

Realizing ROI from Agentic AI



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Executive Summary

The launch of ChatGPT unleashed mainstream awareness of the potential benefits of artificial intelligence across industries. Since then, generative AI (GenAI) has become a powerful tool for organizations, enabling automation, improved decision-making, and enhanced creativity. IDC research finds that on average, for every \$1 a company invests in GenAI, it will achieve a 3.7x return on investment (ROI).



By 2027,
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Generative AI is now moving beyond prompt-driven interactions, and we are at the inflection point of widespread autonomous AI agent development and deployment — more commonly known as agentic AI. By 2027, agentic workflows are expected to reshape task delivery and performance worldwide. This shift will fundamentally change work models, establishing blended teams of humans and AI and affecting how organizations drive business growth, evolve company culture, and reimagine customer engagement. According to IDC FutureScape predictions, adoption will extend to at least 40% of the Global 2000 within three years, and organizations will see an average doubling of productivity where agentic AI technologies are successfully implemented.

The transition to agentic AI involves multiple AI agents being able to collaborate and learn with each other and humans to make decisions, adapt processes, and take actions. This marks a significant shift in how we perceive software, moving beyond its traditional role as a mere tool to “digital labor” capable of autonomously handling iterative tasks. Agentic AI will be used to automate complex processes, improve efficiency, and enhance innovation across various industries, ranging from finance and logistics to healthcare and cybersecurity.

According to IDC’s *Worldwide AI and Generative AI Spending Guide Forecast, 2025: Release V1*, February 2025, global spending on AI solutions and services — excluding AI PCs — is expected to grow from \$315 billion in 2024 to \$669 billion by 2027. AI agents and agentic AI systems are both the leading drivers of growth in software and services and the most significant disruptors to the current technology landscape. With human and digital labor collaboration, organizations will be able to unlock exponential growth in speed and precision.

This IDC white paper details what agentic AI is and the steps that organizations can take to maximize ROI, including how to:

- ▶ Choose the right business processes and workflows to embed AI agents.
- ▶ Invest in enablement to help humans get the most out of AI agents.
- ▶ Develop KPIs to drive and measure the success of agentic AI.
- ▶ Choose the right partners to develop and deploy an agentic AI strategy.

Organizations must start recognizing AI agents as digital labor that can function with and augment the human workforce. This white paper helps leaders identify the best opportunities to realize ROI from the development and deployment of agentic AI in their organizations.

Situation Overview

The world has witnessed remarkable advancements in GenAI over the past few years, showcasing its potential across various sectors, such as healthcare, manufacturing, finance, and marketing. Large language models (LLMs) have revolutionized tasks by generating new content, personalizing experiences, and enabling companies to derive valuable insights from vast data sets for quicker, more informed decision-making. The fast rise of copilots from the GenAI boom in 2022 is quickly giving way to AI agents.

IDC defines agentic AI as the subset of machine learning (ML) and deep learning (DL) techniques that enable computer systems to exhibit agency: set goals, make decisions, and take actions through perception, reasoning, and an action loop.

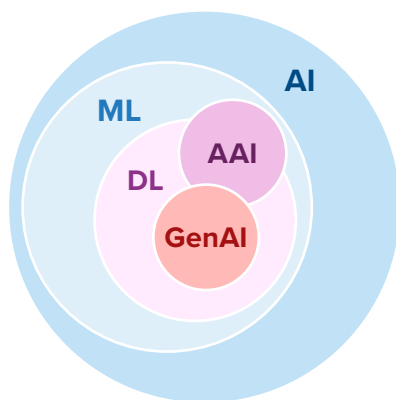
IDC research finds AI agents are likely to utilize various types and sizes of language models and will access data and knowledge across multiple environments. Agents can leverage different types of models, such as small language models that typically reside on premises and are tuned with enterprise data for specific use cases and LLMs that typically reside in the public cloud and are informed by vastly diverse data sets and billions of parameters. Agents can and often will run on various devices — individual computers, servers, and network devices — and they will also run in various locations, including public cloud, edge, on-premises, and hybrid environments. Furthermore, agents can monitor multiple devices and even communicate across a broader digital ecosystem.

IDC believes that by 2027, agentic AI will require a dynamic web of closely and loosely coupled connections and data flows across both private and public infrastructure. Decisions about where to deploy infrastructure across public cloud, datacenters, colocation facilities, and edge locations are crucial. These decisions involve technology selection and depend on the operating model, expected scale, and rate of change associated with the workload. Agentic AI will necessitate deployments across widely distributed environments, moving away from centralized hub-and-spoke architectures to more decentralized deployments with highly interoperable systems. A hybrid cloud architecture including cloud, on premises, edge-based systems, and AI PCs offers the perfect foundation for building scalable, secure, and intelligent AI-driven data ecosystems. This setup allows organizations to deploy containerized applications across both on-premises and cloud environments, ensuring smooth operation across both environments.

Agentic AI Versus AI Assistants

The evolution toward agentic AI (see **Figure 1**) marks a transformative phase in artificial intelligence development. Agentic AI systems possess agency capable of setting goals, making decisions, and orchestrating actions like the human cognitive loop. Leading technology providers have introduced or are in the process of launching agentic AI assistants and platforms, signaling a new era in AI innovation.

FIGURE 1
What Is Agentic AI?



Source: IDC, 2025

Artificial Intelligence

Techniques that help computers mimic human behavior.

- Knowledge capture — graphs
- Voice or speech recognition
- Natural language processing and robotics

Machine Learning

Subset of AI techniques that enable computer systems to learn without programming by a human (e.g., supervised learning, unsupervised learning, reinforcement learning).

Deep Learning

Subset of ML techniques that makes the computational multilayer neural networks feasible (e.g., CNN, RNN, GAN).

Generative AI

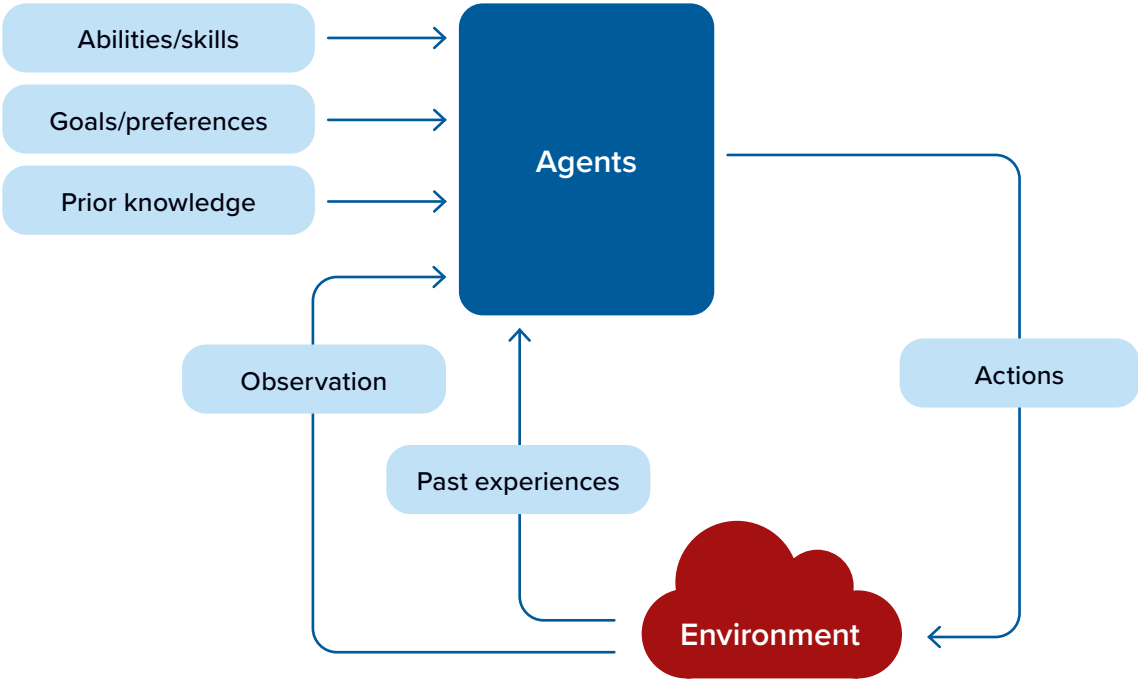
Subset of DL techniques that enable computers to create new content using previously created content, such as text, audio, video, images, and code.

