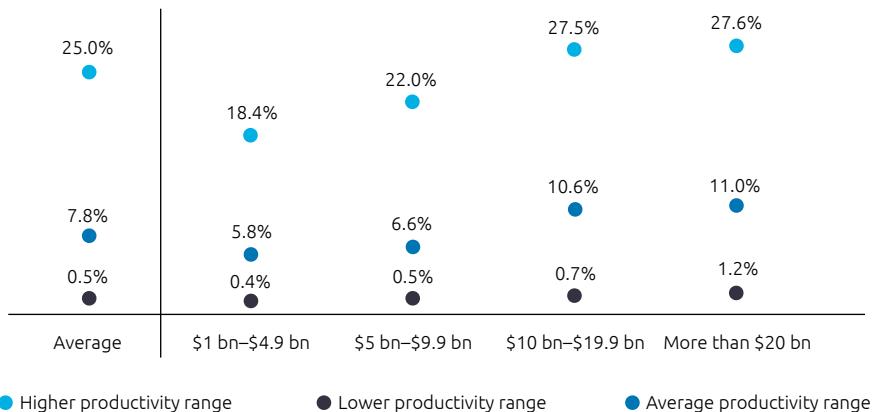
Organizations using generative AI have seen a range of productivity improvement

Furthermore, upon examining the spectrum of productivity benefits, our research reveals that while the average increase stands at 7.8%, organizations have achieved up to a 25% boost in productivity over the past year through the adoption of generative AI. Moreover, we observed that the productivity gains tend to scale with the size of the organization (see Figure 9). This is likely due to the higher amount of investment made by these larger organizations, as observed in Figure 9.

Figure 9.

Generative AI yielded productivity benefits in the past year

Productivity improvement realized from generative AI in the past year, by organization size



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 931 organizations that are at least exploring generative AI capabilities.
Higher and lower productivity ranges are found by the 95th and 5th percentile respectively of individual productivity data. Average productivity range is the statistical average across the entire sample.

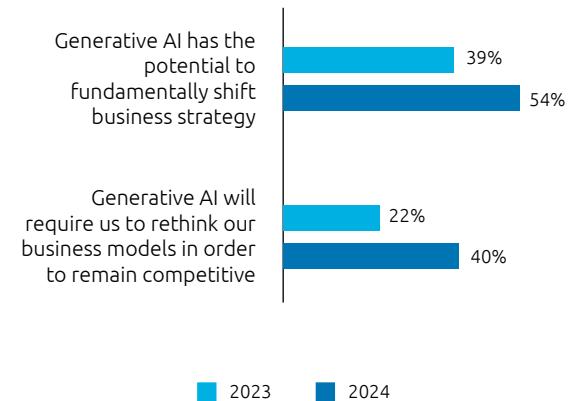
Organizations think generative AI will shift strategies and business models

In our current research, over half of organizations (54%) believe that generative AI has the potential to shift business strategy fundamentally, up from 39% in 2023. Similarly, 40% of organizations now believe that generative AI will push them to review their business model, up from 22% last year (see Figure 10).

Figure 10.

More organizations today realize the potential for generative AI to shift business strategies and models

% of organizations who agree with the statements below



Source: Capgemini Research Institute, Generative AI executive survey, April 2023, N = 800 organizations; Generative AI executive survey, May–June 2024, N = 1,031 organizations that are at least exploring generative AI capabilities.

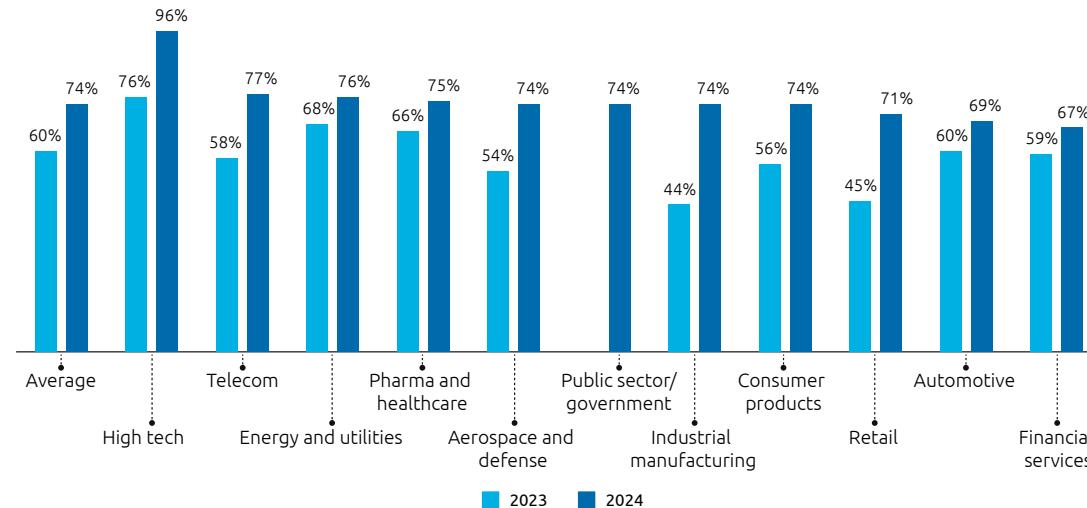
Organizations believe that generative AI will drive revenue and innovation

A significant majority (74%) of organizations across sectors agree that generative AI will drive revenue and innovation, an increase from 60% last year. The high-tech sector (96%) leads the way in acknowledging this (see Figure 11). For example, Google launched virtual try-on technology powered by generative AI, showcasing clothes on a variety of models. With just one photo, it accurately displays how the clothing fits and drapes on models of diverse skin tones and ethnicities. Additionally, generative AI creates images of customers wearing these items in various settings, such as at the beach or a formal event, helping visualize product suitability and boosting sales.³⁵

Figure 11.

Organizations across sectors believe that generative AI will unlock revenue growth and foster innovation

**% of organizations by sector who agree with the statement:
Generative AI is a transformative technology that will help us drive revenue and innovation**



Source: Capgemini Research Institute, Generative AI executive survey, April 2023, N = 800 organizations; Generative AI executive survey, May–June 2024, N = 981 organizations that are at least exploring generative AI capabilities, excluding the public sector.

*Question asked in 2023: Do you see generative AI as an opportunity to drive revenue and innovation?

**In the 2024 average, the public sector is excluded, since it was not included in the 2023 research; in all 2024 data points respondents from India are excluded, since they were not in the 2023 research.



To fully harness the power of generative AI, three in five organizations acknowledge the need to improve data foundations

Generative AI holds unprecedented potential to extract value from data. However, many organizations currently lack the robust data foundation necessary to support it.

Our research reveals that nearly three in five executives recognize that, in order to employ generative AI to its full potential, there is a need for significant alterations to data collection, storage, retrieval, reusability, and governance. Much data remains trapped in silos, with only half of organizations possessing clear processes for integrating data across functions. Only 51% of data executives say that their organization has clear

processes to manage siloed data and data integration across functions. Moreover, 49% of data sources are in the cloud, with the remainder still residing in local servers, posing accessibility challenges. Moreover, most organizations (87%) have yet to utilize external data sources for generative AI initiatives.³⁶

Organizations must fortify their data-governance frameworks. Fewer than half (46%) have documented policies around sourcing, usage, access, processing, and security of data specifically for generative AI.³⁷

Crucially, 61% of data executives report their organizations lack the necessary expertise to transition into data-powered entities.³⁸

