



State of the Generative AI Market

September 2024

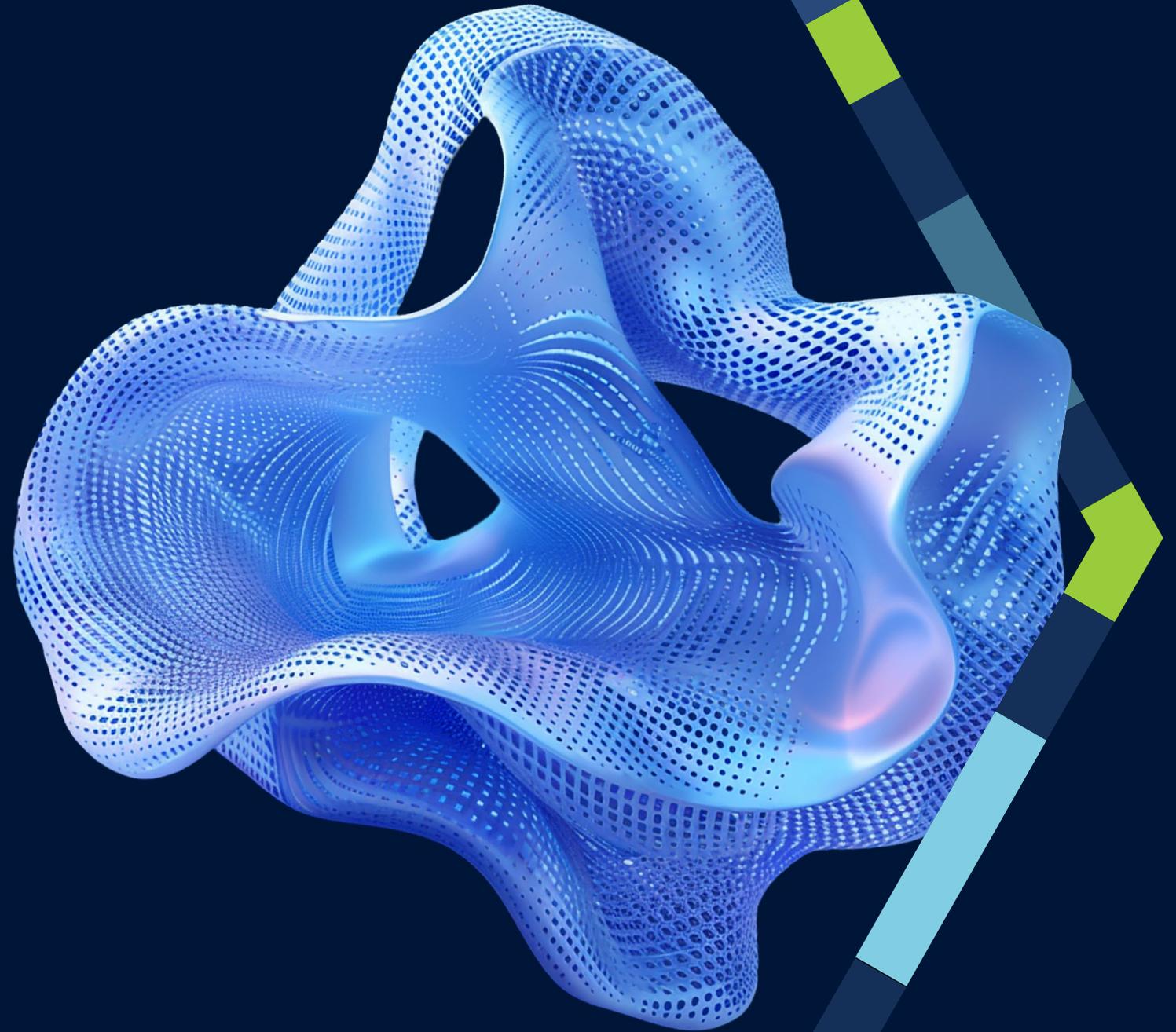


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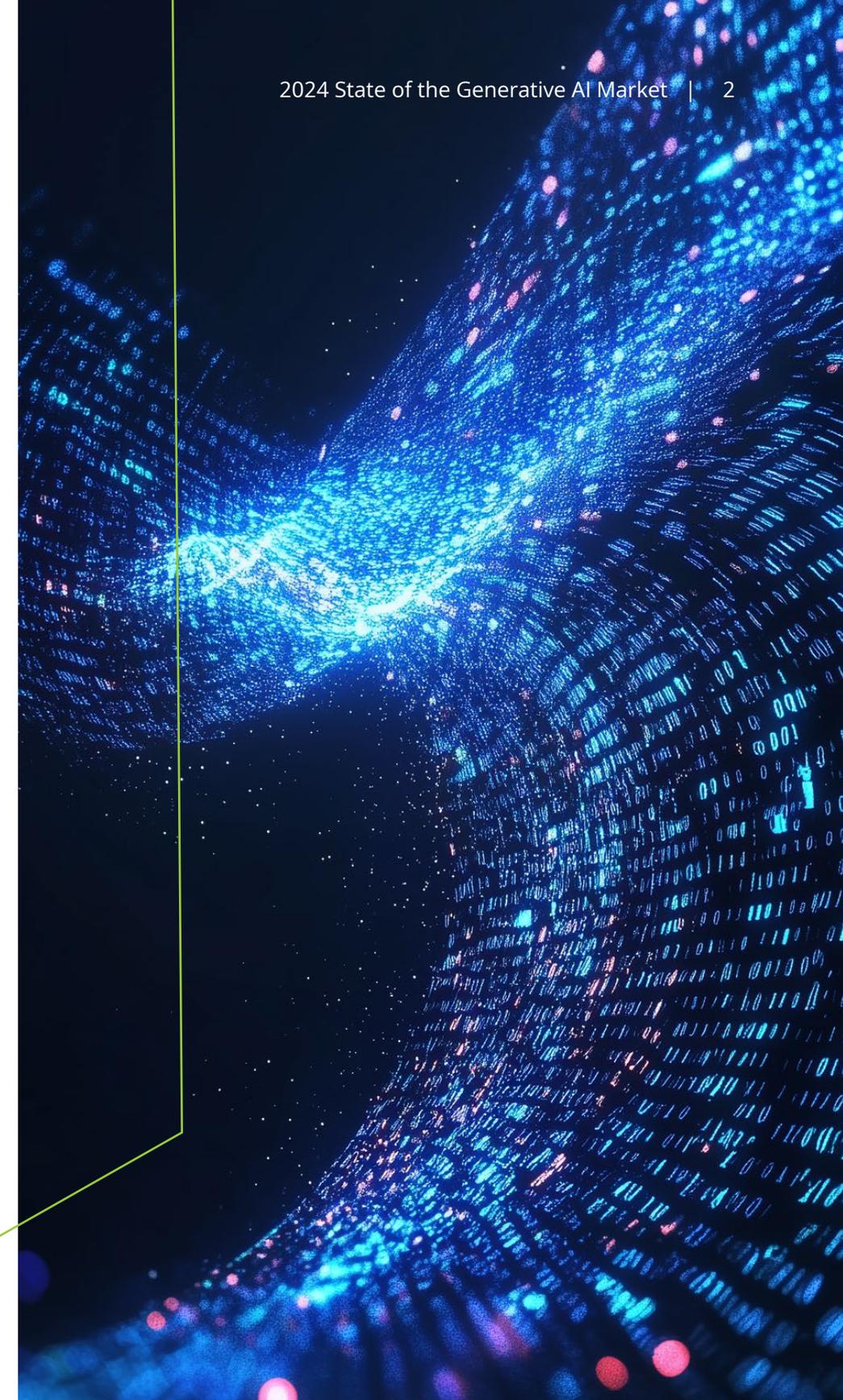
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Introduction

It has been almost two years since generative AI (GenAI) emerged with force onto the technology landscape, and two things are now clear. First, GenAI will significantly impact and transform every industry—it is just a matter of time. Second, we are still in the early stages of adoption and there are significant challenges to harnessing the power of GenAI during this transition. While there is clearly an abundance of hype, it is also clear that this truly will drive dramatic change, presenting opportunities and risks for every enterprise. In many ways, it is similar to the late 1990s when the internet was young and there was much weeding out and growing needed. This 2024 State of the GenAI Market report will guide you and your enterprise on the key themes and developments that are shaping the landscape, highlighting both the successes and the obstacles for successfully navigating this crucial new technology.

One of the most notable trends in the GenAI market is the increasing sophistication and accessibility of GenAI models. While advancements in deep learning algorithms and computational resources have enabled these models to better understand and generate complex content across various domains, the reality is that leveraging these capabilities effectively is far from straightforward.

From natural language processing and image synthesis to automated code generation, enterprises face challenges in integrating GenAI solutions into their existing workflows, ensuring data quality and managing the costs associated with these technologies.

To help address the cost issue, more than half of the software providers evaluated in our GenAI Buyers Guide have implemented some form of cost control and most have informed us of further plans in this area.

The rapid adoption of GenAI also brings other new challenges to the forefront. It is proving very difficult for enterprises to hire or develop the AI skills they need among their teams. Concerns such as data privacy, algorithmic fairness and the potential for misuse have become more prominent, prompting the need for robust governance frameworks and explicit ethical guidelines. Many enterprises find themselves ill-equipped to navigate these complexities, risking unintended consequences and negative impacts. By acknowledging and addressing these challenges, enterprises can make more informed decisions and drive meaningful progress in an evolving landscape.

It is imperative for businesses to approach GenAI projects with a realistic understanding of the potential pitfalls, investing in the necessary expertise and infrastructure to realize its benefits responsibly.

Bring your questions to the table as you sit down with this report. What's actually happening out there with GenAI—beyond the hype? What types of use cases are having an impact? Should we build or buy? What key risk is in our blind spot? And if everyone keeps pace with adoption anyway, is it even possible to achieve differentiation?

This report is designed to be a key resource as you navigate your AI planning and evaluation over the next six months. Read it straight through or jump to the section you care most about. Have an unanswered question? Want to validate your next steps?

Drop us a line and let's talk.

The background features a dark blue field with glowing blue particle trails that create a sense of motion and data flow. In the bottom right corner, there is a stylized bar chart with several segments in shades of blue and green, suggesting data analysis or market trends.