Agentic AI

Subset of ML and DL techniques that enable computer systems to exhibit agency: set goals, make decisions, and take actions through perception, reasoning, and action loop.

AI agents are a new type of autonomous software that makes use of GenAI-based large language models but includes some new capabilities that LLM-based user interfaces don't currently have (see **Figure 2**).

FIGURE 2
AI Agents: A New Software Paradigm Enabled by Large Language Models



AI agents are LLM-powered autonomous software entities that perceive their environment, make decisions, act upon them, and interact with users or other systems in a manner like a human.

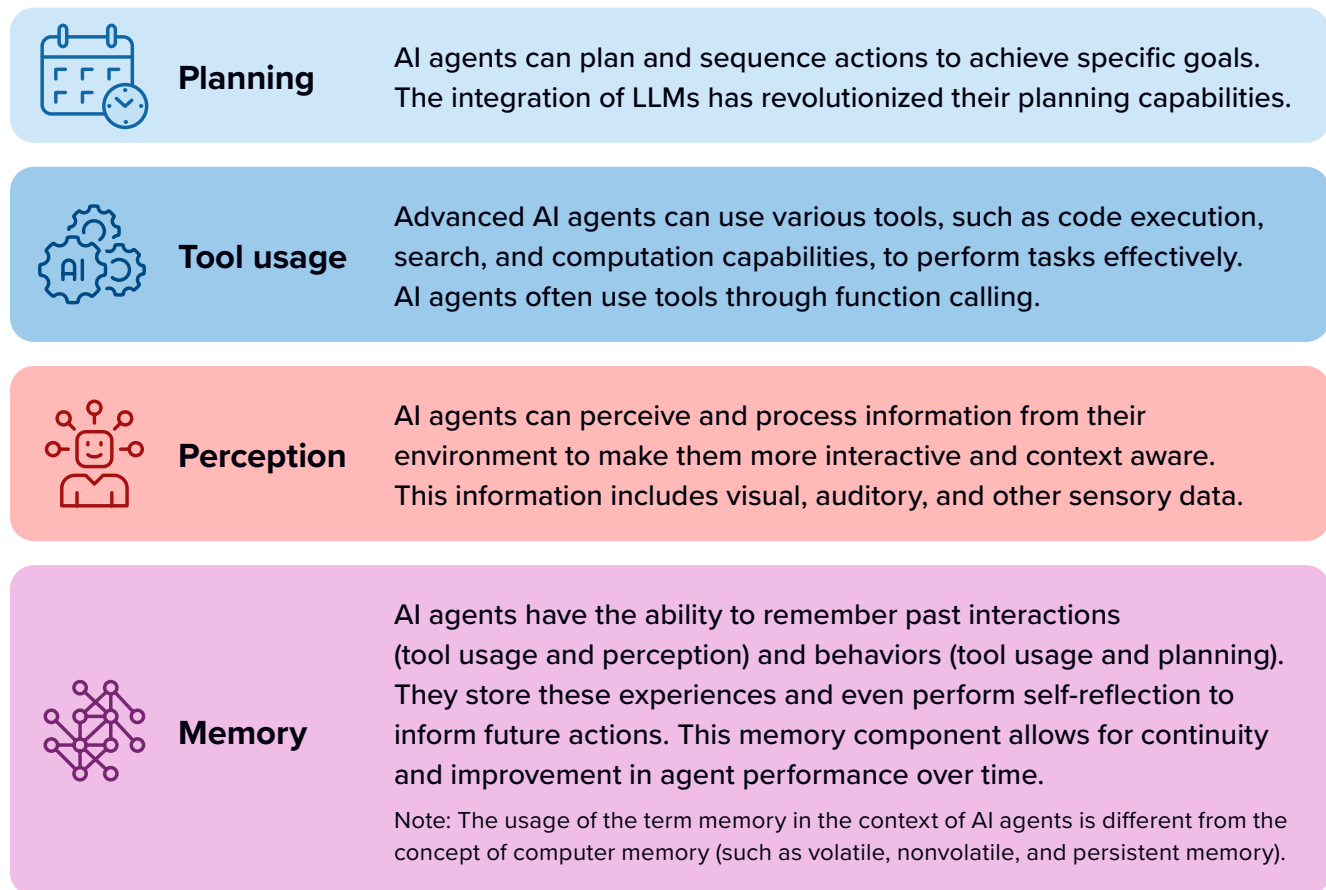
Note: These agents are advancing toward multimodal foundation models.

Source: IDC, 2025

Some of the key attributes of agents are (see Figure 3):

- **Planning.** Agents can plan and sequence actions to perform tasks based on LLM interaction.
- **Tool usage.** Agents can make use of various tools, including APIs and function calls, to perform various tasks.
- **Perception.** This capability includes the ability to use visual, auditory, or other types of sensory data to perceive and process information.
- **Memory.** A key component of agentic AI is the ability to remember information, including past interactions to inform and improve future interactions. Agentic AI can store this information and retrieve it when needed.

FIGURE 3
AI Agent Characteristics



Source: IDC, 2025

How AI Assistants and AI Agents Differ

Many conversational AI systems and applications and LLM interfaces, such as ChatGPT, offer AI assistants. These assistants can answer questions, respond to queries, and even look up facts and figures, and if provided a set of directions, even fulfill those directions. However, this is different from what an AI agent is and what it does.

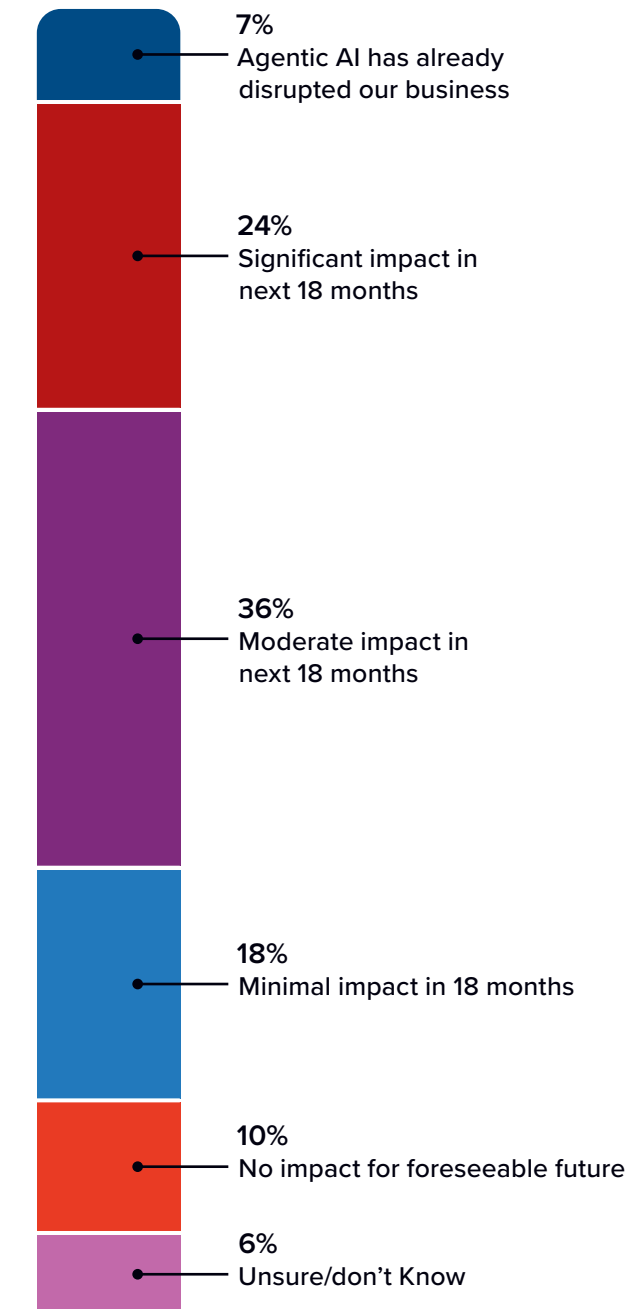
AI agents are more complex and capable than AI assistants, which may or may not be LLM based. In addition, agents do have the ability to act autonomously and act in groups, which provides organizations with a range of options in terms of work and task automation.