04

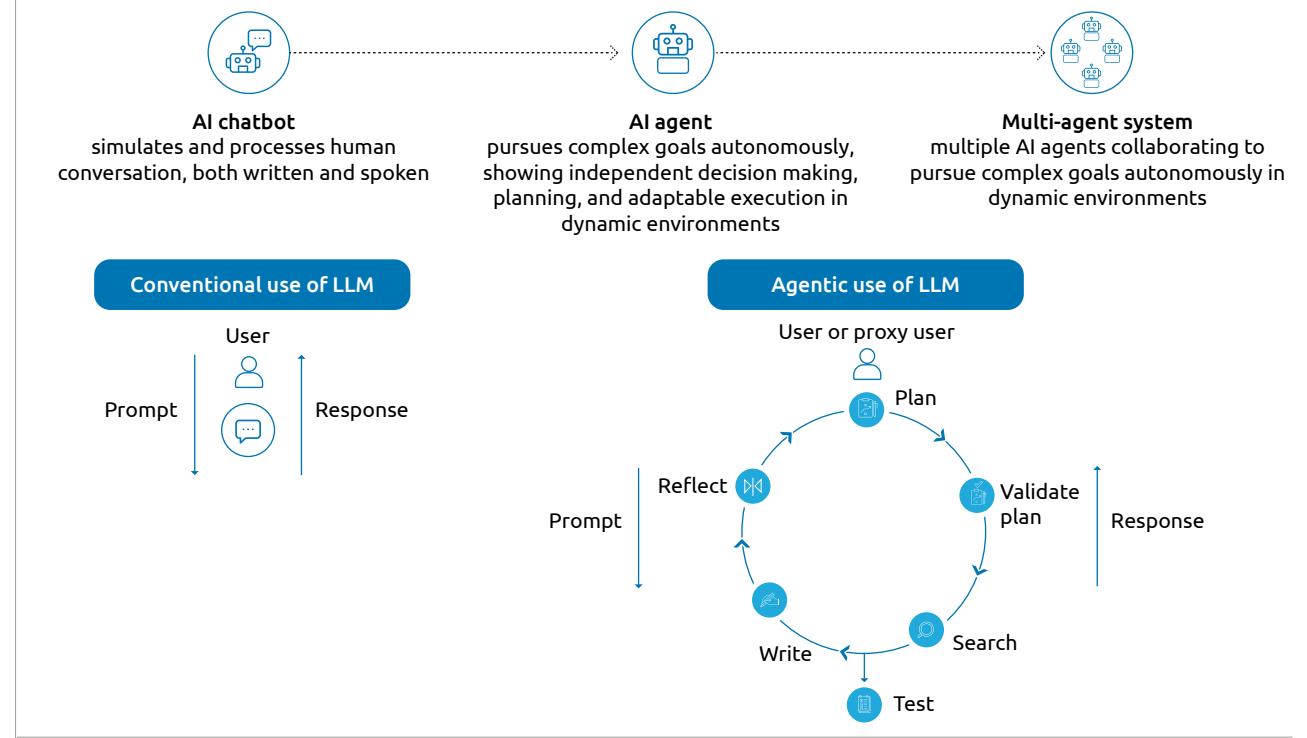
AI agents: The new technology frontier

We define an AI agent as a technology designed to function independently, plan, reflect, pursue higher-level goals, and execute complex workflows with minimal or limited direct human oversight. A multi-agent system is a collection of these agents working together to solve tasks in a distributed and collaborative way. Such systems exhibit characteristics traditionally found exclusively in human operators, including decision-making, planning, collaboration, and adapting execution techniques based on inputs, predefined goals, and environmental considerations.

As AI technology progresses, they will transition from the role of supportive tool to that of independent agent with full execution capability. Unlike conventional AI systems, as well as following instructions, these agents can understand, interpret, adapt, and act independently and, for certain tasks, are capable of replacing human workers.

Figure 12.

Transition of AI chatbots to multi-agent systems



Source: Capgemini Research Institute analysis, Capgemini Applied Innovation Exchange – San Francisco.

AI agents promise smoother automation and enhanced productivity

Almost three-quarters (71%) of organizations anticipate that AI agents will facilitate automation and a majority also believe that they will relieve human operators of repetitive tasks and allow them to focus on value-added functions such as customer experience (see Figure 13).

Figure 13.

Organizations recognize significant value in AI agents

% of organizations who agree with the statements



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 1,031 organizations who are at least exploring generative AI capabilities.

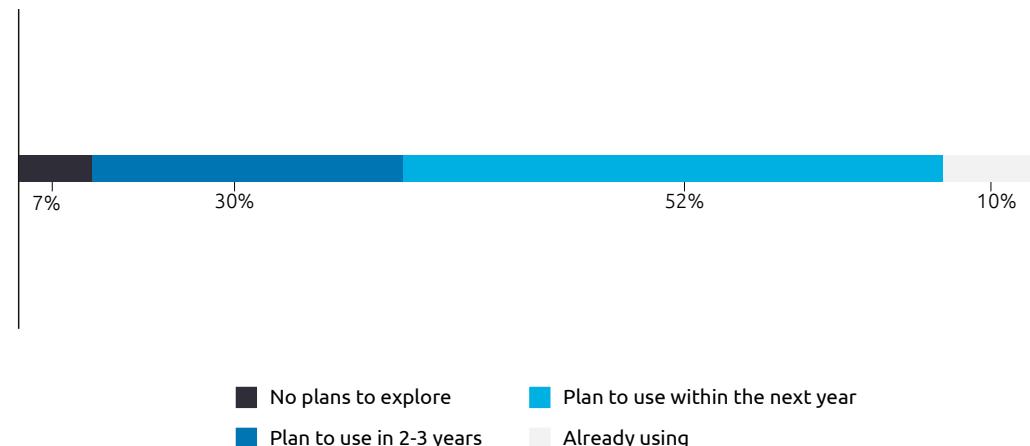
Organizations anticipate the arrival of AI agents

Our survey findings reveal that while only 10% of organizations currently employ AI agents, a large majority (82%) intend to integrate them within 1–3 years (see Figure 14). Andrew Ng, founder of DeepLearning.AI, says: *'Agentic workflows let AI work iteratively, which yields a huge improvement in performance. Agents can be used for robotic process automation [RPA], but it is much bigger than that. We will experience 'agentic moments,' when we see AI that plans and executes a task without human intervention.'*³⁹

Figure 14.

The next few years will see an uptake in adoption of AI agents

% of organizations using or planning to use AI agents



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 981 organizations who are at least exploring generative AI capabilities, excluding the public sector.

*Figure excludes 1% that answered unsure/don't know

The pharmaceutical and healthcare sector leads in AI agent adoption (23%). Over the next year, a significant portion of high-tech (77%) and retail (66%) organizations are poised to embrace AI agents, indicating acceptance across diverse fields.

AI agents offer organizations a versatility that will allow deployment across various areas. About three-quarters intend to deploy the technology for tasks such as generating and iteratively improving code (see Figure 15).

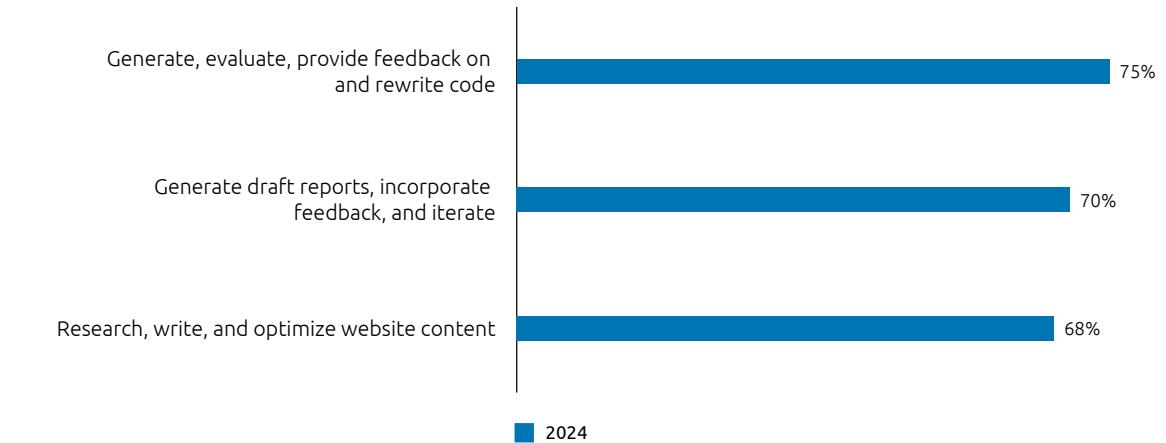
82%

of organizations intend to use AI agents within 1–3 years

Figure 15.