State of the Market

Market Adoption by the Numbers

Spending on GenAI initiatives will increase by

50%

in 2025 compared with 2024.

4.3%

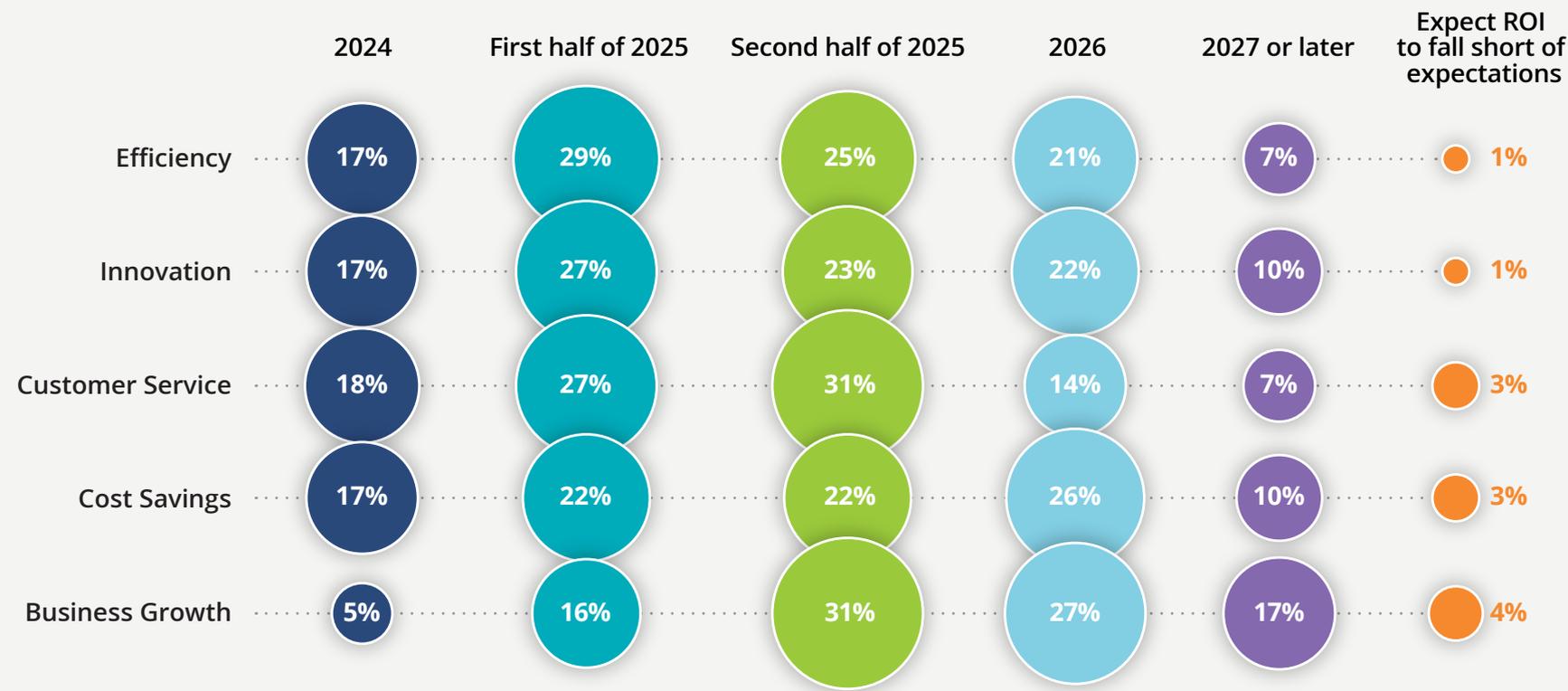
of 2024 IT spending is on GenAI, and enterprises expect that to grow to

6.5%

by the end of 2025.

Enterprises expect to capture a significant share of the anticipated ROI from their current GenAI initiatives in 2025. How do you compare?

Expected ROI Capture



Data Source: ISG 2024 MarketLens™ GenAI Use Case Study

Key Use Cases: Today and Tomorrow

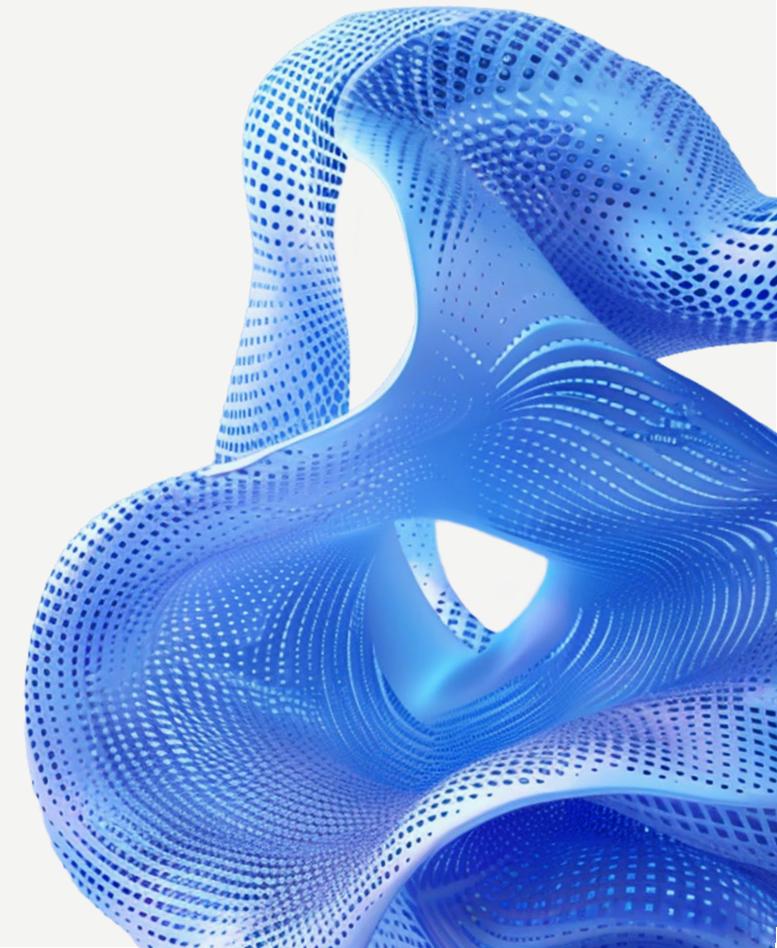
Our ISG GenAI Use Case Study, conducted in August 2024, focused on which use cases global 2000 companies have invested in to date, and which have received the most funding. While GenAI use cases span a broad range of business domains, three of the top five most well-funded areas are focused on contact center, efficiency gains and content generation.

The use cases getting the most funding today are aimed at efficiency and profitability, not revenue. And AI tools continue to be primarily deployed in processes that have a “human in the loop” (HITL) to intermediate and validate the output before it is delivered to customers.

Data Source: ISG 2024 MarketLens™ GenAI Use Case Study

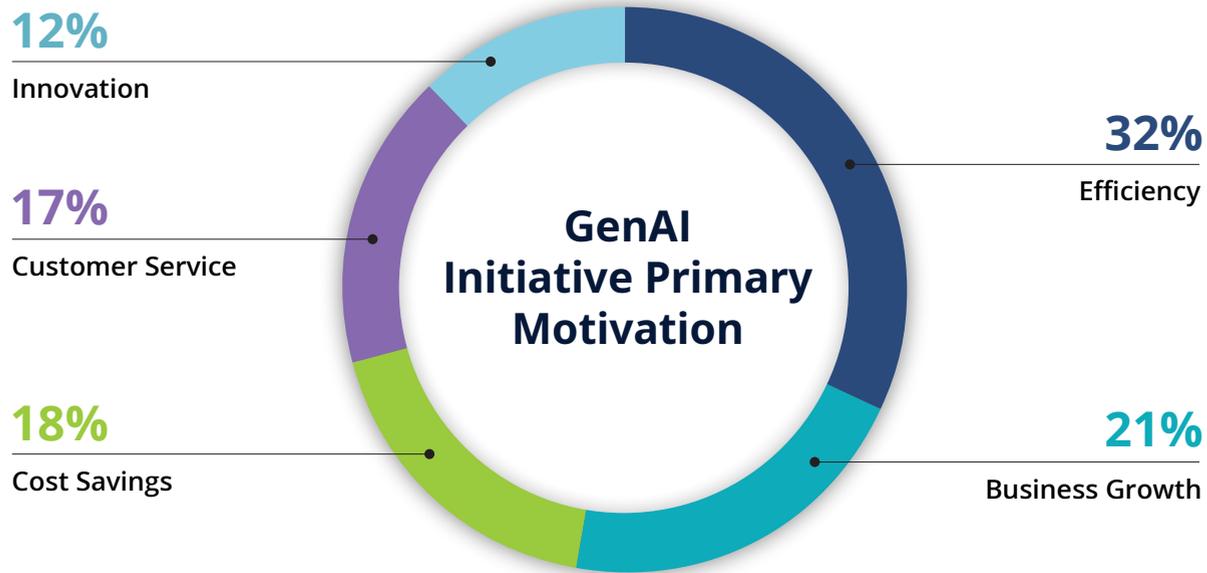
GenAI Use Cases in 2024

■ Most common use case ■ Highest investment use case



The practical outcomes of current investments are improved quality (e.g., better responses to customer inquiries, better process management) and, to some extent, increased efficiency (reduced response times, faster resolutions). But as long as the use cases serve to augment humans, the human’s ability to operate the process will ultimately be the limiting factor for how dramatically the AI tools and processes can scale.

This focus on quality improvements and HITL processes reveals that enterprises are taking a fairly safe, liability-limiting approach to GenAI, for now. In these use cases, AI results are reviewed before they are trusted with the goal of improving the quality of output over time. Given the concerns about AI hallucinations and unclear IP restrictions related to many large AI training sets, this conservative approach is reasonable for near-term use cases.



Data Source: ISG 2024 MarketLens™ AI Study

As GenAI capabilities and use cases progress, two needs come to the front for enterprises and their GenAI initiatives:

- 1. The ability to operate GenAI without the constraints of HITL processes, so enterprises can begin achieving returns that scale in a non-linear way.**
- 2. A progression from investments that focus on quality and efficiency improvements toward investments that focus on growth and new products.**

At this point, we expect enterprises will continue to diversify GenAI usage across HITL use cases and embrace AI-driven services that incorporate efficiency improvements.