As per our research, agentic AI is poised to disrupt business functions, work, and organization overall. According to IDC survey results (see **Figure 4**), businesses see this happening within the next two years.

FIGURE 4

Agentic AI Disruption

To what extent do you believe agentic AI will disrupt your organization's competitive position or business operating model in the next 18 months?



Note: totals may not sum to 100 due to rounding; n = 889; Base = all respondents;
Source: IDC's Future Enterprise Resiliency and Spending Survey, Wave 11, December 2024

Agentic AI Transformation

At rapid speed, AI agents have moved from a promising concept to a deployable reality — poised to transform how organizations work. But unlocking the full potential of agentic AI requires more than deployment; it demands a coordinated approach across technology, people, processes, and security.



Technology

AI agents can decide and act autonomously, but to drive meaningful productivity gains, they must be integrated into complex enterprise workflows — not just routine tasks. This includes planning, research, decision-making, content creation, software engineering, IT configuration, and performance monitoring. Agentic workflows must also be applied to collaborative, cross-functional work, enabling agents to operate across teams and projects. Underpinning this transformation is the need for flexible, scalable infrastructure and real-time data architectures that support intelligent, context-aware decision-making.



People

Agentic AI doesn't replace human work — it augments it. As agents take on more skilled tasks, the human workforce must shift from task execution to orchestration,

oversight, and higher-order problem-solving. Success will depend on reskilling and upskilling employees to collaborate effectively with AI agents, along with fostering a culture that embraces AI as a productivity partner, not a threat.



Processes

Organizations must rethink how work gets done. Traditional linear workflows are being replaced by dynamic, event-driven agentic systems that require new approaches to coordination, measurement, and optimization. Embedding agents into core business processes will require well-defined parameters for access, actions, and outcomes, along with iterative feedback loops to ensure continuous improvement.



Security and Responsible AI

While AI agents are autonomous, they must operate within clear governance frameworks to ensure accountability and control. Guardrails must define what agents can access and do — especially in regulated or sensitive environments. Security, data privacy, bias monitoring, and compliance should be embedded from the outset, tied into broader responsible AI programs. Without these safeguards, the risk of unintended consequences increases, potentially undermining trust and adoption.

As organizations navigate this period of rapid transformation, they must evaluate the full scope of agentic AI — not just its potential but also its operational, ethical, and organizational implications.

Agentic AI Priorities

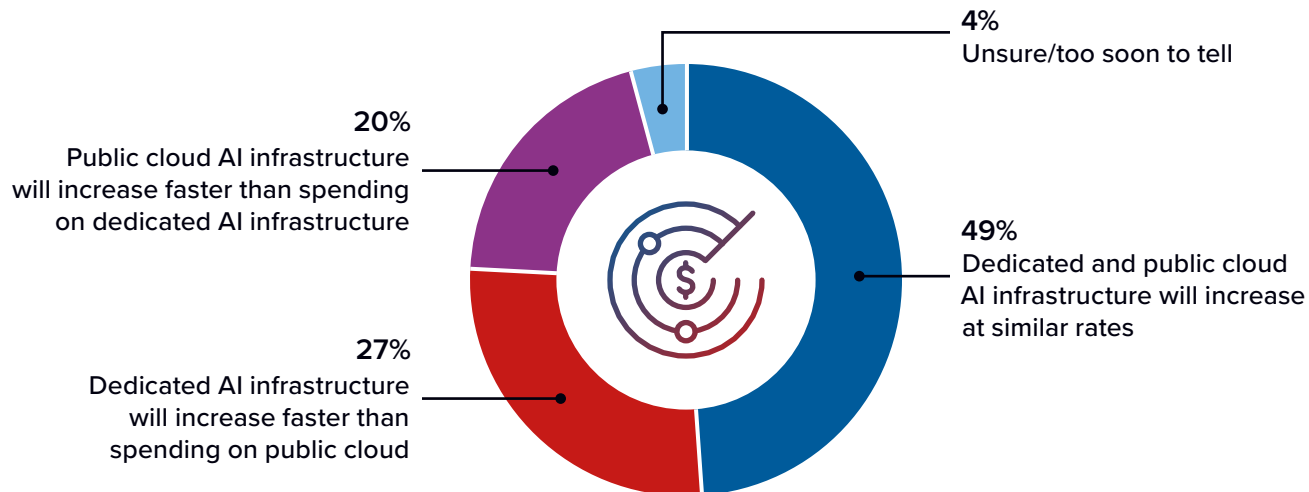
Increasingly, organizations are making significant plans incorporating GenAI into their 2025 priorities and beyond. **Figures 5–8** (pages 13–16) highlight the efforts that organizations are making as it relates to generative AI and agentic AI, especially with regard to infrastructure.

Specifically, agentic and generative AI workload–specific considerations will drive hybrid dedicated/public cloud deployment strategies for most organizations as noted in a recent IDC survey and shown in **Figure 5** (next page). What this means is that organizations need to identify the key use cases where AI is going to generate the most opportunity and return on investment and deploy the right mix of resources to address them. Second, once organizations have determined what use cases are, they need to prepare to develop, deploy, and run these applications effectively in those environments. Finally, organizations need to prepare their workforce to take advantage of these applications in their day-to-day work.

FIGURE 5

AI Infrastructure Plans Affecting Net-New Spending

How will your AI infrastructure plans affect net-new spending on dedicated versus public cloud resources?



Organizations focus on cost, performance, security, and compliance when making AI deployment decisions.

n = 885; Base = respondents indicated their organization prioritizing AI infrastructure readiness in 2025;
Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 1*, February 2025