Organizations plan to use AI agents across various areas

% of organizations who plan to use AI agents for the below activities



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 846 organizations who plan to use AI agents.

Despite the technology behind AI agents still being in its infancy, some organizations are already tapping into the potential of AI agents:

- LG's AI agent boasts robotic, AI, and multi-modal technologies that enable mobility, active learning, and engagement in complex conversations. It can manage smart-home devices without user oversight, patrol the home when no one is there, monitor the well-being of pets, and generally enhance domestic security and improve energy efficiency.⁴⁰
- Klarna, a Swedish payments company, uses an AI assistant to handle tasks equivalent to the workload of nearly 700 employees. This AI assistant addresses service requests, manages refunds, and handles returns in various languages. According to Klarna, it has significantly enhanced its efficiency and precision in resolving tickets, cutting repeat inquiries by 25%. On average, it completes tasks in one-fifth of the time that it took to do manually.⁴¹
- Torq has incorporated a cybersecurity analysis AI agent into its security hyper-automation platform, enabling organizations to automate contextual alert triaging, incident investigation, and response. This auto-prioritization allows security staff to focus on urgent matters, reducing stress levels and mitigating burnout. Going forward, the technology will resolve 90% of tier-1 and tier-2 tickets independently.⁴²

"Agentic workflows let AI work iteratively, which yields a huge improvement in performance. Agents can be used for robotic process automation [RPA], but it is much bigger than that. We will experience 'agentic moments,' when we see AI that plans and executes a task without human intervention."

Andrew Ng

Founder of DeepLearning AI

What the future could look like with AI agents

AI agents are reshaping business dynamics. Microsoft Founder Bill Gates says: *"Agents are not only going to change how everyone interacts with computers. They are also going to upend the software industry, bringing about the biggest revolution in computing since we went from typing commands to tapping on icons."*⁴³

Figure 16.

AI agents – how they work

Integrates multi-modality such as text, voice, images, video, etc.	Independently plans step-by-step workflow, moving from subtasks to execution of complex tasks	Interprets complex dataset and makes contextual decisions in real time	Reviews and corrects its own output	Collaborates with multiple other agents and third-party applications, mimicking real-world environments and situations	Executes actions towards set goals with minimal/no human oversight
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Source: Capgemini Research Institute analysis, secondary sources.^{43, 44}

While presently only a small share of organizations use AI agents effectively, we envisage widespread adoption across the following areas:

- **Pharma/healthcare:** AI agents will manage and coordinate healthcare services, such as appointment scheduling and patient care tasks, including monitoring vital signs, administering medication, monitoring elderly patients and providing personalized care, reducing errors and enhancing overall service delivery.⁴⁴
- **Financial services:** AI agents will continuously monitor account activity to detect anomalous transactions in real time, reducing fraud losses and minimizing false positives.⁴⁵
- **Customer service:** AI agents will engage customers with natural language, offering personalized assistance and resolving queries efficiently. This boosts customer satisfaction and frees up human agents to focus on complex tasks.⁴⁶

- **Human resources:** AI agents will manage administrative tasks such as onboarding, payroll, benefits, and offer proactive guidance. This allows staff to focus on strategic initiatives and human interactions.⁴⁷
- **IT service desk:** AI agents will handle common repetitive tickets, freeing staff up for complex tasks. They can provide reminders, diagnose issues, search systems, and take contextualized actions, reducing resolution times and enhancing productivity.⁵⁰
- **IT software development:** AI agents will autonomously develop complete software products, moving seamlessly between stages, from analysis to monitoring, ensuring quality assurance. This shifts the focus of software engineers from routine coding to collaborating with AI on human-centered design and navigating complex systems.⁵¹

- AI agents will reshape the human-machine-interaction dynamic. However, broad adoption of AI agents will give rise to significant ethical and social concerns around privacy, , hallucinations, bias accountability, and transparency. Addressing these issues will demand robust governance frameworks, ethical guidelines, and responsible AI practices to maximize benefits while mitigating risks.

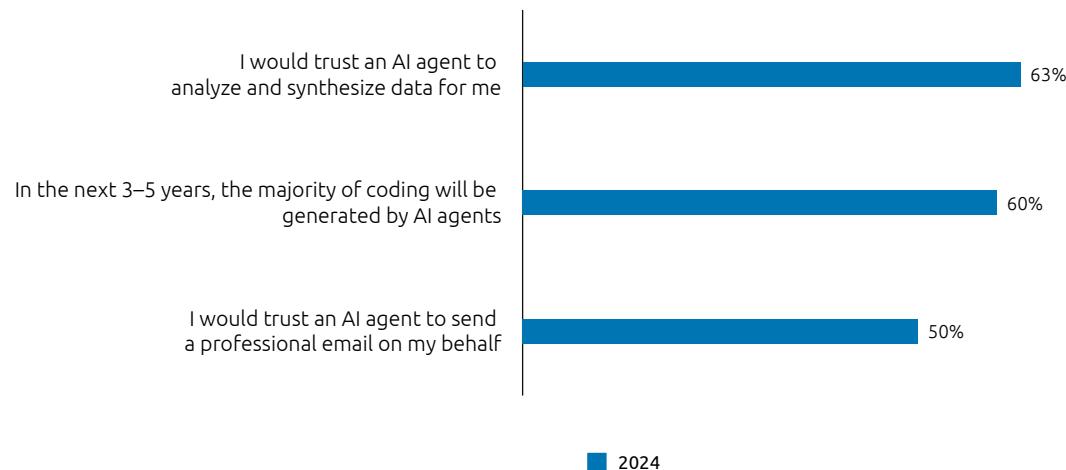
Organizations trust AI agents – for specific tasks

In our survey, organizations expressed strong trust in AI agents for specific tasks. A majority (63%) would trust AI agents to analyze and synthesize data, while half would trust it to compose work-related emails. Additionally, 60% of organizations agree that, within the next 3–5 years, AI agents will come to generate most of the coding within organizations (see Figure 17).

Figure 17.