Over the longer term, enterprises will need to observe further technical progress and gain for themselves a better understanding of associated risks before they begin trying use cases with greater scale and ROI.

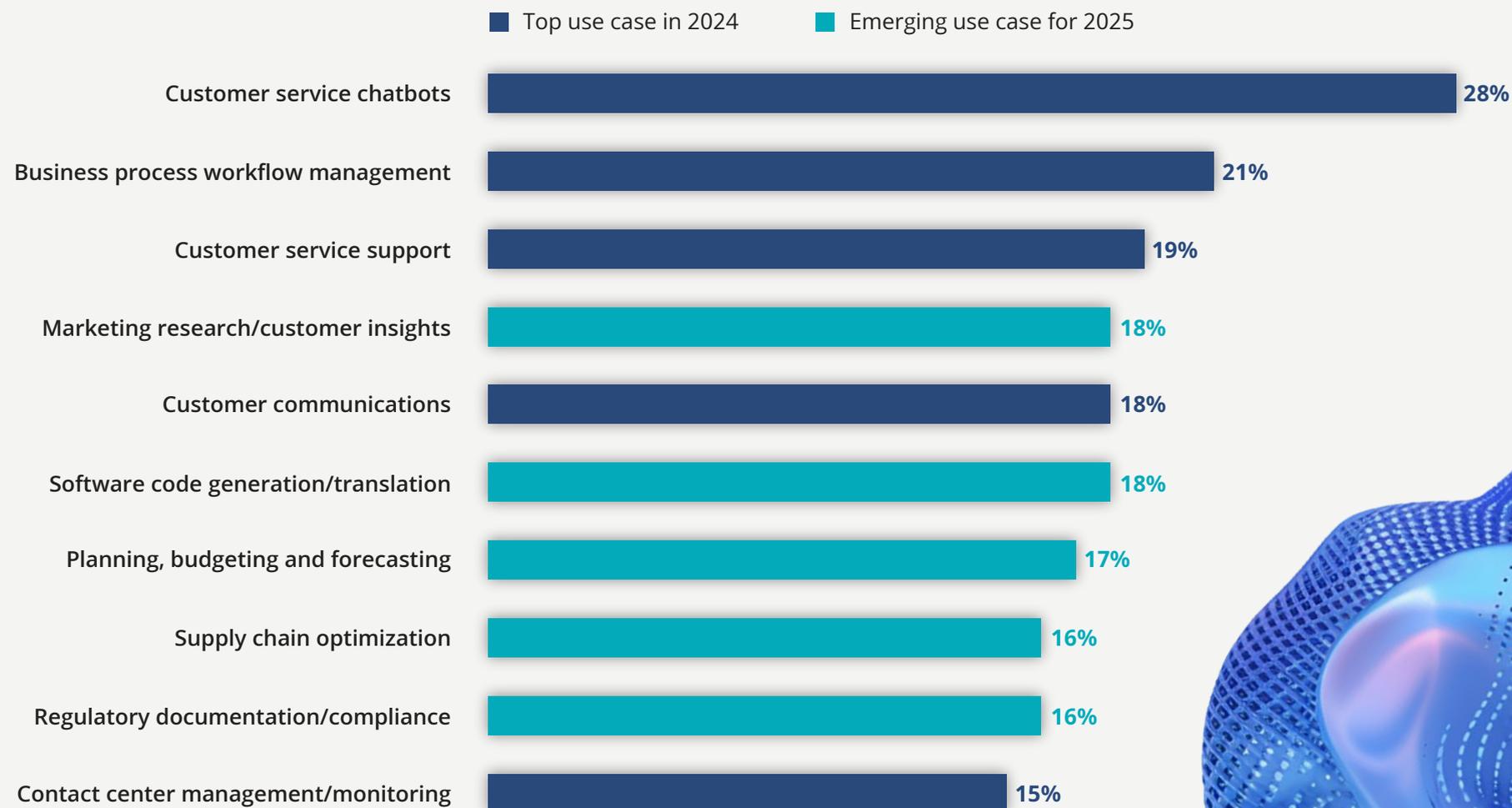
What's Next?

Given that past research has highlighted the importance of revenue growth as a top enterprise objective for the adoption of AI, higher-value use cases in the future will be those that do not involve HITL process so that enterprises can achieve more dramatic scaling. We predict two waves of AI adoption:

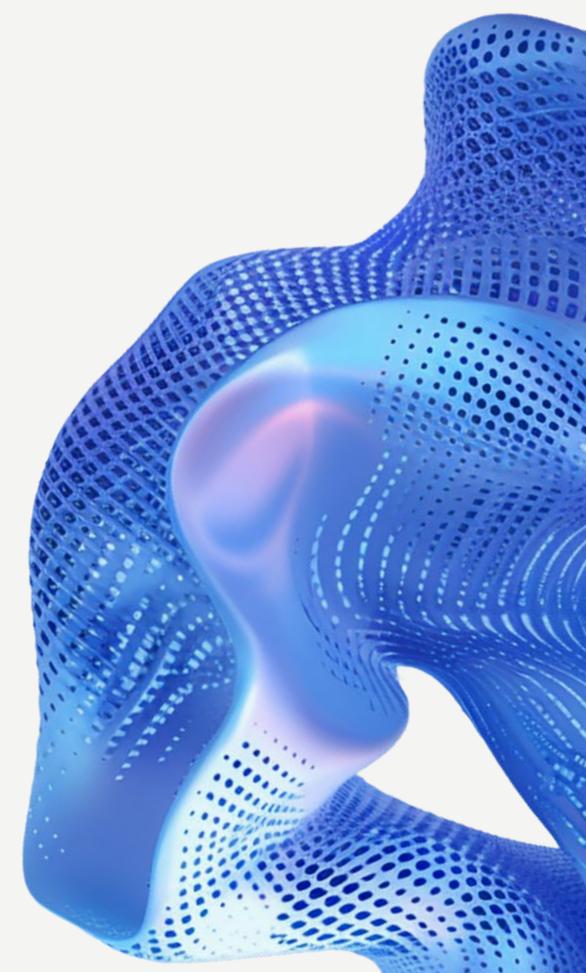
1 Wave 1: The major use cases from 2024 will still drive significant value in 2025. These are HTIL processes related to the contact center and customer experience, where GenAI provides input in real-time to drive faster resolutions and more accurate solutions. GenAI is still limited by the capacity of the contact center or customer service agent.

2 Wave 2: Emerging use cases in 2025 will primarily focus on augmenting expertise. Supporting compliance, forecasting, market research, supply chain planning and software development are all domains in which human expertise—rather than human time—can be the limiting factors.

Highest Anticipated GenAI Use Cases for 2025



Data Source: ISG 2024 MarketLens™ GenAI Use Case Study



The Pilot-to-Production Dilemma

Scaling GenAI from pilot projects to full-scale production deployments remains fraught for enterprises. Presently, neither enterprises nor software or service providers have established a repeatable and reliable path from initial pilot use cases to large-scale, production-ready workloads. The resulting lack of market evidence of successful outcomes means that enterprises remain hesitant to invest at the levels likely needed to generate those outcomes in the first place. Consequently, we do not yet see the amount of value creation needed to drive a market chain reaction.

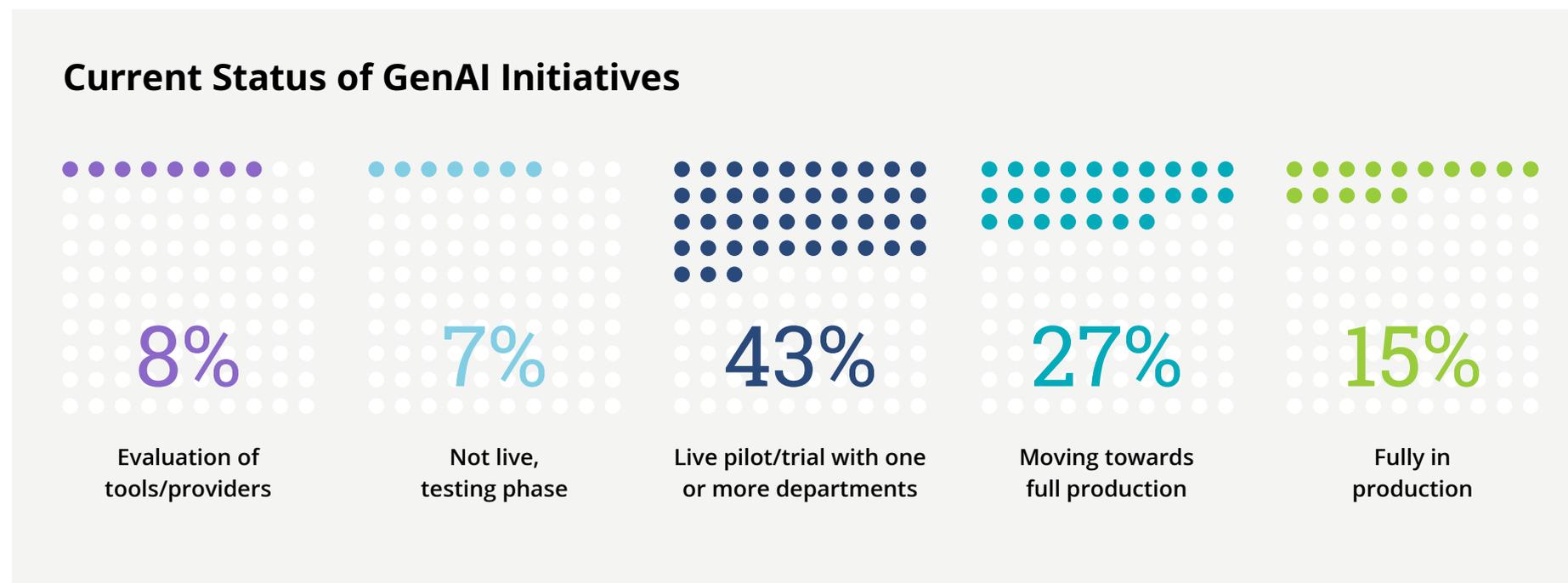
Enterprises express a strong desire to use and benefit from AI, but they want significant, large-scale wins rather than numerous minor victories. Despite promising results from pilot projects, the size of these efforts often remains marginal relative to enterprise goals. Instead of successful novelty projects, enterprises are keen to identify a clear path that leads to substantial material gains.