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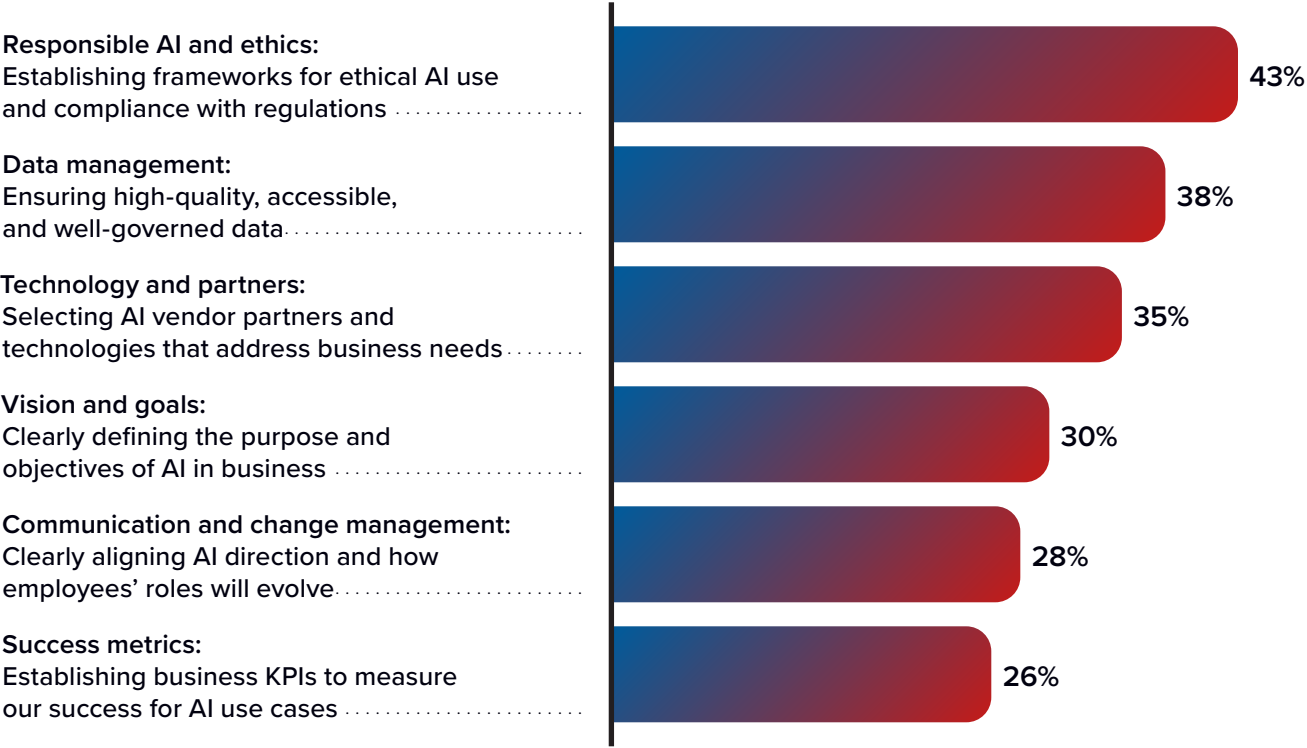
We are agnostic to the location of the infrastructure. The biggest determinant for us is the security controls that need to be around the data type (e.g., patient data, versus demographic data versus financials).”

Enterprise successful in moving GenAI POC into production in November 2024.

Figure 6 highlights some of the challenges that organizations face deploying agentic AI and generative AI. Specifically, data management concerns and responsible AI use concerns remain high for most organizations, and organizations are developing plans to solve these challenges, often in concert with their technology partners.

FIGURE 6
Important Issues That AI Strategy Needs to Address

You indicated that your organization is prioritizing AI strategy in 2025. What is the most important issue that your AI strategy needs to address? What is the second most important?

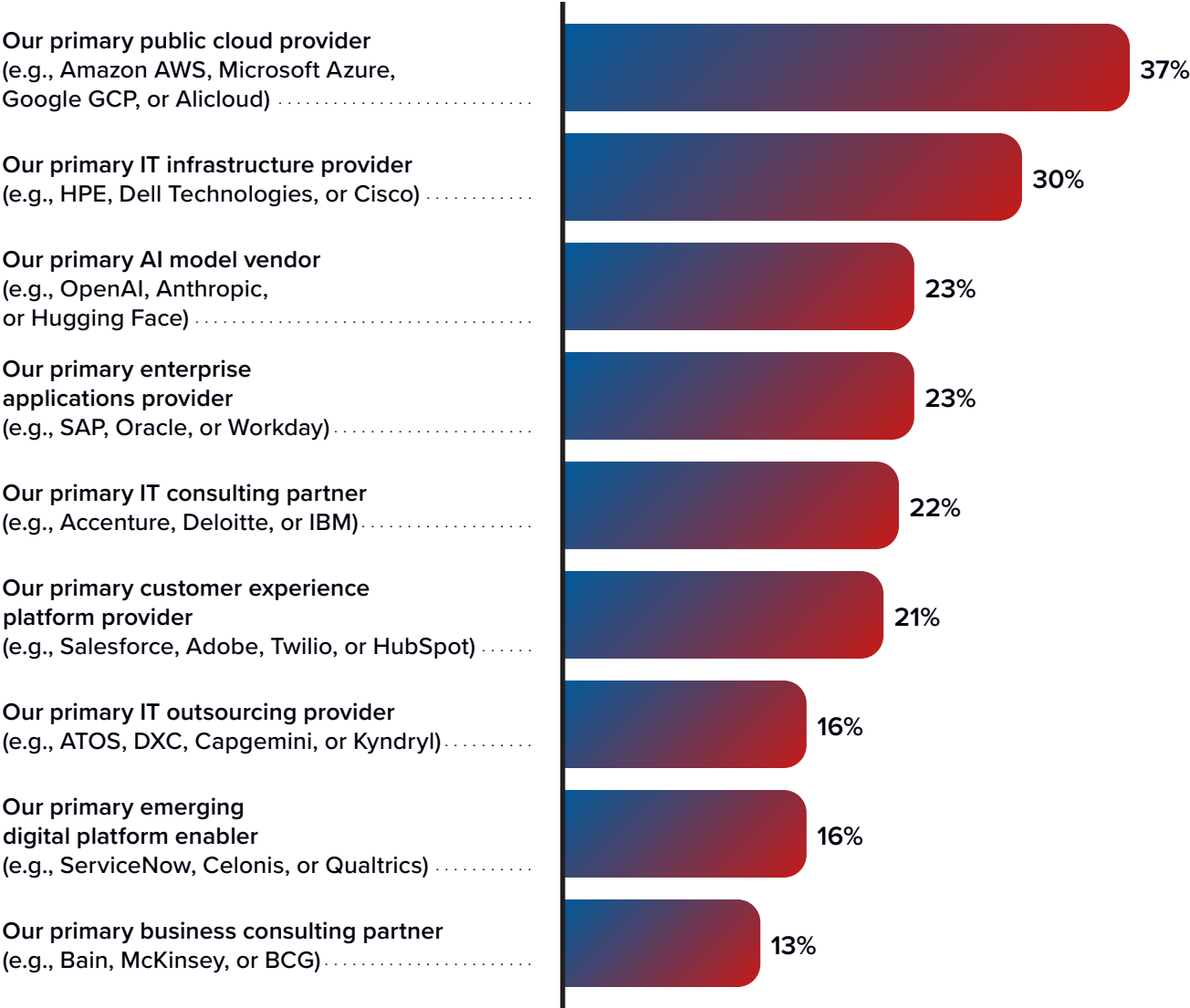


n = 396; Base = respondents indicated organization is prioritizing AI strategy in 2025; Source: IDC's *Future Enterprise Resiliency and Spending Survey*, Wave 1, February 2025

These priorities also impact the use of agentic AI within organizations and are even more important to the organization (if possible). **Figure 7** (next page) identifies that technology providers are providing a necessary role in helping organizations make use of agentic AI and generative AI. Cloud and infrastructure vendors play a key role in helping organizations identify appropriate agentic AI and generative AI use cases, develop those use cases, and deploy them in a cost-effective manner.

IDC is seeing that infrastructure vendors are increasingly seen as key partners by organizations to assist them with their overall AI strategy as well as their specific generative and agentic AI plans.

FIGURE 7
AI Technology Partners Help Organizations Develop and Implement AI Strategy
What type of technology provider will play the greatest role in helping your organization develop and implement its AI strategy in the next year? What provider type will play the second greatest role?