Organizations trust AI agents to execute specific tasks independently

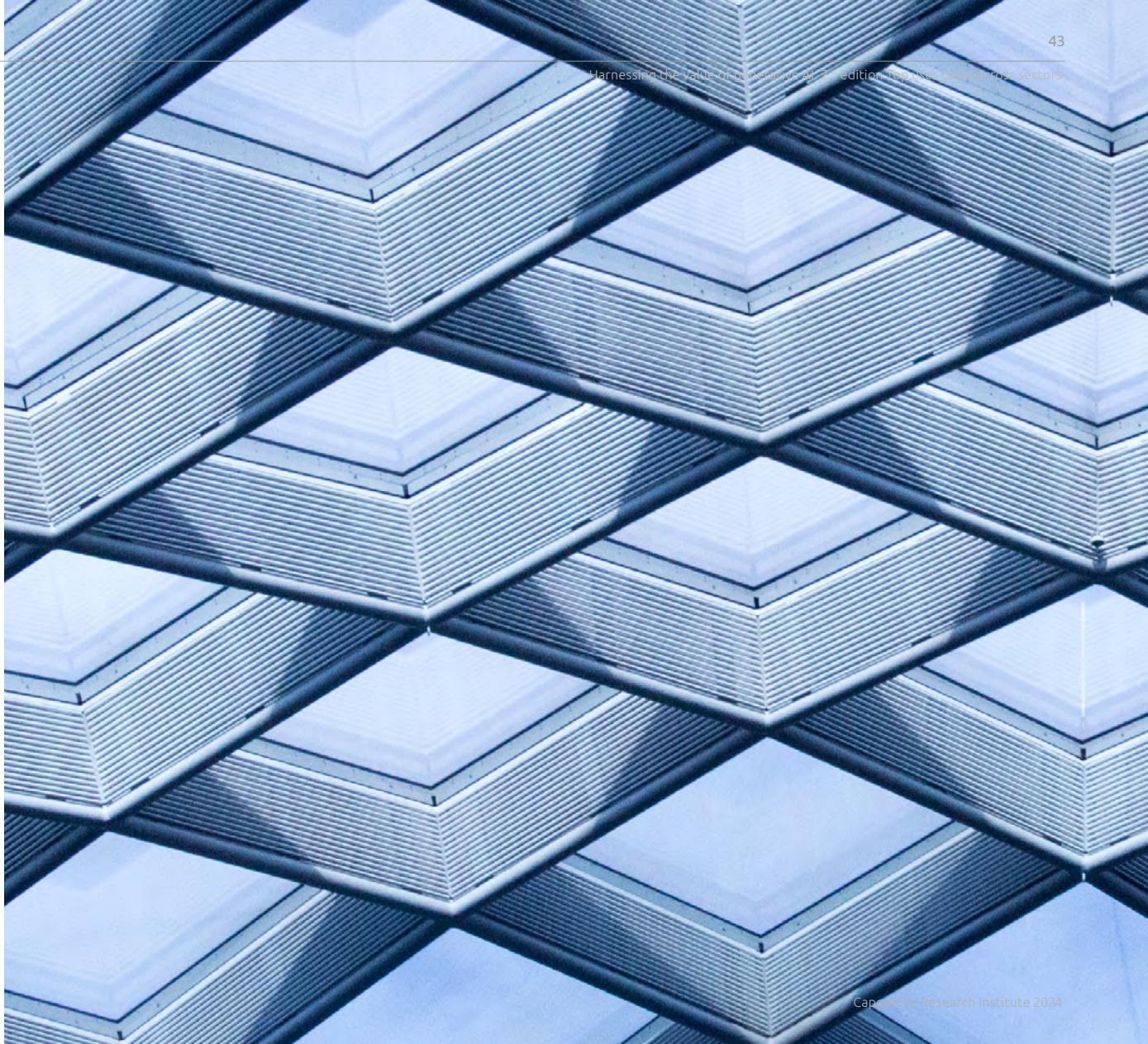
% of organizations who agree with the statements below



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 1,031 organizations who are at least exploring generative AI capabilities.

Organizations recognize the need to establish governance and safety mechanisms for AI agents

While AI agents have won the trust of executives for certain tasks, organizations emphasize the need for safeguards. More than half of organizations (57%) acknowledge the necessity of instituting robust control mechanisms before integrating AI agents into their operations. Organizations also agree that humans must intervene in certain circumstances. For example, 74% of surveyed organizations agree that humans should produce a clear definition of a given problem or task before entrusting it to AI agents. Similarly, 73% assert that humans must verify decisions made by AI agents and intervene when necessary.



The rise of small language models

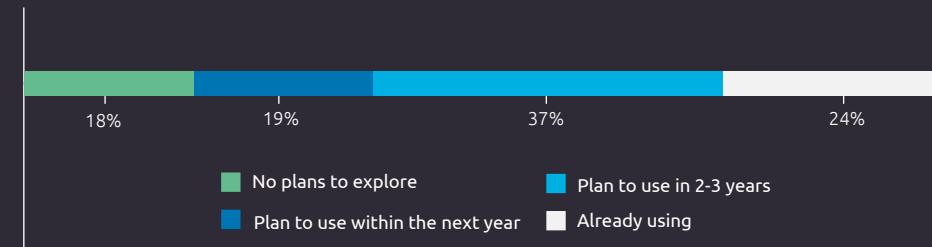
For the purpose of this research, small/narrow language models (SLMs) are defined as streamlined versions of large language models (LLMs) and are characterized by reduced neural network size and simpler architectures. In contrast with LLMs, these models have fewer parameters, require less data and training time, and are targeted for specific industry- or business- use cases rather than generic usage. These smaller models also simplify the adoption of generative AI on mobile devices, and through on-premise or edge deployments.

Organizations are starting to recognize the potential of SLMs. Among organizations in our survey, 24% say they are currently using SLMs. Over half (56%) plan to use them in the next three years (see Figure 18).

Figure 18.

Nearly one-quarter of organizations already use SLMs

% of organizations using or planning to use small/narrow language AI models



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 1,031 organizations who are at least exploring generative AI capabilities.

*Figure excludes 2% that answered unsure/don't know

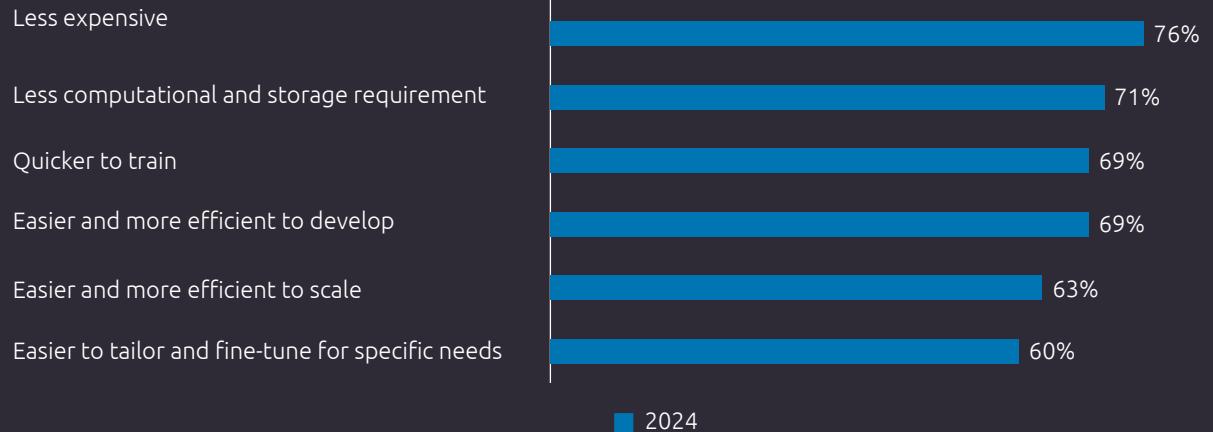
Organizations like SLMs because they are cost-effective, and are faster to develop, scale, and tailor to specific needs, making them efficient solutions for various industry- or business-specific applications (see Figure 19).

"We have also recently seen that it is not only LLMs with gigantic numbers of parameters (176 billion and counting) that enable rich knowledge exchange. SLMs with a comparatively puny 1.3 billion parameters, which were trained on meticulously curated datasets, give increased accuracy," confirms Dhiman Basu Ray, Global Chief Technology Officer, Digital Engineering at Tech Mahindra.⁵²

Figure 19.

Top reasons for preferring SLMs

Reasons organizations are using or considering using SLMs



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 627 organizations who are using/plan to use small language models.

05

How organizations can accelerate their generative AI journeys

Based on our global research and our experience working on generative AI across industries and sectors, we recommend key actions for advancing generative AI initiatives and realizing its full potential. Organizations should accelerate their journeys by following these steps:

Figure 20.

Key considerations for organizations to advance and scale generative AI initiatives

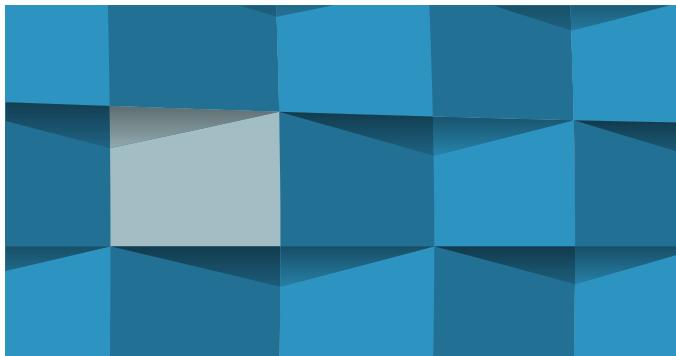


Source: Capgemini Research Institute analysis.