The reality is that traditional IT organizations are not always aligned with the next-generation opportunities that AI can present. The average IT organization tends toward being a technology “fast follower,” and typically realizes new

capabilities roughly on pace with the market as a whole. Does that describe how your enterprise operates?

This suggests that while waiting and watching for evidence of dramatic outcomes, enterprises will do well to strategically partner with software and service providers that can demonstrate solid wins against specific, well-

defined business goals. Partnering can reduce the risk of wasting internal effort on unsuccessful projects, provide access to expertise that improves the likelihood of positive outcomes and allow enterprises to harness cutting-edge tools, frameworks and technologies that may not be available in house.



Data Source: ISG 2024 MarketLens™ GenAI Use Case Study

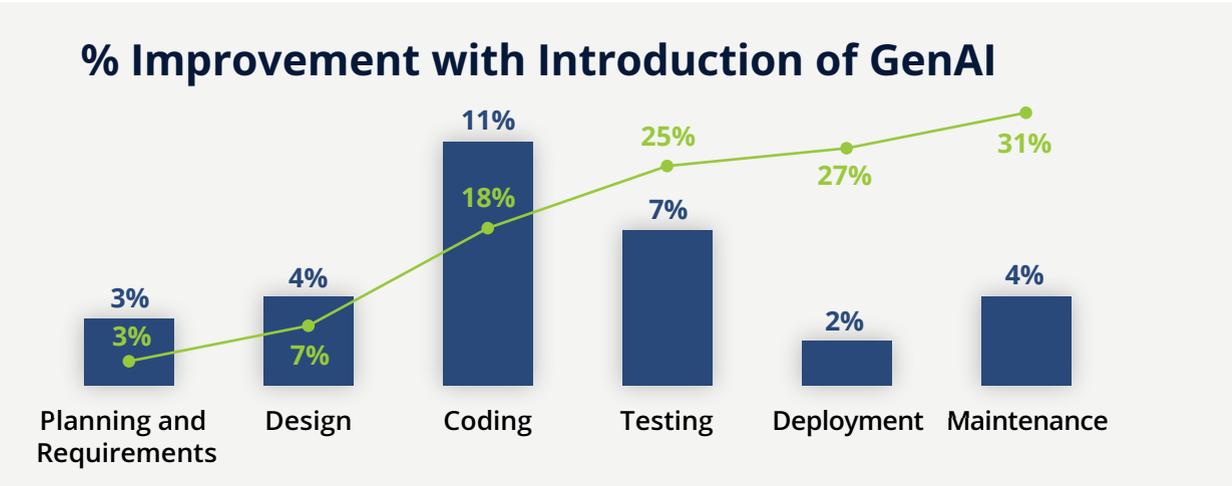
Transforming Software Development

The fastest rising use case outside of customer service very well may be the killer app enterprises have been looking for: GenAI in software development.

IT departments are beginning to harness the power of GenAI to streamline operations, enhance innovation and optimize workflows within IT infrastructure. As a result, software development is emerging as a leading application for GenAI, driving substantial benefits and revolutionizing the way IT departments operate. 70% of our respondents report using ChatGPT for software development activities, with 33% using GitHub CoPilot.

Integrating GenAI into the software development process can significantly enhance productivity, efficiency and quality. AI-driven analytics streamline stakeholder interviews and requirements gathering, while automated tools improve system architectures and the design of user interfaces. AI assistants support code generation and bug fixing, reducing manual efforts and improving overall code quality. AI can generate and execute software test cases and improve regression testing. Additionally, AI tools optimize the deployment processes and proactively manage system maintenance, reducing errors and downtime.

Overall, GenAI delivers substantial productivity gains, estimated at 30–42%, by automating predictive insights, facilitating robust and error-resistant coding practices, and enhancing software quality and security.



Key benefits you should be realizing with GenAI in the software development process

- 1 Early detection of issues**
 AI-driven code reviews and testing identify potential issues early in the development cycle, preventing defects from progressing to later stages.
- 2 Consistent application of best practices**
 AI tools enforce coding standards and best practices, ensuring consistency and reducing the likelihood of errors.
- 3 Comprehensive testing**
 Automated and AI-driven testing covers a wider range of scenarios and use cases, ensuring more thorough validation of software before deployment.
- 4 Continuous improvement**
 AI systems learn from past data and continuously optimize processes, leading to ongoing improvements in quality and efficiency.

Data Source: ISG 2024 MarketLens™ GenAI Use Case Study; ISG 2024 GenAI Software Development Study

The background of the slide features a dynamic, abstract visualization of data. It consists of a glowing blue and white stream of light particles on the left, transitioning into a curved, cylindrical structure on the right. This structure is covered in binary code (0s and 1s) and other digital symbols, suggesting a data pipeline or a digital tunnel. The overall color palette is dominated by deep blues, light blues, and bright whites, with a few accents of yellow-green at the bottom right.

GenAI Implementation Roadmap

Impacts on Both Business and IT

How is GenAI money being spent?

36%

Applications/software
(incl. software as a service)

25%

Personnel
(incl. contractors and staff augmentation)

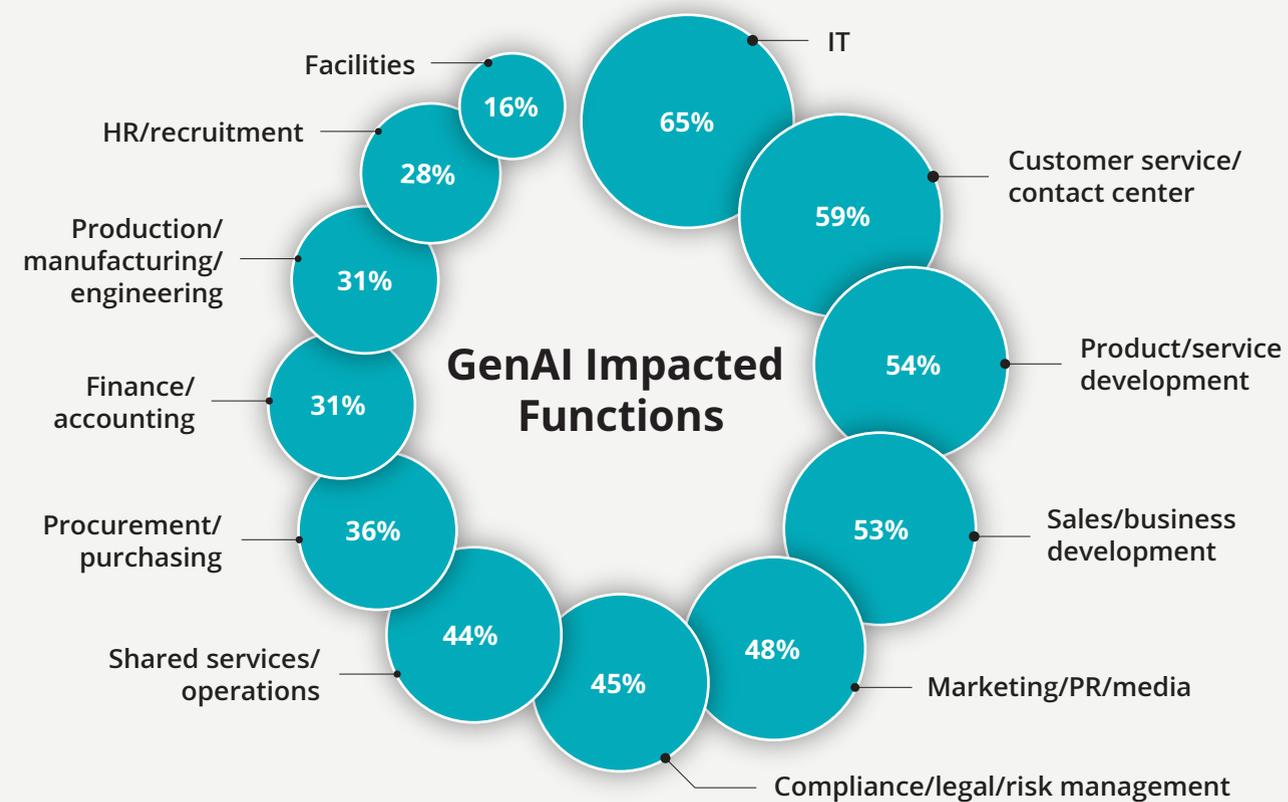
21%

Infrastructure
(e.g., storage and compute)

18%

Outsourced
(managed services)

Where is GenAI making an impact?



Data Source: ISG 2024 MarketLens™ GenAI Use Case Study

GenAI for the Business

Business software vendors across various sectors are rapidly enhancing their core functionality by incorporating GenAI features. While some capabilities are already available, product roadmaps indicate a significant acceleration in the integration of GenAI over the next 18 months. Certain GenAI functionalities will be offered at no additional charge, but others will require extra investment, enabling product providers to create and maintain AI-enabled applications as consumable options for customers.

We measure that enterprises are willing to spend 6%–9% more on a per-user basis for AI functionality across a wide range of business applications.

These advancements address the pressing issues enterprises face in forming their AI strategies. By leveraging AI and GenAI, software developers aim to empower users to work faster, smarter, more economically and with greater safety. AI-enabled applications specifically target enterprise

challenges, such as a lack of AI expertise and the need for a cohesive, company-wide vision for AI implementation.

The advantages of AI can be tailored to domain-specific needs. For instance, in customer experience (CX), AI enhances customer insights at scale, transforms self-service chatbots and augments the agents' ability to serve customers in real time. In finance and accounting, AI improves processes, such as predictive analytics-driven forecasting, error detection and the ever-important month-end close cycle. Meanwhile, human capital management (HCM) benefits from AI through enhanced employee self-service, onboarding, and skills assessments. In revenue management, AI elevates forecasting, real-time monitoring, planning and optimization.

During GenAI investment planning, enterprises must not overlook the development roadmaps of their third-party vendors. Ignoring the plans of these vendors can mean redundant investment and inefficient allocation of resources. After accounting for vendor plans, enterprises can then develop their own dynamic AI strategies that clearly delineate areas designated for internal development versus those that will use third-party applications or service providers.

On average, enterprises have implemented

151

GenAI-enabled applications. And, they estimate it will increase to

356

GenAI applications by the end of 2025.