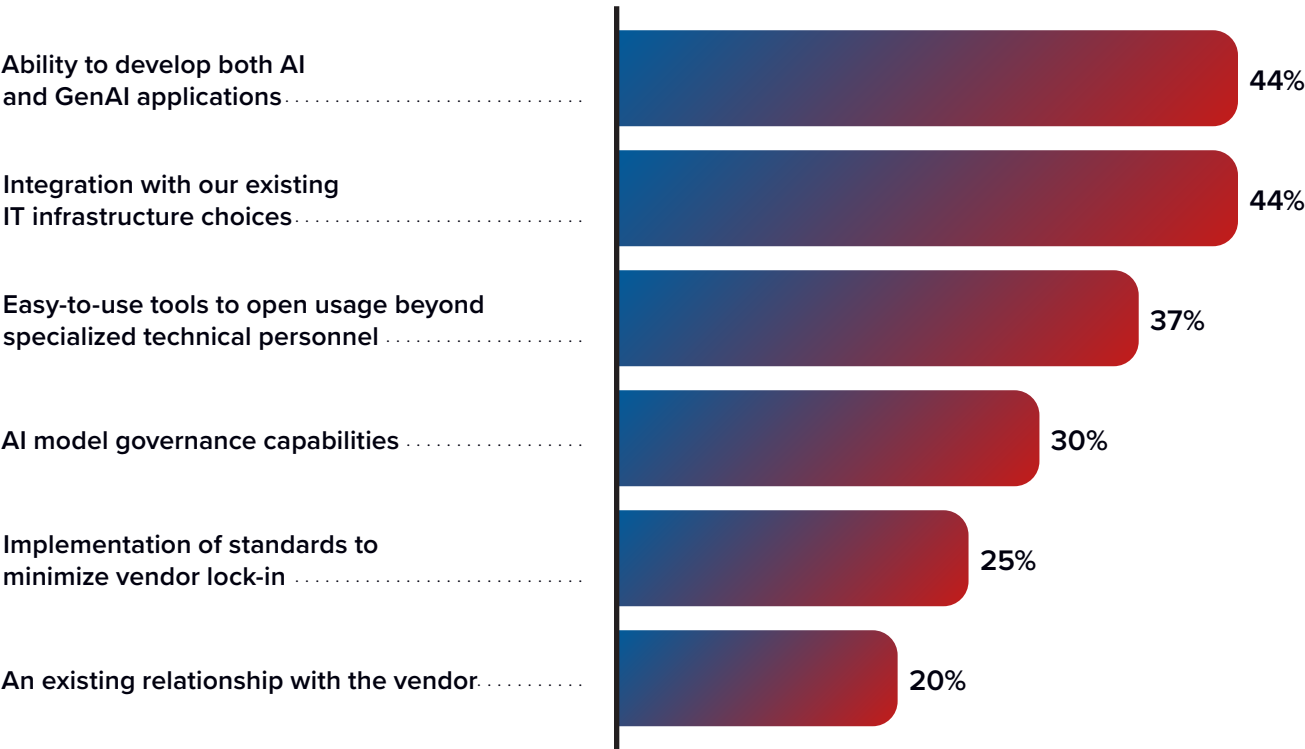


n = 396; Base = respondents indicated organization is prioritizing AI strategy in 2025; Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 1*, February 2025

Finally, as noted in **Figure 8**, organizations are looking for AI platforms that can offer capabilities for traditional AI, generative AI, and agentic AI and help bring those together in a seamless and integrated way. Organizations are also looking for AI platforms that interact well with the AI infrastructure that they’re using and offer a range of coding and development options, ranging from prompt engineering to low-code and no-code capabilities. The reason for this is that many organizations are using developers and business users with a range of development expertise and skills.

FIGURE 8
Important Factor to Evaluate AI Platforms

You indicated that your organization is prioritizing AI platforms in 2025. What is the most important factor you use to evaluate AI platforms? What is the second most important factor?



n = 362; Base = respondents indicated organization is prioritizing AI platforms in 2025; Source: IDC's *Future Enterprise Resilience Survey (FERS)*, Wave 1, 2025

Agentic AI Usage

Choosing the right agentic AI use case to maximize ROI depends on your organization's specific needs and goals. However, agentic AI can be expected to yield greater benefits with some workflows, while generative AI may be a better solution for others.

When to Use Agentic AI

- ▶ **Autonomous decision-making:** Use agentic AI when you need systems that can make independent decisions and take actions without human intervention. This is ideal for applications such as autonomous vehicles, robotic process automation, and smart assistants.
- ▶ **Knowledge management/assistant:** An AI knowledge assistant helps employees quickly find and use information across the organization by remembering context, using tools, and taking action on its own. It's best used when teams need faster, smarter access to knowledge and when automating routine research and support tasks can save time and improve productivity.
- ▶ **Document creation:** Agentic AI document creation uses generative AI to create content such as text, images, and diagrams, then assembles everything into a complete, polished document. It's ideal when teams need to automate the creation of reports, proposals, or briefings — saving time and ensuring consistency.

- **Software and application development:** Agentic AI coding can plan, write, test, and modify code across systems using tools and memory to manage complex tasks. It's effective for automating repetitive development work, speeding up troubleshooting, and supporting developers with end-to-end software tasks.
- **Customer service:** Agentic AI in customer service can understand context, use tools, and take action to resolve issues across channels — without human intervention. It's best suited for automating high-volume support tasks; providing instant, personalized help; and improving customer satisfaction at scale.
- **Sales:** Agentic AI in sales can proactively research prospects, draft outreach messages, update CRM records, and generate personalized materials — streamlining the entire sales cycle. It's particularly effective for reducing administrative burden, scaling personalized engagement, and enabling sales teams to focus more on closing deals.
- **Task automation:** Agentic AI is well suited for automating complex workflows and operational tasks. It efficiently handles repetitive, time-consuming work, boosting productivity and freeing up employees to focus on higher-value, strategic activities.
- **Adaptive systems:** Agentic AI is suitable for environments that require systems to adapt to changing conditions and learn from their experiences. This makes it perfect for dynamic and unpredictable scenarios, such as financial trading algorithms or adaptive learning platforms.

When to Use Generative AI

- **Data summarization and analysis:** Generative AI is very good at identifying key facts and information from a large corpus of text. It is also good at identifying links and can help “connect the dots” around seemingly disparate sets of information. Use it when you need to “understand,” not “do.”
- **Data augmentation:** Generative AI is ideal for creating high-quality synthetic data to enrich training data sets and improve machine learning model performance. It can generate realistic images, text, or other data types where real-world samples are limited or sensitive. Unlike agentic AI, which focuses on decision-making and task execution, generative AI is purpose built for content generation, making it especially valuable in fields such as medical imaging, NLP, and any scenario requiring diverse, representative training data.

- ▶ **Prototyping and ideation:** Generative AI is well suited for rapidly exploring creative possibilities, generating multiple design options, campaign concepts, or product ideas. It supports fast, iterative brainstorming by providing diverse outputs based on simple prompts. While agentic AI focuses on structured goal execution, generative AI thrives in open-ended, exploratory tasks where variety and creativity are key, making it especially valuable in design, marketing, and entertainment.

Combining Agentic AI and Generative AI

In many cases, combining agentic AI and generative AI can provide powerful solutions. For example, an autonomous customer service agent (agentic AI) could use generative AI to create personalized responses to customer queries, enhancing both efficiency and user experience. Agentic AI handles the full workflow — understanding the task, gathering context, and deciding what to do — while generative AI creates the content needed, such as writing responses or summaries. For example, a customer service agent can pull up order history, then use generative AI to craft a personalized, natural reply. This combination boosts both efficiency and the customer experience.

Agentic AI Drivers and Inhibitors

Figure 9 (next page) highlights the drivers and inhibitors that will affect agentic AI adoption.

Overall, agentic AI represents a huge opportunity for organizations to transform the way their organization works and does business, improving productivity, saving costs, and accelerating innovation. It also represents an opportunity to improve customer experience and provide personalized service.