Establish a robust framework for data governance and management

Many organizations currently lack a solid data foundation to leverage the full potential of generative AI. To rectify this, organizations should establish new, robust data infrastructure and governance protocols to underpin generative AI initiatives:

- Ensure data fed into the AI/generative AI models follows pre-defined protocols. Have documented policies on the source, usage, access, and processing of data in generative AI.⁵³
- Shape standardization and reusability policies for generative AI use cases across multiple applications to improve reliability and security and to reduce rework, operating cost, and increase adoption between functions.⁵⁴
- Establish a dedicated data-quality team to ensure that only high-quality, up-to-date data from appropriate sources comes into the generative process.⁵⁵
- Create a generative AI council tasked with making informed decisions on data pilot requests. This council will rigorously assess requests based on various criteria, including cost, timelines, and data quality.⁵⁶
- Appoint a legal team with a strong technical understanding of emerging legal issues, particularly concerning intellectual property rights like copyright law related to data used in generative AI initiatives. Our research indicates that 64% of organizations cite legal concerns (e.g., plagiarism, copyright infringements) as a barrier to scaling generative AI beyond pilot projects.



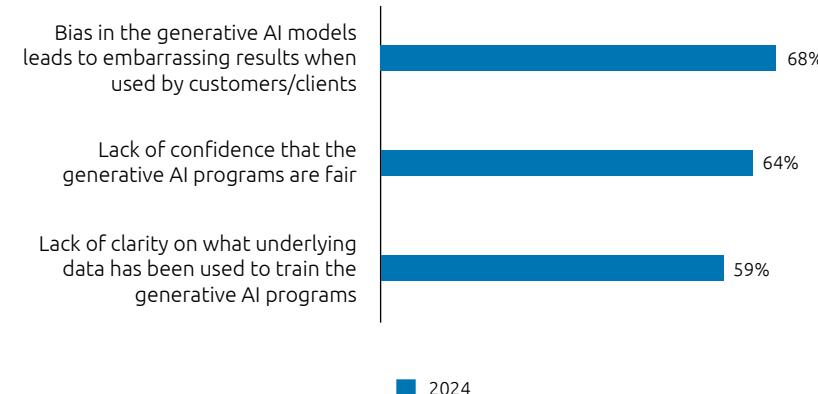
Strengthen the data platform and cultivate trust to ensure reliable outcomes

Our research underscores concern around transparency and fairness in generative AI arising from doubt over of bias leading to embarrassing outcomes, ambiguous training data, and doubts about fairness (see Figure 21). Additionally, as previously noted, there remains ambiguity regarding the suitability of explanations offered by generative AI in different contexts.

Figure 21.

Organizations face ethical challenges when implementing generative AI

Top ethical concerns of organizations in realizing the full potential of generative AI



Source: Capgemini Research Institute, Generative AI executive survey, May–June 2024, N = 1,031 organizations that are at least exploring generative AI capabilities.

But only 38% of organizations surveyed say they are deeply considering the ethical implications prior to adoption. Organizations should take the following steps to ensure ethical standards are upheld

- Before forming partnerships, thoroughly evaluate the vendor's data sourcing, management, security protocols, and adherence to industry standards in order to head off legal issues.⁵⁷
- Implement multiple steps to critically assess AI-generated information to detect and mitigate data bias and regularly review generative AI outputs for accuracy and factual correctness.⁵⁸
- Identify and manage risks related to data confidentiality and ethics by preventing unintentional 'leakage' of sensitive data to public models.⁵⁹
- Fine-tune AI models to specific tasks while adhering to international data-privacy guidelines.

- Train employees on responsible AI usage and regional or industry-specific compliance.
- Stay updated on the latest advancements in generative AI and understand their ethical implications. Consider engaging with ethical AI networks such as AI Ethics Lab to ensure widespread benefits while prioritizing safety for all.
- Understand legal and regional or cultural implications for generative AI projects to ensure compliance with legislative changes and adherence to expectations from diverse end-users.
- Clearly communicate how customer data is managed for business operations and detail security measures.

Asim Tewary, former Chief AI Officer at PayPal, comments: "*Customer-facing applications require much more effort than internal use cases, in part because they are subject to far more regulatory scrutiny. AI models must be more explainable (showing how a system came to a decision) and traceable (showing what data, processes, and artifacts went into the system). Additionally, outputs must be validated to avoid hallucinations, or inaccurate answers based on fabricated data.*"⁶⁰ Matt Truppo, Global Head of Research Platforms at Sanofi says "*Transparency is key. We have rolled out various training courses explaining the fundamentals of AI to upskill our workforce. Additionally, we are working on things like explainable AI to give insights into how the predictions are made.*"⁶¹



Cultivate expertise through strategic training and talent development

At the majority of organizations (70%) across sectors, limited data and AI talent, skills, and knowledge is a major hindrance to generative AI adoption at scale. Further, a recent global work trend index revealed that, at organizations where there is a perceived absence of appropriate training and guidance, 78% of employees bring their own tools to work and use them without managerial guidance or permission.⁶² Our research reveals pervasive employee use of generative AI in some capacity. However, simply allowing use does



not guarantee that most employees today are proficient enough to maximize their potential contribution to organizational improvements.

Leaders should take these steps to ensure teams are prepared for generative AI:

- Ensure the appropriate degree of proficiency at all level and roles. An entry-level employee, a seasoned professional, a data expert, and an engineer will all need different skills to incorporate AI into their day-to-day work. A recent global work trend index report revealed that 60% of leaders are apprehensive about the absence of a clear plan and vision for AI implementation.⁶³
- Shift from theoretical education to practical application, allowing employees to build up experience of using the technology, building your organization's reputation as a generative AI "hothouse." Thus, a key success factor is to establish interdisciplinary, diverse teams to ensure sustainable and inclusive generative AI integration.
- Create cross-functional project teams to ensure development, varied experience, and points of view. For example, including marketing or HR teams in technical projects to add outside opinions and value.
- Carve out specialized learning courses in engineering and coding-heavy roles. Topics could include deep learning

and neural networks, as well as training, maintaining, and fine-tuning AI models.

- Finally, foster a synergy between humans and machines. Soft human skills such as empathy, collaboration, critical thinking, and complex decision-making will come to the fore as complementary to generative AI's technical speed and volume proficiencies.

Officials at the US federal government are expediting the hiring of AI professionals and aim to provide AI training for employees at all levels in relevant fields. *"With the emergence of these tools over the past five years and then the most recent explosion onto the public consciousness last year, there is broad acknowledgment that the government needs to bring in some of this in-demand skill set,"* says Kyleigh Russ, Senior Advisor to the Deputy Director of the US Office of Personnel Management (OPM). Earlier this year, the US Department of Justice hired its first chief AI officer to coordinate the agency's use of AI, foster AI innovation, and manage AI-related risks.⁶⁴

Finally, encouraging employees and teams and creating an environment free from the fear of failure is crucial to unlocking the full potential of technology. *"Get a team of your best change-management experts to support the AI cultural revolution. Do this as early as your first minimally viable product,"* recommends Helen Merianos, Head of R&D portfolio strategy at Sanofi.⁶⁵

Acquire understanding and expertise of the generative AI ecosystem

Various partners play unique roles, from AI services to software development and advanced data analytics. Each brings distinctive capabilities and competencies. While an individual organization will struggle to find the full range of resources required to capitalize on generative AI, strategic partnerships combine complementary capabilities and strategic knowledge to navigate the complexities of developing and deploying AI-driven solutions, kickstarting innovation and cutting time-to-market. *“Collaboration with technology companies is crucially important for us,”* says Volkswagen Chief Executive Officer Oliver Blume. “In the future, we intend to simplify cooperation in organizational and cultural terms.”⁶⁶

Nearly seven in 10 organizations (68%) in our survey plan to use open-source or community generative AI models rather than developing proprietary ones. Additionally, 64% favor partnering with IT vendors and consulting/system integrators (C&SI), while 61% prefer collaborating with startups. For example, Sanofi is collaborating with OpenAI and Formation Bio to boost its drug-development projects. The partnership affords it access to proprietary data to develop AI models for its biopharma business, while Formation Bio will provide additional engineering resources.⁶⁷ Visa launched a \$100 million generative AI fund to work with the next generation

of companies focused on developing generative AI technologies and applications that will impact the future of commerce and payments.⁶⁸

Unlike larger organizations equipped with extensive resources and tools for developing customized AI models for complex tasks, smaller organizations should collaborate with external partners to enhance agility and swiftly adopt generative AI. By doing so, they can gather continuous feedback from employees and customers to refine these models accordingly. Given their limited budgets, smaller organizations can begin by implementing less complex use cases, allowing them to discover value while minimizing potential downstream impacts.