GenAI for IT – AI Landing Zones

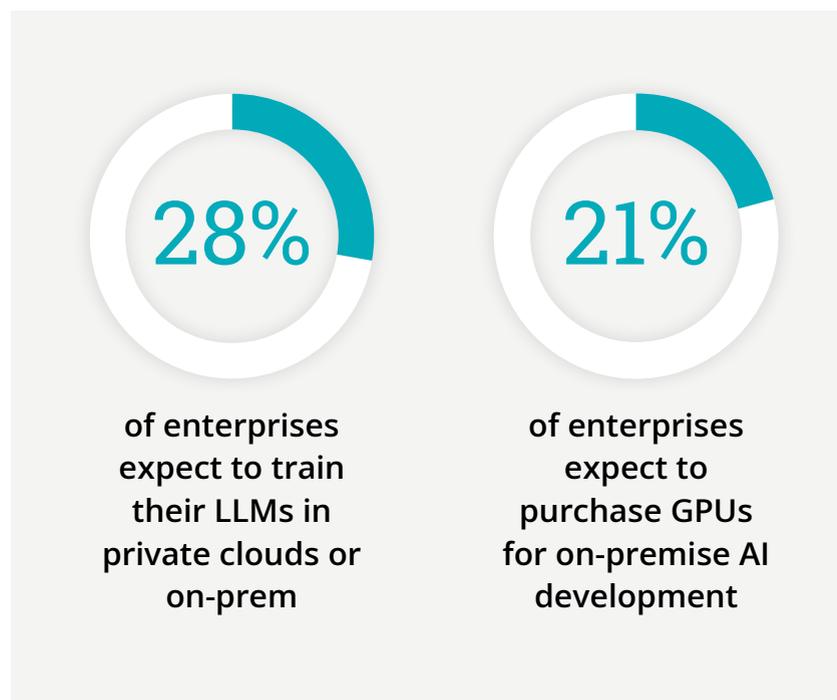
Many enterprises looking to adopt AI at scale struggle to understand the infrastructure required to power their own AI use cases that will drive the majority of AI value. The global supply of compute is now trying to keep up with the demand of AI. While GPUs and the public cloud dominate the market to run AI workloads, neither were natively built to run them with the appropriate performance and cost considerations.

Enterprises should explore several key considerations for where and how to host their AI workloads.

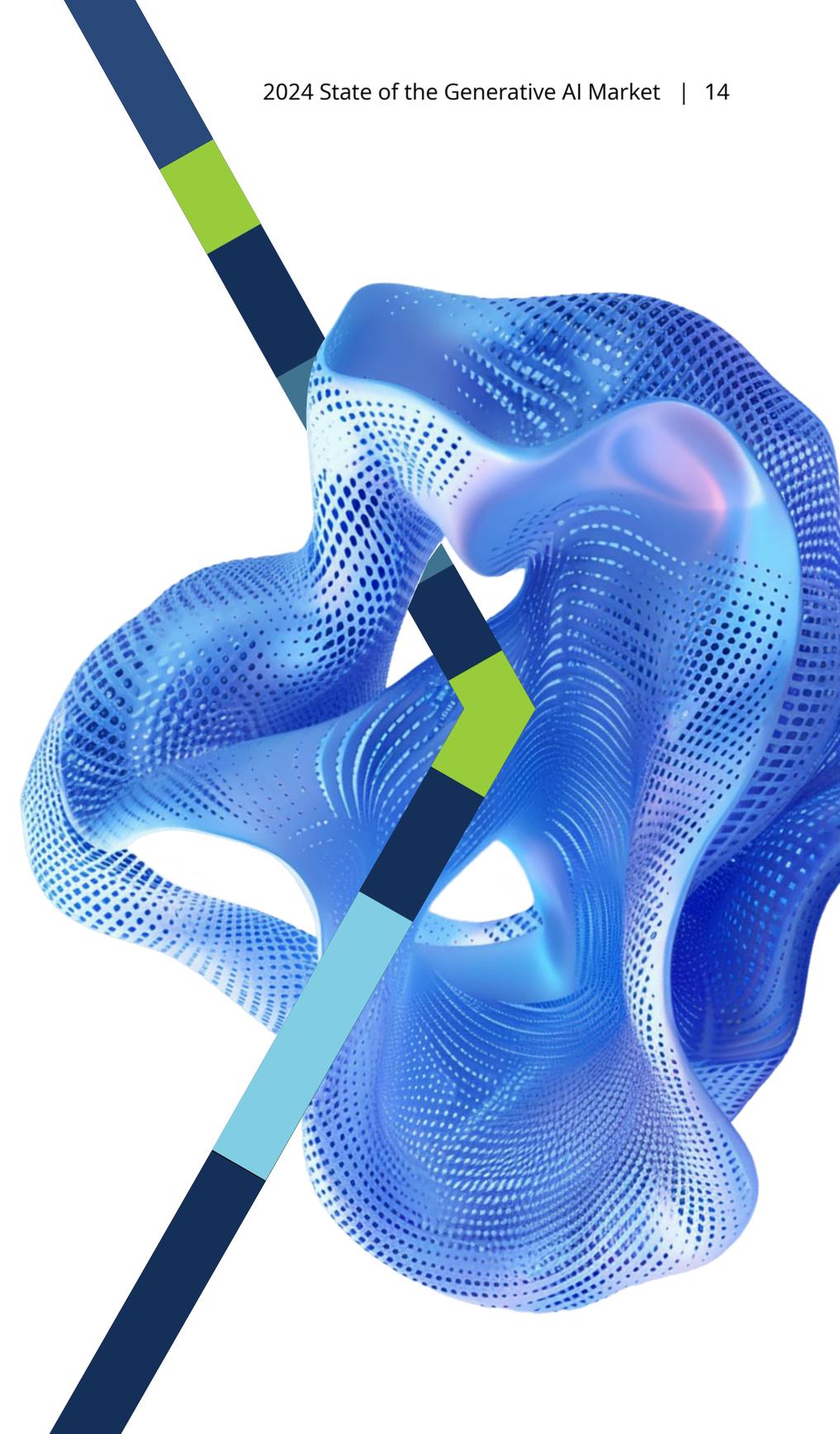
Where to Host AI: On-prem vs. Public Cloud

The public cloud (i.e., AWS, Azure, Google Cloud, etc.) has been the de facto landing zone for AI workloads over the last two years, and while most enterprises looking to expand their AI capabilities will continue to increase their cloud footprint, many are looking at alternatives to the public cloud.

Public cloud providers have spent billions in capital investments in anticipation of massive AI adoption, and the ease of access has made provisioning this AI-ready infrastructure in the public cloud the easy choice for proof of concepts (POCs). More recently, private cloud providers and niche AI cloud providers are entering the market to provide enterprises more options for additional security or performance.



Data Source: ISG 2024 MarketLens™ AI Study



AI-Ready Infrastructure Components

Whether the AI-ready infrastructure is deployed in a public cloud, on-premise or elsewhere, enterprises face additional considerations for their AI deployments, which are described to the right.

Choose what is best for your enterprise

Ultimately, enterprises must make their infrastructure decisions based on their own requirements for performance, availability, budget, fungibility, integration and security. These requirements, and the underlying infrastructure, may vary widely based on the selected use case and the stage of AI development, such as training versus inference. In 2024, enterprises have many choices and even more considerations for deploying their AI workloads on the appropriate infrastructure.

Enterprises should allow their use cases to guide their AI infrastructure investments, understanding that infrastructure modernization is a deliberate journey rather than a problem that demands immediate resolution. AI infrastructure is advancing at a rate rarely seen in hardware markets, so enterprises must evaluate their investments based on the point-in-time capabilities and price of the infrastructure against the value it will deliver.

Compute

AI accelerators, or specialized hardware for improved AI/ML processing, are critical to effectively train and run AI workloads. GPUs continue to dominate AI accelerator discussions due to the inherent superiority of parallel processing over CPU-based serial computing for handling AI. However, new entrants into the silicon market like Cerebras, Groq and big names like Google, Microsoft and Apple are building performant AI computing for specific use cases like training, inference or end-user computing platforms. AI accelerators are incredibly expensive and may be cost-prohibitive for many enterprises at scale.

Storage

AI excels at managing large numbers of parameters and larger, more varied structured and unstructured data sets. Enterprises must leverage highly scalable, performant, available and resilient storage solutions to load, store and access the required data and models. These solutions must be very usable to find and organize the data stored within them. Enterprises are increasingly looking toward software-defined object storage solutions for their AI storage infrastructure over traditional NAS or SAN solutions.

Network

The distributed nature of AI training across thousands of nodes results in a significant portion of the AI training time spent in the network. Training AI workloads efficiently requires very high-bandwidth networks (100 Gbps+) that can perform at the required throughput and latency. Enterprises must ensure that their data centers have the appropriate networking setup to manage the traffic required for training.

Facilities

These infrastructure components must reside within a facility that is capable of handling the additional energy and cooling requirements of AI workloads. Training and running AI workloads demands tremendous amounts of energy, and the chips require substantial cooling. Many enterprises are looking to liquid solutions such as immersion cooling or direct-to-chip cooling to augment traditional methods. Companies with "green" initiatives must be cognizant of the impact AI will have on their environmental targets.

GenAI for IT – AIOps

The integration of AI in IT operations, often referred to as AIOps, represents a transformative approach to managing and optimizing IT operations. AIOps leverages advanced technologies, including machine learning and data analytics, to enhance the efficiency, intelligence and responsiveness of IT systems. By automating tasks, predicting issues and providing actionable insights, AI in IT operations helps enterprises proactively manage their IT environments, reduce downtime and improve overall performance.

AIOps is also revolutionizing outsourcing strategies as providers race to enhance cost-effectiveness, efficiency and service quality for their clients. When implemented well, automation of routine tasks can reduce the provider’s labor costs and can allow for more competitive pricing. AI tools can improve operational efficiency, enabling providers to handle larger volumes and meet tight deadlines more effectively. With AI handling mundane tasks, smaller, more skilled teams can focus on complex, high-value activities, improving overall service quality to the client. **Efficiency gains from AIOps facilitate a shift to value-based pricing, aligning costs with client benefits and fostering stronger client relationships.**

Implementing AIOps in infrastructure management can result in significant productivity savings. By automating monitoring

and alerts, predictive maintenance, and resource planning and optimization, AIOps is reducing the need for constant manual oversight. AI-driven incident response systems quickly resolve issues and significantly enhance operational efficiency.