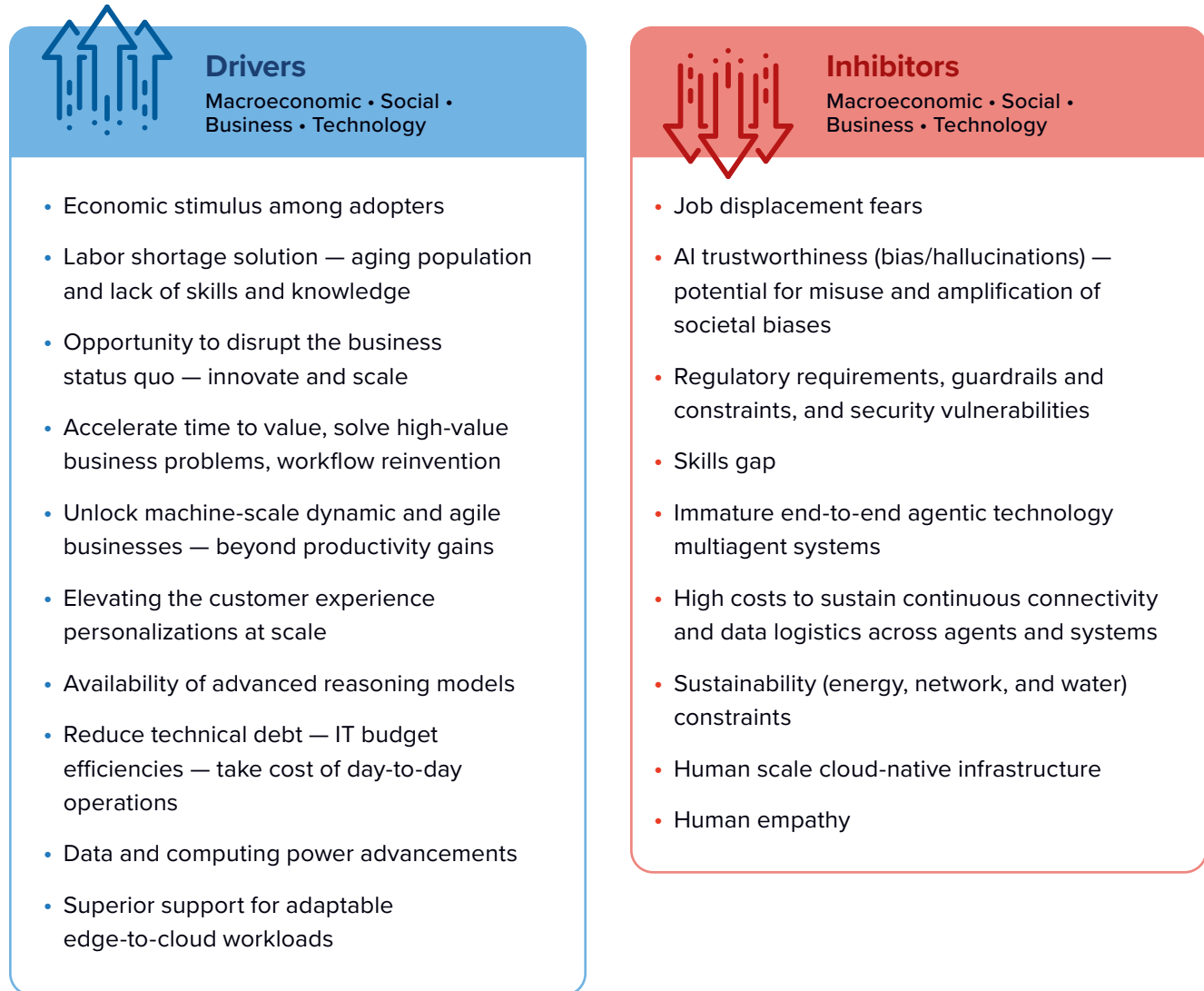
However, as with any technology, there are potential pitfalls and factors that need to be considered and dealt with. Providing trusted answers and capabilities is high on that list along with following any regulatory guidelines or rules that have been put in place, either by the organization or governments.

FIGURE 9

Agentic AI Drivers and Inhibitors

Multitude of Factors Converge for Agentic AI Adoption

Agentic AI • Higher Agency • Human-on-the-Loop



Source: IDC's *Tech Buyer Presentation — Agentic AI Impact on Enterprises — From Tech Stack to Future of Work and Services*, 2025

Agentic AI Preparation

Many organizations that IDC has spoken to work with partners to help them prepare for agentic AI. In many cases, the organization's infrastructure provider has become that partner, also providing critical services across the AI journey including AI adoption and change management, data preparation, technology optimization, and responsible AI agent management.

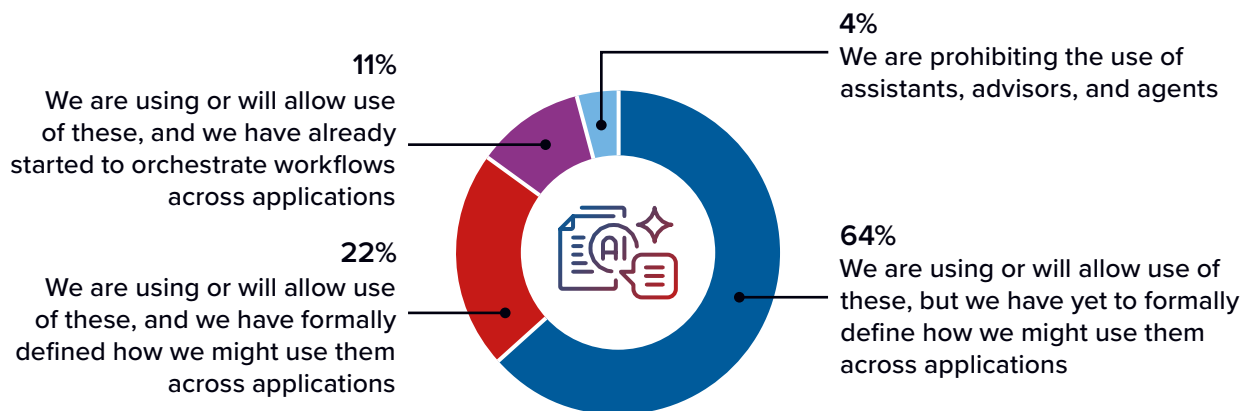
The value of these partners is that they can help organizations get up to speed and deploy agentic AI more quickly, easily, and cost effectively than the organization could do on its own.

However, organizations are still trying to figure out where best to use agentic AI as noted in **Figures 10 and 11** (next page). Most of the early use cases will be in customer service and IT help desk, which is also where organizations have been using conversational AI applications for several years. IDC is also seeing emerging uses of agentic AI for security and even operations, including AIOps. IDC sees the acceleration of these and other use cases over the next 12–24 months. IDC expects that organizations will replace their existing conversational AI application with agentic AI applications that can be developed and deployed more easily and have more capability for autonomous action, improving cost reduction and increasing customer and employee satisfaction.

FIGURE 10

Organization's Approach to Agentic AI

What best describes your organization's approach to agentic AI when considering offers from software vendors or SaaS providers?