Specialist AI research organizations also offer a valuable source of input. For example, Thales and the French Alternative Energies and Atomic Energy Commission (CEA) recently forged a new partnership. Over a renewable three-year period, Thales will offer its AI expertise in the defense and security sectors, while CEA will contribute its expertise in multimodal generative AI, encompassing text, images, audio, electromagnetic signals, structured data, and other inputs.

Deploy a generative AI platform to manage use cases at scale

To advance in their generative AI endeavors, organizations can greatly benefit from deploying a generative AI

platform to manage use cases at scale. These platforms facilitate effective scaling of generative AI initiatives, ensuring flexibility, compliance, operational efficiency, value tracking, and cost-effectiveness across diverse business functions. Key advantages of such platforms include:

Customization: Generative AI empowers organizations to tailor solutions precisely to their specific needs and challenges, whether enhancing personalized customer experiences, creating customized products, or optimizing operational workflows.

Guardrails: Generative AI platforms incorporate built-in safeguards and guidelines that uphold ethical AI use, ensure regulatory compliance, and mitigate biases, thereby bolstering trust and reliability in AI-driven solutions.

Optimized cost efficiency: By automating processes and enhancing predictive capabilities, generative AI platforms help organizations streamline operations, minimize waste, and optimize resource allocation. This optimization translates to reduced costs across production, logistics, and service delivery.

Value tracking: Generative AI platforms facilitate the monitoring of value generated through each individual use case throughout the end to end delivery lifecycle, allowing for a precise prioritization of the use case portfolio against the value generated for the relevant business function.

As highlighted previously, organizations have the option to develop these platforms internally or leverage established partnerships within the ecosystem to utilize external platforms effectively. This strategic approach allows organizations to harness the full potential of generative AI while maximizing operational efficiency and innovation.

Fortify against cybersecurity threats

Organizations face increasing threats from malicious actors leveraging generative AI for sophisticated attacks, intensifying risk landscapes. Our research indicates that 75% of organizations view cybersecurity risks as a barrier to scaling generative AI. To mitigate these risks effectively, organizations should implement the following measures:

- Implement robust protocols to identify and redact sensitive data and intellectual property throughout all stages from data collection, training, to inference.
- Strengthen security posture by embracing the Zero Trust framework, limiting access to critical applications and preemptively thwarting malware.
- Update security policies to promote the safe use of such tools, clarifying acceptable practices and restricting unauthorized tools. It is crucial to monitor and regulate data access to prevent unauthorized or improper usage, which could pose significant cybersecurity risks.

- Regularly update and reinforce employee training programs to educate staff on the evolving nature of cyber threats powered by generative AI. Focus areas should also include recognizing sophisticated phishing attempts and deepfake content. Nearly seven in 10 (69%) organizations express significant concern over the potential use of deepfakes for malicious content targeting specific groups or organizations.
- Stay updated on evolving AI regulations (e.g., GDPR, EU AI Act) and integrate compliance measures to protect sensitive data.

In addition, generative AI also presents opportunities to strengthen cybersecurity defenses. Leveraging these tools can enhance threat detection, automate incident response, bolster threat intelligence capabilities, and support overburdened security teams, enabling them to focus on strategic initiatives and proactive defense measures.

Assaf Keren, former Chief Information Security Officer and Vice-president of Enterprise Cybersecurity at PayPal, comments: *"While generative AI may be used by attackers for malicious purposes such as generating false identities or creating malware variants that evade traditional security measures, it will also empower organizations to explore generative AI-driven defense mechanisms, such as next-generation automated threat detection systems and response capabilities. With generative AI, there will be opportunities to augment capabilities, remove friction, and drive greater customer value."*⁶⁹

Embrace emerging trends such as AI agents to boost competitiveness and innovation

Tapping into the latest AI technology will inject energy and catalyze innovation in organizational R&D. AI agents can fit quickly into an enterprise environment. *"AI agents will transform the way we interact with technology, making it more natural and intuitive. They will enable us to have more meaningful and productive interactions with computers,"* comments Fei-Fei Li, Professor of Computer Science at Stanford University.⁷⁰ Organizations are poised for a future where human employees work alongside AI agents in a seamless hybrid workforce. This symbiotic relationship will streamline operations and enhance service delivery, boosting productivity and operational efficiency.

However, organizations cannot proceed without caution. Oversight of what AI is doing – its decision-making process and accountability for output remains a key organizational responsibility. Given their autonomy, AI agents are even harder to control than single agents; therefore, it is critical that organizations have sufficient standards and controls in place to enhance trust in the technology before deploying. Accountability remains with humans.

Conclusion

As investment goes into the development of generative AI and adoption increases, it becomes more significant as both a business and cultural phenomenon. Early adopters are receiving tangible benefits in efficiency and productivity, driving strategic pivots in business models. Additionally, the emergence of novel tools and techniques like AI agents marks a shift that requires organizations to re-evaluate their strategic investments.

Looking ahead, organizations must establish a robust framework for data governance and management to ensure integrity and compliance. Strengthening the data platform is essential for reliable outcomes and building stakeholder trust.

Deploying a generative AI platform will facilitate the effective implementation and management of use cases at scale across the organization. Enhancing cybersecurity defenses and fostering expertise through targeted training are crucial steps. Embracing innovations like AI agents will drive impactful advancements and secure a competitive edge.

These are exciting times for business, with new tools and efficiencies appearing all the time. Leaders should proceed with open minds and a willingness to experiment and scale, while focusing on trust, but also a sense of responsibility as they lead their organizations to the new technological frontier.

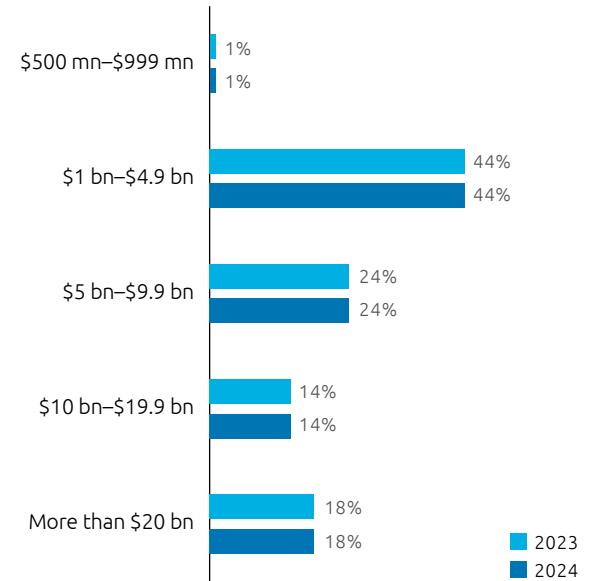
Research methodology

We conducted a global survey of 1,100 executives at organizations with more than \$1 billion in annual revenue across 14 countries: Australia, Canada, France, Germany, Italy, India, Japan, the Netherlands, Norway, Singapore, Spain, Sweden, the UK, and the US. Organizations operate across 11 sectors; nearly all (94%) of these organizations