These improvements lead to an estimated

28-50%

increase in efficiency, translating to substantial cost savings and more reliable infrastructure performance.

As GenAI and AIOps continue to advance rapidly, the adoption across global service integrators and integration into new software development tools is driving unprecedented efficiency and innovation. Embracing these technologies transforms IT operations, software maintenance and outsourcing, positioning enterprises as technological leaders and setting new benchmarks in efficiency, quality and innovation.

Data Source: ISG 2024 GenAI Software Development Study

The key benefits of AIOps include:

- 1 Lower labor costs**
Automation and improved preventive maintenance eliminate labor-intensive tasks and enable more competitive pricing for outsourcing services.
- 2 Enhanced service offerings**
AIOps enables advanced services like real-time data analysis and predictive analytics, enhancing the provider’s service quality.
- 3 Dynamic scalability and flexibility**
AI-driven demand forecasting and resource allocation optimize scalability and responsiveness to client needs, reducing costs and improving service alignment.

Buying for the Enterprise

Buying AI Implementation Services

The most-cited inhibitor to implementing GenAI within enterprises—by far—is the lack of AI expertise and skills within the organization. Closely related is the difficulty enterprises have in hiring and retaining personnel with the requisite AI skills. **Enterprises can close this skills gap and improve performance against GenAI goals by selecting appropriate AI implementation services that align with their specific needs and infrastructure.** This strategic approach involves understanding the nuances of its data, systems and enterprise-level goals to ensure successful deployment and maximum benefit. AI is transforming traditional sourcing processes and creating new opportunities for enterprises to improve efficiency and gain a competitive edge.

Importance of Tailored AI Solutions for Modern Enterprises

Every business environment is unique. By definition, success will require innovative approaches that address the challenges specific to an enterprise. AI implementation services provide the expertise and experience needed

to bring this tailored approach to diverse domains and industries.

The “shiny object” phase of AI adoption is rapidly coming to a close. Alignment between AI initiatives and actual business objectives is now crucial, and enterprises must ensure that AI deployments directly address specific challenges if adoption is to have a meaningful impact on digital transformation efforts. Properly implemented AI can lead to significant improvements in operational efficiency, customer experiences and decision-making processes. But to achieve this, enterprises must have a clear understanding of the value they aim to derive from AI, so it can be measured and confirmed.

A critical aspect of successful AI implementation is the customization of solutions based on an enterprise’s unique data, systems and infrastructure. **Even similar enterprises can have different AI implementation experiences due to variations in their operating environments.** Consequently, it is essential to validate AI solutions within the enterprise’s specific context through multiple small POCs. These POCs enable enterprises to test and refine approaches, reduce risks and ensure that production AI solutions are well-suited to their requirements.

Top 5 biggest GenAI inhibitors

56%

Lack of Skills/Expertise

39%

Data Privacy & Security

39%

Legacy Infra & Apps

35%

Change Management

33%

Cost of LLMs



Tailored Implementation Strategies

We observe that **the most successful AI implementation projects are approached with a mindset of iterative development.**

This strategy ensures that the AI tool is optimized for scalability, robustness and adaptability. Building for enterprise scale involves designing AI solutions that can grow and evolve with the enterprise's needs. An optimized AI deployment enables enterprises to harness the full potential of AI technologies while remaining flexible to future advancements.

Moreover, understanding and integrating with the existing environment and ecosystem is vital for seamless AI adoption. Enterprises must partner with implementers who consider how AI solutions will interact with their current systems and processes. A thorough assessment of the existing infrastructure helps identify potential integration challenges and paves the way for a smooth and efficient implementation.

Taking Action

- 1 AI implementation must be driven by the goal of achieving specific business value.
- 2 Customization and tailored solutions are crucial due to the unique characteristics of each enterprise.
- 3 Conducting multiple small POCs helps validate AI solutions, refine approaches and reduce risks.
- 4 Iterative development ensures that the final AI platform is optimized for scalability, robustness and adaptability.
- 5 Understanding and integrating with the existing environment and ecosystem is vital for seamless AI adoption and success.
- 6 Clear criteria—including cost, time to market and the need for customization—should guide the decision to use packaged AI services or custom-built solutions.

By adopting a strategic approach to AI implementation, large enterprises can maximize the benefits of AI technologies. Tailored solutions, iterative development and seamless integration with existing systems are essential components of successful AI adoption. By prioritizing these elements, enterprises can achieve significant business value, drive digital transformation and maintain a competitive edge in an increasingly AI-driven world.

Key Considerations when Buying AI Tools or Platforms

AI is typically delivered in three forms as follows:

Each form presents unique challenges and considerations, though there are shared elements across all types.

AI enhancements (co-pilots) for workplace productivity tools

AI-enabled business applications

Comprehensive AI platforms

Common AI Buying Challenges

Cost

The costs associated with implementing AI are not nominal; it demands significant investment in skilled resources, both in terms of budget and trained personnel. Enterprises must be prepared to allocate substantial financial and personnel resources to develop and maintain AI capabilities.

Technological debt

GenAI requires that existing platforms and applications are technologically ready to interoperate with AI. This may involve upgrading infrastructure, ensuring data compatibility and integrating new software components.

Considerations Specific to the AI Tool

Productivity tools

Enhancing productivity tools with AI is relatively straightforward but comes with recurring expenses, often structured as per-user per-month fees. Enterprises need to evaluate the long-term cost implications.

Business applications

AI-enabled business applications often require extensive customization and preparation due to the specific workflows and processes they support. Enterprises must be ready to invest in tailoring AI solutions to fit their unique requirements.

AI platforms

Comprehensive AI platforms demand integration and interoperability with existing cloud and data platforms. The complexity of these integrations necessitates careful planning and robust implementation strategies.



Tradeoffs Between AI Platforms and AI Services

When selecting AI tools, enterprises often face tradeoffs between packaged capabilities and custom implementations.

Off-the-shelf solutions

These tools emphasize automation, reducing the need for specialized expertise and enabling rapid model development. However, they may offer limited customization and rely heavily on automated processes. The most common reason enterprises choose an off-the-shelf solution is a preference for proven and external expertise, with 36% citing this factor.

Custom-built solutions

These tools offer extensive flexibility, including customization, integration and higher levels of personalization. However, they often require more manual effort and collaboration with software or service providers. Enterprises most commonly point to customization and flexibility (cited by 38%) as the reasons to choose this approach.

Regardless of the approach, 65% of enterprises rely on some form of external support to implement their GenAI initiatives.

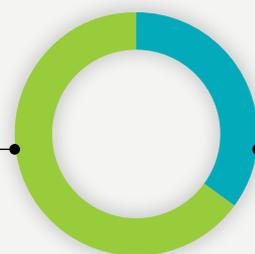
Understanding the drivers and tradeoffs is essential.

65%

Using an MSP

Reasons:

- Expertise and Knowledge Acquisition
- In-House Capability Limitations
- Speed and Time Efficiency
- Technology and Innovation Leverage
- Cost Considerations
- Strategic Management and Scalability
- Service Provider Trust and Continuity



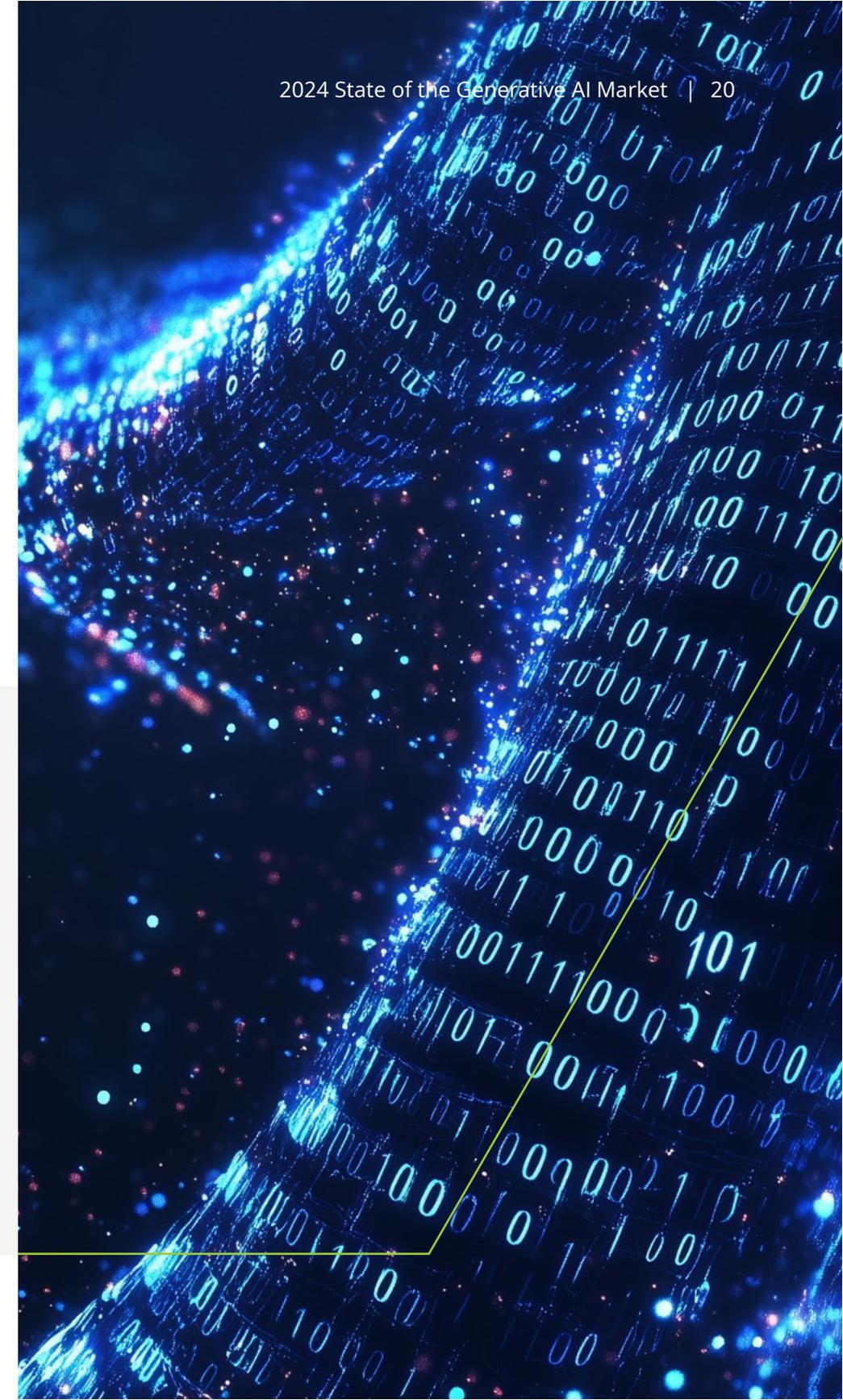
35%

Going it alone

Reasons:

- Building Internal Resource/Capabilities
- Specialized In-House Knowledge/Expertise
- Cost Considerations
- Data Privacy and Security
- Vendor Management/Independence
- Desire for Customization
- Regulatory Compliance

Data Source: ISG 2024 MarketLens™ GenAI Use Case Study



Data Matters

Data Platforms to Support GenAI

GenAI has demonstrated transformative potential across various domains, but its efficacy is dependent on large volumes of high-quality data used to train and operate models. This is where data platforms come into play. Data platforms serve as the backbone for organizing, managing, storing, processing, analyzing and presenting data across an enterprise. They are crucial for supporting and enabling AI-enabled business operations and analyses, and they ensure that data is accessible and trustworthy—vital factors for AI applications.