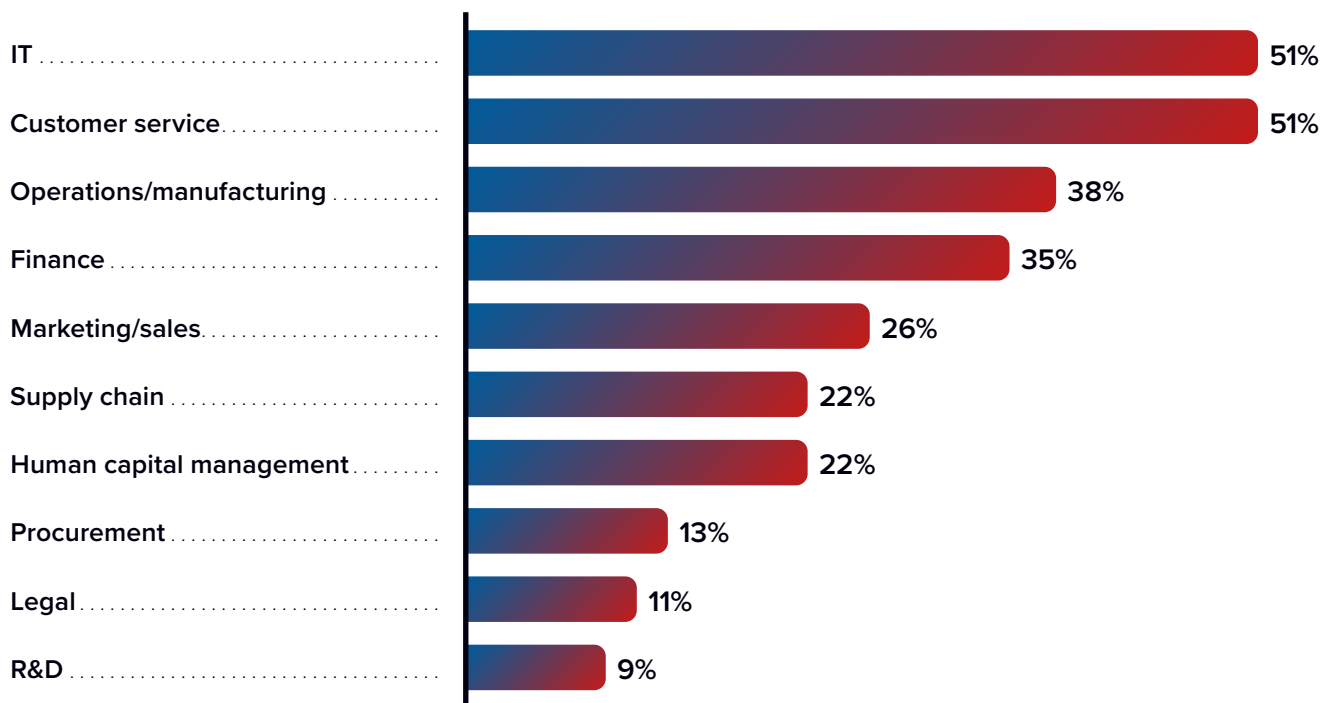


Note: totals may not sum to 100 due to rounding; n = 130; Base = all respondents; Source: IDC's CIO Quick Poll for C-Suite Program Survey, February 2025

FIGURE 11

Organization's Focus Areas While Integrating Agentic AI

What are the top 3 line-of-business areas where your organization will focus on integrating agentic AI into existing applications or business processes?



n = 125; Base = respondents indicated organizations using or will allow the use of agentic AI applications; Source: IDC's CIO Quick Poll for C-Suite Program Survey, February 2025

ROI from Agentic AI

Effectively establishing teams of humans and AI agents will yield multiple benefits for organizations:

- **Enhanced operational efficiency:** Agentic AI can automate complex workflows and handle repetitive tasks at scale, freeing up human workers to focus on more strategic and creative activities. This leads to increased productivity and reduces operational costs.
- **Improved customer experience:** By providing instant support and handling high volumes of customer queries, agentic AI ensures quicker response times and more consistent service (even 24-hour service). This can significantly enhance customer satisfaction and loyalty.
- **Contextual and personalized decision-making:** Agents can maintain memory, learn from past interactions, and make decisions based on context and user preferences. That makes them great at personalizing experiences.
- **Scalability:** Agentic AI systems can easily scale to meet increasing demands without the need for proportional increases in human resources. This is particularly beneficial during peak times or unexpected surges in activity.
- **Adaptability:** Well-designed agents can be retrained, retooled, or reconfigured as business needs evolve — unlike rigid automation scripts or workflows.
- **Improved ROI:** As agentic AI becomes more prevalent in organizations, it should reduce the amount of work needed to be done to handle business processes, which in turn should reduce the cost of those processes, increasing productivity and reducing cost.

How to Maximize ROI

To drive ROI from agentic AI — unlike traditional GenAI or other AI platforms — organizations must go beyond content generation and focus on integrating autonomous agents directly into business workflows. This means designing agents to act, not just respond; embedding them into systems like CRMs and ERPs; and setting new success metrics such as task completion, cycle time, and escalation rates. It also requires training employees to collaborate with agents, implementing real-time governance, and deploying flexible infrastructure that spans cloud, on premises, and edge. In short, realizing value from agentic AI depends on treating agents as operational teammates, not standalone tools.

Start with high-impact use cases and focus on tasks that are repetitive and time-consuming, high volume, cross-functional, and easy to measure. These can offer quick wins and clear ROI, helping build momentum for broader adoption:

- **It's not just about opportunities.** Identify where current bottlenecks are in the organization. Dive into where the organization is losing time, money, or performance due to manual work or errors. Agentic AI solves operational friction, and this is where instant value can be achieved.
- **To maximize ROI, integrate agents in business processes and workflows — don't silo them.** Connect them to CRMs and ERPs, databases and APIs, communication tools, decisions support systems, and more through the use of APIs. Let the agents work for the organization and act like true team members within the environment.
- **Define KPIs up front.** Measure ROI through time saved, cost reductions, uptime/throughput improvements, accuracy or response time gains, revenue growth from faster cycles, and so forth.
- **Invest in change management and training.** Teams need to know how to collaborate effectively with AI agents, not just coexist with them. Involve teams early in the process and showcase how it can benefit their day-to-day work to free them up for more value-driven tasks.
- **Regularly review agent performance, update data sources or tools, add new capabilities, and collect user feedback.** Organizations should continuously be optimizing agents so they continue to get smarter and more useful over time.
- **Choose the right partners.** Work with experts who understand agentic AI architecture, integration, and real-world use cases, not just LLMs. A good partner meets you wherever you are in your AI journey and creates a road map

based on business objectives. Organizations should lean on experts who can offer a full end-to-end solution, developing use cases to fit the businesses' workflows, adoption and change management frameworks/processes, deploying and scaling, as well as ongoing management and optimization.

- ▶ **Scale agentic AI solutions with on-device and on-premises private agentic AI platform approaches** to get more traction to achieve better governance, management, and integration into enterprise applications and workflows. AI agents will benefit from the data sovereignty and quality and customization benefits that come with hybrid AI across personal, enterprise, and cloud/service provider options.

Notably, partnering gives organizations ready access to agentic AI skills wherever they are on their journey.

Skills for Agentic AI

To effectively take advantage of agentic AI, organizations require competencies including:

- ▶ **Data literacy and analytics:** Understanding and interpreting complex data sets is crucial. Professionals must be able to analyze data, identify patterns, and derive actionable insights. This includes proficiency in statistical analysis, data visualization, and machine learning techniques.
- ▶ **Technical proficiency in AI development:** Knowledge of AI development frameworks and tools is essential. This includes familiarity with programming languages such as Python and frameworks such as TensorFlow or PyTorch. These skills enable the development, deployment, and optimization of AI models.
- ▶ **Technical development skills on platforms such as AI PC and workstation devices:** These skills offer resources and knowledge to help build quality models on the edge or on devices.
- ▶ **Domain-specific expertise:** Understanding the specific industry or domain where agentic AI is applied ensures that AI solutions are relevant and effective. This expertise helps in aligning AI capabilities with real-world applications and business needs.
- ▶ **Integration and implementation skills:** Seamlessly integrating AI systems into existing workflows and infrastructure is vital. Professionals need to manage

the deployment of AI solutions, ensuring they work harmoniously with other systems and processes.