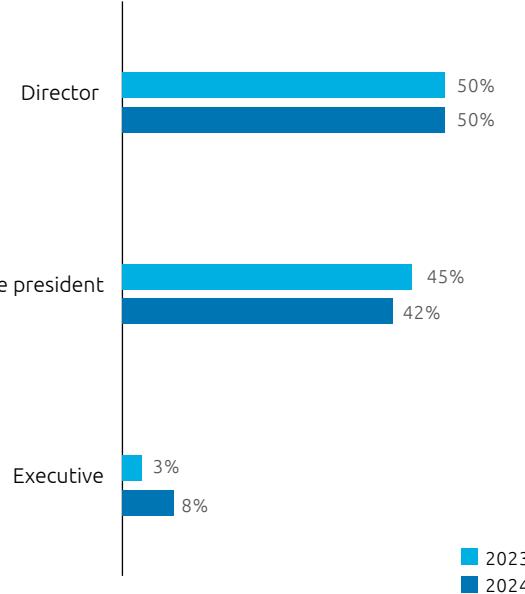
have started to explore generative AI. The global survey took place in May and June 2024. Executives surveyed are at director level and above and represent diverse functions.

The study findings reflect the views of the respondents to our online questionnaire for this research and are aimed at providing directional guidance. Please contact one of the Capgemini experts listed at the end of the report to discuss specific implications.

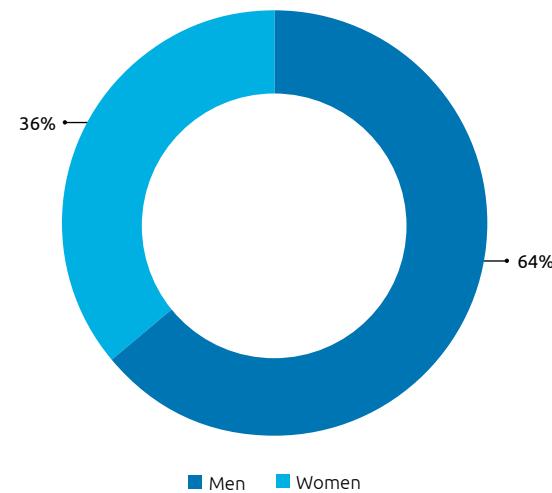
Organizations by annual revenue



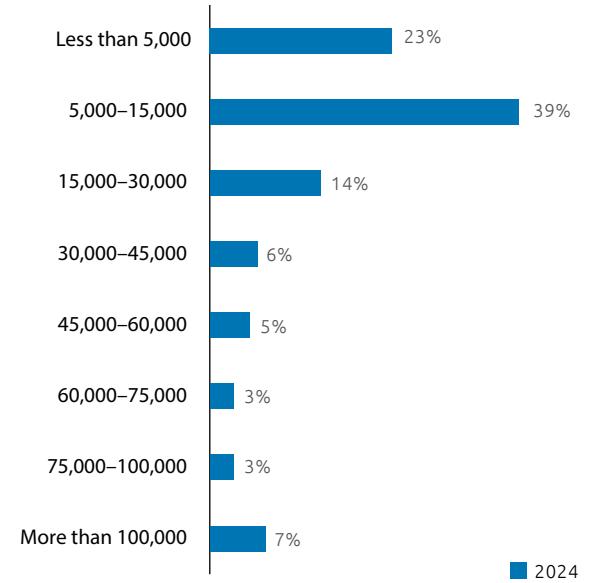
Respondents by title



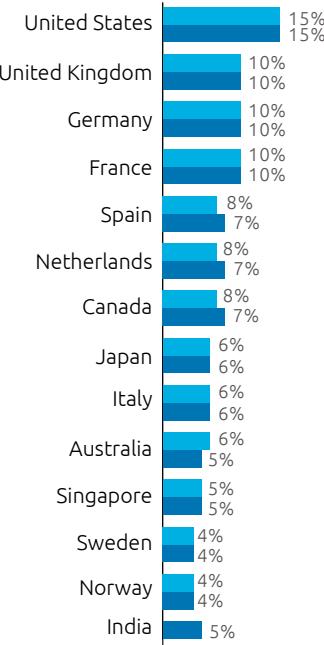
Respondents by gender, 2024



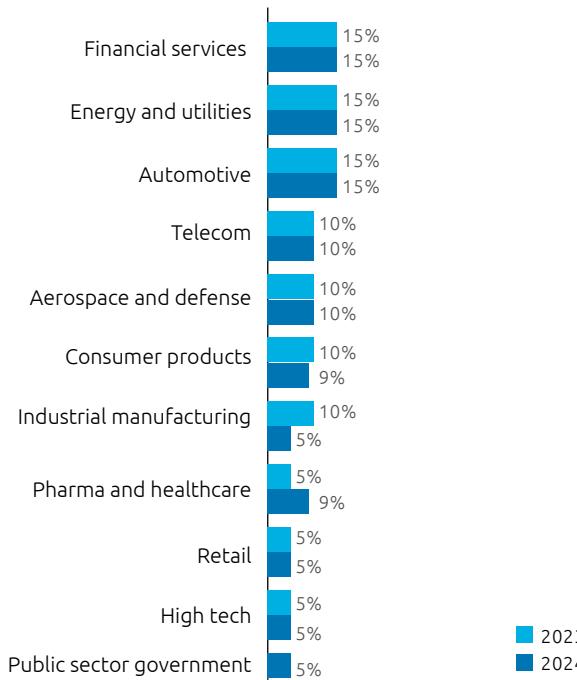
Organizations by number of employees



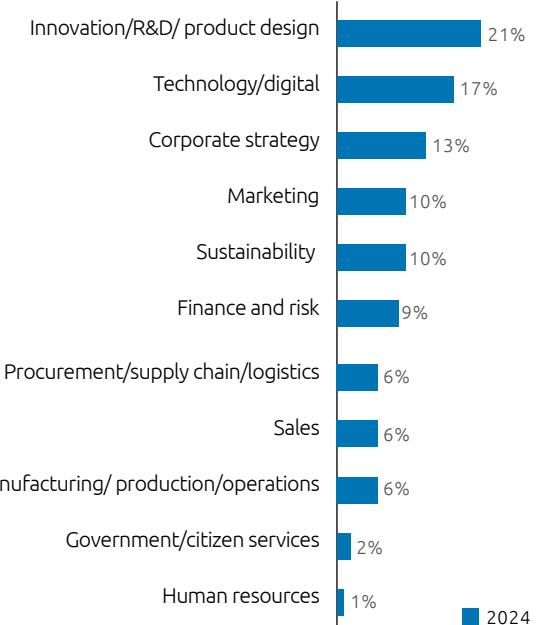
Organizations by location of headquarters



Organizations by sector



Respondents by function



Appendix

Generative AI use cases by function

Function	Use case	2023		2024	
		Pilot/POC	Implementation	Pilot/POC	Implementation
IT	Generation of synthetic data	32%	2%	35%	32%
	Improve IT service delivery through chatbots and virtual assistants	31%	3%	42%	24%
	Auto-generation and completion of data tables	28%	4%	36%	27%
	Generation of code and automated testing	27%	3%	46%	26%
	Facilitate learning of new programming languages	-	-	39%	26%
	Resolve coding errors and bugs	-	-	40%	25%
	Cybersecurity threat detection in real time	-	-	44%	24%
	Data access and management (both internal and customer data)	-	-	42%	28%
Sales	Optimize and streamline sales operations	33%	5%	39%	17%
	Cross-selling opportunities	25%	3%	40%	32%
	Optimize sales support chatbots	32%	5%	37%	26%
	Virtual assistants for customer engagement	35%	4%	37%	26%
	Improve sales team performance through real-time feedback, risk flagging, and recommending next interactions	31%	2%	40%	25%

Continue to the next page...