The functionality and capabilities of these data platforms are rapidly evolving to meet new demands posed by AI applications. GenAI models are trained on large volumes of unstructured data, much of which has never resided in a traditional data warehouse. Independent of current GenAI requirements, data platforms were extended to incorporate object storage, which enabled the storage and management of unstructured data. Given the volume of data under management and the provisioning of large numbers of nodes to manage this data, GenAI-enabled data platforms are often deployed in the cloud.

More than half of data platforms and databases are now in the cloud, and enterprises expect to continue deploying to the cloud as GenAI workloads expand.

Other key data platform advancements include the incorporation of vector search and retrieval-augmented generation (RAG) techniques, as well as in-database AI processing.

Vector search

Vector search allows for efficient querying of high-dimensional data representations, which are often used in AI models. This technique is particularly useful for applications such as image recognition, natural language processing and recommendation systems. By leveraging vector search, enterprises can enhance the performance and accuracy of GenAI applications, enabling them to deliver more relevant and precise results. Nearly 9 in 10 software providers included in our 2024 Data Platform Buyers Guide had included vector processing capabilities.

RAG

RAG combines the power of retrieval systems with generative models, allowing for the generation of more accurate and contextually relevant responses. This approach is especially beneficial for applications such as chatbots, virtual assistants and content generation, where the quality of generated content is paramount.

In-database AI processing

In-database AI processing refers to the capability of performing AI computations directly within the database environment, eliminating the need to move data between different systems. This approach offers several advantages, including reduced latency, improved efficiency and enhanced security. By integrating AI processing capabilities within the database, enterprises can streamline their workflows and improve the overall performance of AI applications.

Additionally, data intelligence plays a pivotal role in providing a comprehensive view of data production and consumption across the enterprise. This holistic perspective is instrumental in bringing together investments in data fabric and data mesh, thereby facilitating effective management and processing of data across multiple data platforms.

- **Data fabric**

A unified architecture for managing data across environments, facilitating seamless data integration and governance.

- **Data mesh**

A decentralized approach that emphasizes data ownership and management across different domains within an enterprise.

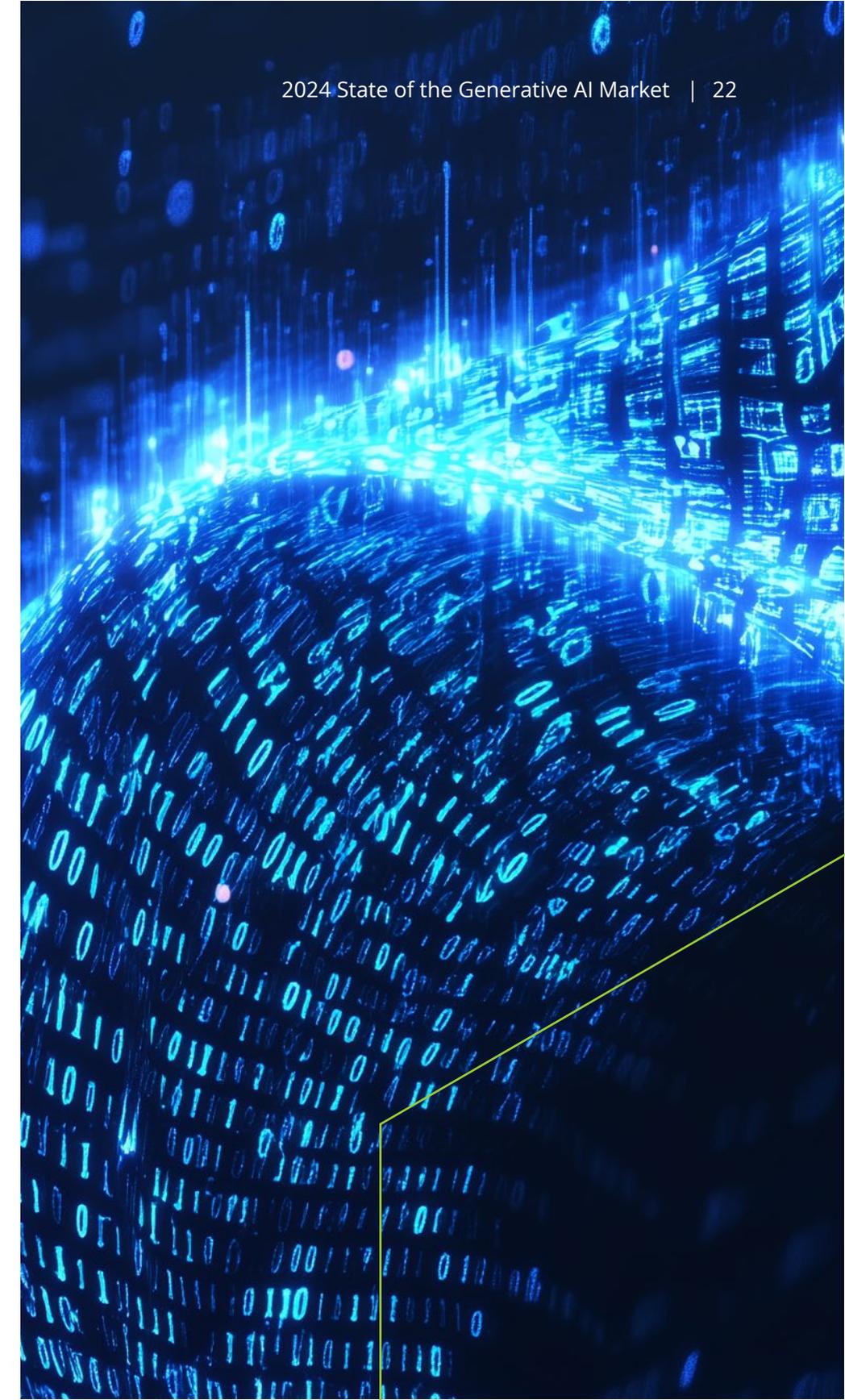
By combining these data approaches, enterprises can achieve seamless data integration and governance, ensuring that data is accessible, reliable and secure. This holistic approach to data management is crucial for supporting the advanced requirements of AI applications.

Emerging Requirements for AI Applications

As enterprises strive to develop intelligent applications that offer personalized experiences, the significance of data platforms in supporting these endeavors cannot be understated. Intelligent applications require seamless integration and processing of diverse data types from various sources, and traditional data platforms may not suffice for these advanced requirements. Therefore, enterprises need to partner with data platform providers that enable the use of vector search and RAG to complement foundation models with trusted data from enterprise sources.

Data platforms are indispensable for the development and deployment of GenAI applications. They provide the necessary infrastructure to manage and use data effectively, driving innovation and personalized experiences.

By incorporating advanced techniques and adopting holistic data management practices, enterprises can maximize the potential of GenAI and achieve their strategic objectives.



Data Governance and Data Engineering

Data governance and management are critical for maintaining the integrity, security and quality of data. Providers in these spaces are now embedding AI into their tools, aiming to automate and enhance data processes such as data cleaning, data lineage tracking and metadata management. These promising advancements offer the potential to significantly reduce manual efforts and improve the accuracy and efficiency of data management tasks. Despite the potential, the integration of AI in data governance and management tools is still in its nascent stages.

For many enterprises, particularly those that are not yet “data ready,” the challenge of integrating AI into their data processes is daunting. Being “data ready” implies having data that is clean, well-organized and compliant with regulatory standards—essential prerequisites for deploying AI effectively. Unfortunately, many enterprises find themselves struggling with data that is fragmented, inconsistent and not easily accessible. This lack of readiness can impede their ability to leverage AI to its fullest potential, creating a significant barrier to the adoption of these advanced technologies.

This is where service providers are stepping in.

37%

of providers offer a service known as a “data fix solution.”

Data fix solutions can be particularly valuable for enterprises that lack the internal resources or expertise to tackle these challenges on their own. Service providers bring specialized knowledge and experience to the table, enabling them to quickly identify and address data issues that might otherwise take years for an enterprise to resolve internally.

Data fix solutions typically fall into two categories:

1

A comprehensive data fix solution across the enterprise, including an assessment of the data landscape followed by targeted actions to clean, organize and standardize the data. This solution usually centers around the concept of creating a data catalog as the backbone with which all governance and data lineage are aligned.

2

A selective data fix solution that supports a specific use case where the data governance, quality and monitoring are often part of an overall AI solution workflow.

The reason why governance solutions are not becoming widely adopted is simple: their capability to succeed is widely determined by how effective they are at targeting the specific business use cases that drive value from AI and data.

Generic approaches to solving data governance problems can go only so far, and as we see this line of offerings mature, we are likely to see more specialized, industry-specific solutions emerge.

While integrating AI into data governance and management tools promises benefits, many enterprises are not yet ready to fully leverage these technologies. For these enterprises, data fix solutions offered by service providers can be a critical step in preparing their data for AI, ensuring they can take full advantage of the opportunities that AI presents. As the landscape continues to evolve, the importance of being data ready will only grow, making these solutions increasingly vital for success in the digital age.