- ▶ **Responsible AI practices:** Ensuring AI systems operate ethically and without bias is critical. Professionals must be skilled in detecting and mitigating biases in AI models, maintaining transparency, and adhering to ethical guidelines.
- ▶ **Project management and collaboration:** Effective project management and interdisciplinary collaboration are necessary to successfully implement AI projects. This includes coordinating teams, managing timelines, and fostering teamwork.
- ▶ **Continuous learning and adaptability:** Staying updated with the latest advancements in AI and continuously improving skills is essential. Professionals must be adaptable and willing to learn new technologies and methodologies.

Building and maintaining these skills is a challenge for most organizations, so a trusted partner will help accelerate efficiencies and inspire innovation from agentic AI.

Infrastructure for Agentic AI

Enterprise AI infrastructure is crucial to the achievement of relevant and responsible agentic AI outcomes. Leveraging sovereign and private data environments, enterprise AI infrastructure enables:

- ▶ **Scalability and performance:** A robust AI infrastructure ensures that agentic AI systems can scale efficiently to handle increasing workloads and data volumes. This is essential for maintaining high performance and responsiveness, especially as the complexity and number of tasks managed by AI agents grow.
- ▶ **Interoperability and integration:** Effective AI infrastructure facilitates seamless integration with existing systems and technologies. This interoperability allows agentic AI to interact with various data sources and other AI systems, enabling more comprehensive and coordinated decision-making.
- ▶ **Data management and accessibility:** A well-designed AI infrastructure supports efficient data management, ensuring that AI agents have access to high-quality, relevant data. This is critical for training, validating, and deploying AI models, as well as for real-time decision-making.

- **Security and compliance:** AI infrastructure must include robust security measures to protect sensitive data and ensure compliance with regulatory requirements. This is particularly important for agentic AI, which often operates autonomously and may handle confidential or critical information.
- **Continuous improvement and adaptability:** A flexible AI infrastructure allows for continuous updates and improvements to AI models. This adaptability is vital for agentic AI systems to learn from new data, adapt to changing environments, and improve their performance over time.
- **Advanced capabilities:** A strong AI infrastructure provides the foundation for developing advanced agentic AI capabilities, such as autonomous decision-making and adaptive learning.
- **Innovation:** By providing the necessary tools and resources, AI infrastructure fosters innovation and experimentation, allowing organizations to explore new applications and use cases for agentic AI.
- **Reliability and trust:** Reliable infrastructure ensures that AI systems operate consistently and transparently, building trust among users and stakeholders.

Agentic AI at Work

Work will be reborn with agentic AI, transforming productivity, simplifying complexity, and streamlining operations.

Organizations that embed agentic AI across workflows and employee experiences — from onboarding to decision-making — will gain a lasting edge in productivity and innovation.

AI agents will complement and extend existing business automation technologies, making systems of record and experience more dynamic, adaptive, and proactive. By collapsing multiple layers of traditional software into unified, intelligent systems, AI agents can orchestrate complex workflows across siloed tools, transforming how work gets done.

This shift has broad implications. It challenges legacy infrastructure models, making technical debt more costly and highlighting the urgent need for connectivity, interoperability, and security across hybrid IT environments — from datacenters to edge to public cloud. At the same time, agentic AI demands event-driven, dynamic data architectures that deliver high-quality, contextual insights in real time to support autonomous decision-making.

It also changes how software is built and maintained. Agentic AI empowers developers to focus less on building solutions from scratch and more on orchestrating outcomes — using pretrained agents, reusable components, and centralized orchestration systems that manage fleets of AI agents with transparency and control.

To fully realize this opportunity, organizations need more than point solutions — they need trusted partners that can bring together devices, infrastructure, platforms, models, services, and ecosystems into a cohesive path forward.

Considering Lenovo

Lenovo is a global technology powerhouse with \$69 billion in revenue, ranked number 248 in the Fortune Global 500, and serving millions of customers every day in 180 markets. Focused on a bold vision to deliver “Smarter Technology for All,” Lenovo has built on its success as the world’s largest PC company with a full-stack portfolio of AI-enabled, AI-ready, and AI-optimized devices (PCs, workstations, smartphones, tablets), infrastructure (server, storage, edge, high-performance computing, and software-defined infrastructure), software, solutions, and services.

Lenovo has developed a series of solutions and services to help customers define and prove use cases, deploy and drive adoption, and manage and optimize agentic AI solutions at scale.

These capabilities include:

- ▶ **AI discover:** A structured engagement helps organizations assess their AI readiness, identify high-impact use cases, and develop a tailored road map covering data, infrastructure, and implementation needs to move forward with confidence.
- ▶ **AI fast start:** A service-led engagement quickly turns a specific AI use case into a working proof of concept or MVP. Lenovo experts use the customer’s existing infrastructure to design, build, and deliver a functional solution in weeks, demonstrating real business value fast.
- ▶ **Lenovo’s agentic AI:** It is a complete solution for deploying, managing, and scaling AI agents across the enterprise. It combines expert services, prebuilt use cases, and a purpose-built agentic platform that enables Lenovo to efficiently deliver, customize, and manage AI agents across hybrid environments, driving fast, secure, and scalable business impact.
- ▶ **Hybrid AI platforms:** Lenovo’s hybrid AI platforms deliver high performance and scalability for a wide range of AI workloads, including agentic AI. From single servers to full rack-scale systems, they support flexible deployments with NVIDIA GPUs and integrate easily across cloud and edge, providing the infrastructure needed for efficient, end-to-end AI implementation.

- ▶ **Neptune liquid cooling:** Lenovo's Neptune liquid cooling technology, used in top supercomputers, is built into its AI infrastructure to meet the high-performance needs of agentic AI. It enables efficient, sustainable scaling from small setups to large enterprise AI clusters.

Lenovo's agentic AI combines expert services, flexible infrastructure, and real-world use cases to help organizations quickly deploy and scale intelligent agents across hybrid environments. Backed by open standards and built for enterprise needs, it enables fast, responsible automation that delivers measurable business value.

Challenges/Opportunities

Challenges

- ▶ While Lenovo is well known as an infrastructure technology provider and partner, it is less well known as a complete solutions partner, especially in the generative AI and agentic AI spaces. Lenovo must work to educate the market on its capabilities and solutions in the AI space.
- ▶ Lenovo faces fierce competition with the cloud hyperscalers that are also investing heavily in generative AI and agentic AI.

Opportunities

- ▶ Lenovo has a significant advantage for clients and organizations that need to remain on premises for security or other reasons. Lenovo has developed purpose-built technologies and services specifically for agentic AI and is making good use of them with their existing AI infrastructure.
- ▶ Lenovo has developed a strong partnership with NVIDIA that offers significant advantages for Lenovo's clients, especially around training and inferencing.
- ▶ Lenovo Neptune liquid cooling boosts CPU, GPU, and system speed, delivering faster results for new server workloads such as AI and HPC. It allows organizations to meet environmental goals and align with carbon reduction initiatives without sacrificing the ability to deliver computing power.

About the IDC Analyst



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Dave Schubmehl is research vice president for IDC's AI and automation research. His research covers artificial intelligence technologies, such as predictive and prescriptive AI, generative AI, and agentic AI, including large language models; unstructured information representation; knowledge representation; deep learning; machine learning; unified access to structured and unstructured information; chatbots and digital assistants; and SaaS, cloud and installed software environments. This research analyzes the trends and dynamics of the various AI software markets and the costs, benefits, and workflow impact of solutions that use these technologies.

[More about David Schubmehl](#)

Message from the Sponsor



The Agentic AI revolution at the scale of the industrial revolution — and it is just beginning. The speed and magnitude of Agentic AI transformation will result in challenges, but also unprecedented opportunities.

Whether exploring a first use case or ready for Agentic AI at scale, organizations must act now. Lenovo can help you define, deploy, and drive real business value from Agentic AI use cases.

To learn more, visit lenovo.com/aiservices

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