Function	Use case	2023		2024	
		Pilot/POC	Implementation	Pilot/POC	Implementation
Marketing	Create and optimize marketing campaigns	30%	2%	36%	21%
	Improve customer segmentation and targeting	30%	3%	37%	18%
	Real-time customer feedback analysis	30%	2%	41%	13%
	Personalized content generation and product recommendations	31%	1%	46%	24%
	Sentiment analysis across different marketing channels	-	-	38%	18%
Product design/ research and development/ manufacturing	Generate new design concepts/configurations	32%	2%	42%	18%
	Quality control and fault detection	30%	1%	48%	11%
	Product testing and validation processes	24%	4%	44%	14%
	Optimize product performance and functionality	27%	3%	42%	24%
	Compose entirely new materials to target specific physical properties (material science)	21%	2%	37%	27%
Logistics/ operations	Optimize supply chain planning and management through predictive analytics	39%	2%	38%	27%
	Improve warehouse management through automated inventory tracking	22%	2%	39%	23%
	Reduce downtime through predictive maintenance	21%	3%	37%	25%
	Reduce transportation costs through route optimization	25%	2%	39%	27%

Function	Use case	2023		2024	
		Pilot/POC	Implementation	Pilot/POC	Implementation
Risk management	Improve risk assessment and prediction through real-time data analysis	24%	5%	35%	30%
	Summarize and highlight changes from large documents (e.g., annual reports)	21%	3%	43%	22%
	Draft and review legal and regulatory documents	22%	3%	38%	26%
	Answer queries by analyzing sensitive information from legal documents	26%	2%	41%	27%
Finance	Invoice processing	16%	8%	41%	27%
	Budgeting, cash flow forecasting	32%	1%	40%	25%
	Tax compliance	26%	5%	40%	27%
	Financial reporting	38%	1%	36%	26%
	Fraud detection	34%	4%	43%	23%
	Investment analysis	-	-	37%	24%
ESG/sustainability	Automate tracking of energy-usage data	-	-	40%	26%
	Automate tracking of carbon emissions data	-	-	43%	23%
	Automate reporting for regulatory disclosures	-	-	39%	18%
	Automate tracking of waste-management processes	-	-	41%	25%
	Monitor water usage in facilities for water management	-	-	45%	20%

Function	Use case	2023		2024	
		Pilot/POC	Implementation	Pilot/POC	Implementation
Human resources	Automate documentation process	-	-	37%	28%
	Analyze data for people analytics	-	-	44%	21%
	Employee engagement with chatbots and virtual assistants	-	-	36%	24%
	Optimize and expedite performance management	-	-	41%	23%
	Automate learning and development procedure	-	-	39%	24%
	Content creation for recruitment, enhancing job postings, and candidate communication	-	-	44%	24%
Government services	Content summarization for internal tasks and processes	-	-	24%	24%
	Virtual administrative assistant for claims and case managers	-	-	38%	38%
	Self-service bot for citizen services	-	-	31%	31%
	Content generation for government communication	-	-	17%	17%

Source: Capgemini Research Institute, Generative AI executive survey, April 2023, N = 800 organizations; Generative AI executive survey, May–June 2024, N = 1,031 organizations that are at least exploring generative AI capabilities; N varies per functional use case ranging from 499 to 716.

* "Implementation" means organizations that have partially scaled the functional use case in question.

Generative AI use cases by sector

Function	Use case	2023		2024	
		Pilot/POC	Implementation	Pilot/POC	Implementation
Automotive	Enhance autonomous vehicle development	22%	3%	39%	26%
	Generate scenarios and test them for safety and performance in a simulated environment	25%	1%	35%	29%
	Customize vehicle features and configurations to individual customer preferences	24%	2%	48%	17%
	Generative design of parts optimized to meet specific goals and constraints (e.g., fuel efficiency, innovative lighter design)	23%	2%	39%	23%
	Improve in-vehicle experience for the customers	12%	4%	32%	19%
	Sales and after sales customer engagement	20%	4%	33%	21%
Consumer products and retail	Build creative marketing campaigns and visually appealing advertisements	27%	0%	37%	23%
	Hyper personalized, multi-sensory, consumer experience	37%	2%	38%	30%
	Find niche audiences to survey	24%	2%	39%	25%
	Match brand visions with content creators	22%	2%	33%	30%
	Efficient, self-optimizing real-time customer-service chatbots	33%	7%	43%	27%
	Predictive analysis of forecast demand and consumer trends	-	-	40%	25%

Function	Use case	2023		2024	
		Pilot/POC	Implementation	Pilot/POC	Implementation
Energy and utilities	Generation of synthetic data	33%	1%	20%	30%
	Inverse design, composing entirely new materials to target specific physical properties (material science)	24%	3%	32%	31%
	Smart-grid management	-	-	28%	31%
	Predictive maintenance to prevent equipment failures	-	-	37%	19%
Financial services	Generation of synthetic customer data	34%	6%	42%	17%
	Accurate price forecasting and portfolio optimization	27%	3%	45%	34%
	Improved prospect profiling and customized product recommendations for account managers	31%	8%	40%	24%
	Claims processing, mortgage processing	31%	1%	41%	30%
	Fraud detection	25%	7%	46%	16%
	Risk assessment and management	-	-	24%	21%
	Credit scoring and loan approval	-	-	37%	15%
	Personalized financial planning and advisory services	-	-	34%	22%
	Regulatory compliance and reporting	-	-	38%	21%
	Customer service automation through chatbots and virtual assistants	-	-	44%	14%

Function	Use case	2023		2024	
		Pilot/POC	Implementation	Pilot/POC	Implementation
Pharma and healthcare	Replication of structured data (e.g., EHR, claims, registries, clinical trials)	22%	3%	24%	39%
	Generation of synthetic data for research and analysis	27%	0%	23%	33%
	Generate, predict, and understand biomolecular data	32%	2%	22%	28%
	Advance drug discovery and therapeutics	35%	2%	26%	28%
	Design of novel proteins	30%	2%	25%	28%
	Personalized treatment/medicines for better patient care with MedTech	-	-	44%	20%
	Facilitate clinical trials and research	-	-	29%	29%
	Facilitate medical training and simulation for healthcare professionals and students	-	-	35%	28%
Telecom	Create new personalized services and offerings, and customer-service interactions	28%	0%	28%	18%
	Generative network design and architectures that identify the most efficient and effective network configuration	28%	2%	28%	32%
	Restoration of old media	30%	0%	27%	31%
	Call-center analytics	36%	2%	37%	24%
	Text to video generation, filmmaking	21%	6%	27%	27%

Function	Use case	2023		2024	
		Pilot/POC	Implementation	Pilot/POC	Implementation
Manufacturing	Generative design of parts optimized to meet specific goals and constraints	37%	6%	35%	25%
	Inverse design, composing entirely new materials to target specific physical properties (material science)	39%	1%	32%	30%
	3D modeling to create detailed shapes	42%	6%	37%	17%
	Predictive maintenance	33%	3%	39%	24%
	Robot programming	29%	2%	34%	23%
	New product development and prototyping	-	-	28%	23%
	Personalization of user experience	-	-	30%	25%
	Development and deployment of autonomous vehicles and drones	-	-	30%	26%
	Scenario planning for decision-making process	-	-	35%	26%
Public sector/ government	Public health monitoring and resource allocation	-	-	54%	13%
	Analytics for efficient government procurement	-	-	23%	23%
	Emergency response and crisis management	-	-	40%	17%
	Virtual assistants for government services	-	-	28%	31%
	Fraud detection	-	-	26%	33%

Source: Capgemini Research Institute, Generative AI executive survey, April 2023, N = 800 organizations; Generative AI executive survey, May–June 2024, N = 1,031 organizations that are at least exploring generative AI capabilities; N varies per sector use case ranging from 50 to 189.

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