Even with the most advanced AI capabilities, the success of AI adoption hinges on user trust in AI recommendations. To build this trust, enterprises must maintain data pipeline observability. Observability ensures transparent tracking of data transformations from ingestion to final utilization, preserving data quality and lineage. In the past year, there has been an increasing focus on data quality initiatives and efforts to break down data silos. Companies are fostering collaboration between data teams and information management teams to create a unified data platform, which is essential for establishing trust in AI outputs.



Navigating Tough Terrain

Risks of GenAI for the Enterprise

GenAI promises advancements in automation, creativity and efficiency, but also comes with significant risks that enterprises must address. Nearly 4 in 10 enterprises cited data privacy and security among the biggest inhibitors to adopting AI. Almost one-third of enterprises cited performance of the tool and quality of outcomes (e.g., erroneous results) and an equal amount cited legal risk. These are three prominent risk categories, but there are others as well. Many of these risks are substantial and, in some cases, not fully understood by the enterprises deploying these technologies.

The risks associated with GenAI are real and significant. The outcomes associated with these risks can include exposure to security vulnerabilities, operational inefficiencies and ethical dilemmas. Some enterprises may not even be fully aware of all the potential dangers posed by implementing GenAI solutions.

While software and service providers are investing heavily in improving their AI capabilities, many are still in the process

of fully developing their AI risk management strategies. As a result, enterprises must maintain a posture of awareness as they collaborate with vendors to address the complex challenges posed by AI deployment. Vendors are rapidly enhancing their tools and frameworks, but the development and integration of comprehensive risk management solutions are still in progress. To address this reliance gap, enterprises themselves must take a proactive approach, which includes investing in in-house expertise, developing robust AI governance frameworks and continually monitoring the AI landscape.

The value AI can provide to an enterprise is too great to ignore, but the risks cannot be ignored either. Enterprises should ensure they have a comprehensive AI governance program in place and be vigilant in incorporating risk assessments and prevention measures to protect themselves.

Data Source: ISG 2024 MarketLens™ GenAI Use Case Study

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Eight key risks warrant highlighting

Hallucination/accuracy: GenAI models can produce content that appears plausible but is factually incorrect or entirely fabricated.

Bias: AI models trained on biased datasets can perpetuate or even exacerbate existing biases.

Toxicity: Toxicity occurs when an LLM produces toxic content such as insults, hate speech, discriminatory language or explicit material.

Prompt injection: Adversaries can manipulate AI by injecting malicious prompts that alter its behavior, leading to security breaches or misinformation.

Hijacking: GenAI systems can be hijacked by malicious actors to generate harmful content or misinformation.

IP infringement: AI-generated content may inadvertently infringe on intellectual property rights.

Privacy: GenAI might inadvertently disclose sensitive information or violate privacy regulations.

Regulatory compliance: Complying with the broad range of emerging AI regulations is a daunting task.

AI Compliance: A Global Perspective

AI regulation is not confined only to the EU AI Act and the European Union. In reality, numerous regulations governing the use and implementation of AI are either in place or being proposed worldwide. The expanding roster of legislative frameworks not only impacts AI itself but also affects the surrounding systems involved in data ingestion and decision-making.

Similar to the principle of security by design, businesses, software providers, implementers, service providers and all stakeholders in the value chain should integrate governance, risk and data ethics into their AI design processes. The excitement surrounding AI innovation can lead to deviations from compliance, underscoring the need to embed compliance measures into products and services from the outset.

As legislation develops and regulators work to respond to a dynamic market, enterprises must stay current with the regulatory environment while also tracking the compliance mechanisms necessary to meet those demands and the pulse of consumer expectations. In the EU, where legislation can often feel overwhelming, companies that start with a clear understanding of consumer needs, coupled with transparency across the supply chain, are better positioned to demonstrate their compliance efforts to regulators. Maintaining a thorough understanding and catalog of the

use of AI across the business will enable an enterprise to more proactively address compliance.

It is imperative that responsibility for compliance is not left to individual enterprises within the network of partners and stakeholders. For instance, the EU AI Act and the Digital Operational Resilience Act (DORA) mandate that third-party providers disclose their operational resilience capabilities. These frameworks also spell out the need to manage the entire supply chain, which requires reporting and oversight to mitigate downstream impacts. **A breach or security incident does not solely harm the provider; its repercussions spread across the entire ecosystem, as consumers may struggle to delineate where the failure originated.** This summer's CrowdStrike incident dramatically illustrated this concept as travelers stuck in airports pointed at the airlines, who pointed at Microsoft, who pointed at CrowdStrike.

Enterprises strengthen their compliance footing when they focus on clarifying their purpose and value, understanding user expectations and ensuring those expectations are integrated across all stages of their operations. When considering potential providers, enterprise leaders should prioritize inquiries that assess the necessary compliance measures across the supply chain, ensuring that all stakeholders are aligned and prepared for regulatory obligations.

Embracing compliance as a core business principle will not only enhance operational integrity but also build trust with consumers and regulators, ultimately paving the way for sustainable AI innovation.

New Frontiers of AI Governance

As GenAI becomes more integral to business operations, enterprises must design robust AI governance frameworks.

Yet, despite its criticality, AI governance remains a relatively low priority for many enterprises, with fewer than 25% of enterprises ranking AI governance among their top five priorities.

The landscape of AI continues to evolve at a rate beyond all other technologies, and due to the rapid nature of this change, good governance has never been more important. Historically, many of the AI applications used in the enterprise were specific and contained, but the advent of GenAI has expanded AI's reach, embedding it into everyday workflows. This widespread adoption underscores the necessity for robust governance.

One of the fundamental challenges in AI governance is the lack of a universally accepted definition. What actually constitutes effective AI governance? What goals should it achieve? These questions remain unanswered in many quarters, and though many enterprises are deploying AI governance in various forms, there is such a wide array

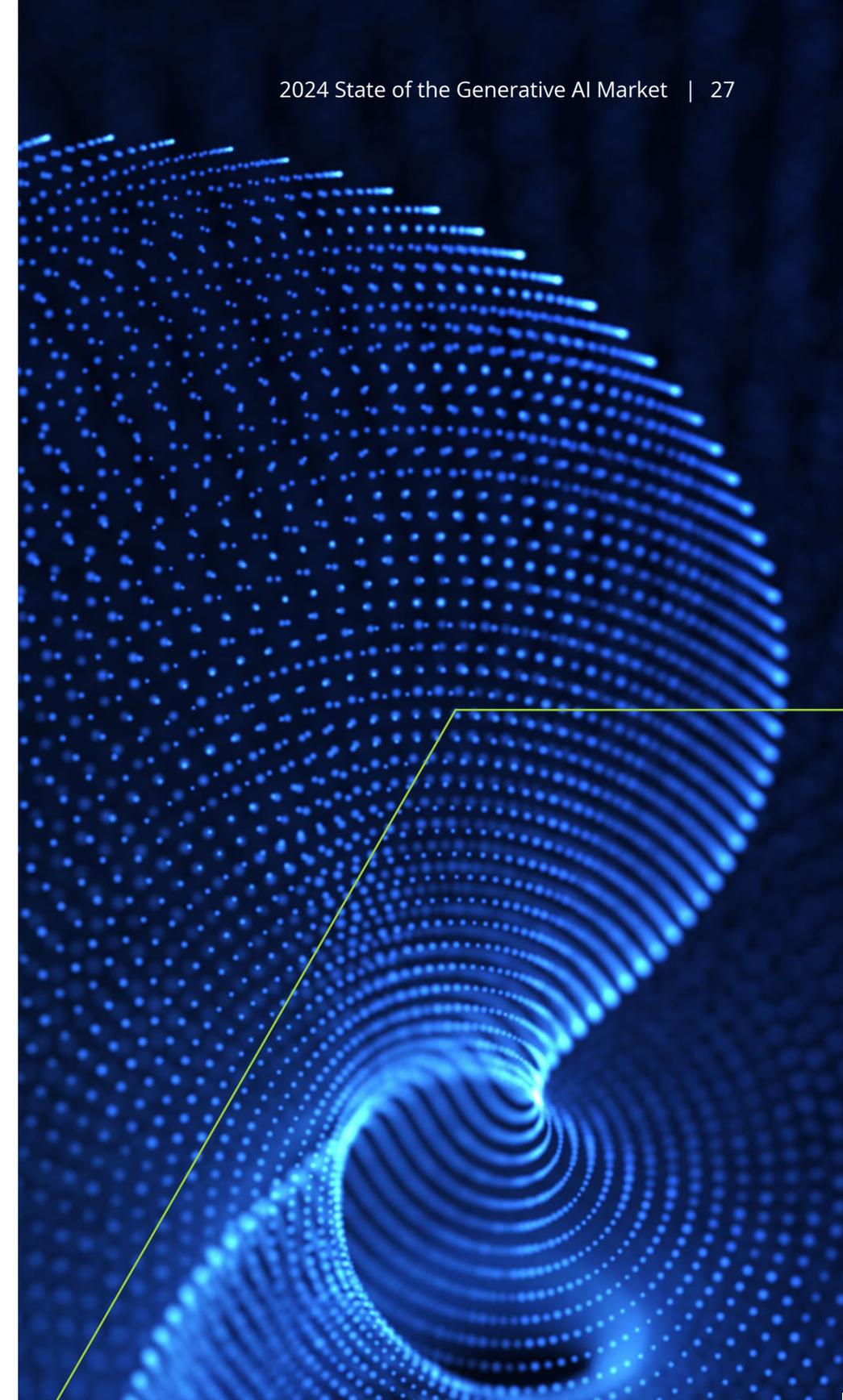
of deployments to date that definition around what AI governance entails is far from settled.

Enterprises have relied on their service providers to provide AI governance as often as they do it themselves, further highlighting not just a lack of agreed direction, but also of a shortage of skilled professionals. Implementing and managing AI governance requires a unique blend of expertise in AI technologies, ethics, compliance and risk management. However, this multidisciplinary skill set is rare at present.

Enterprises struggle to find and train personnel who can bridge the gap between technical AI development and the ethical, legal and operational considerations necessary for governance. As a result, they must rely on external support more than they would ordinarily like to.

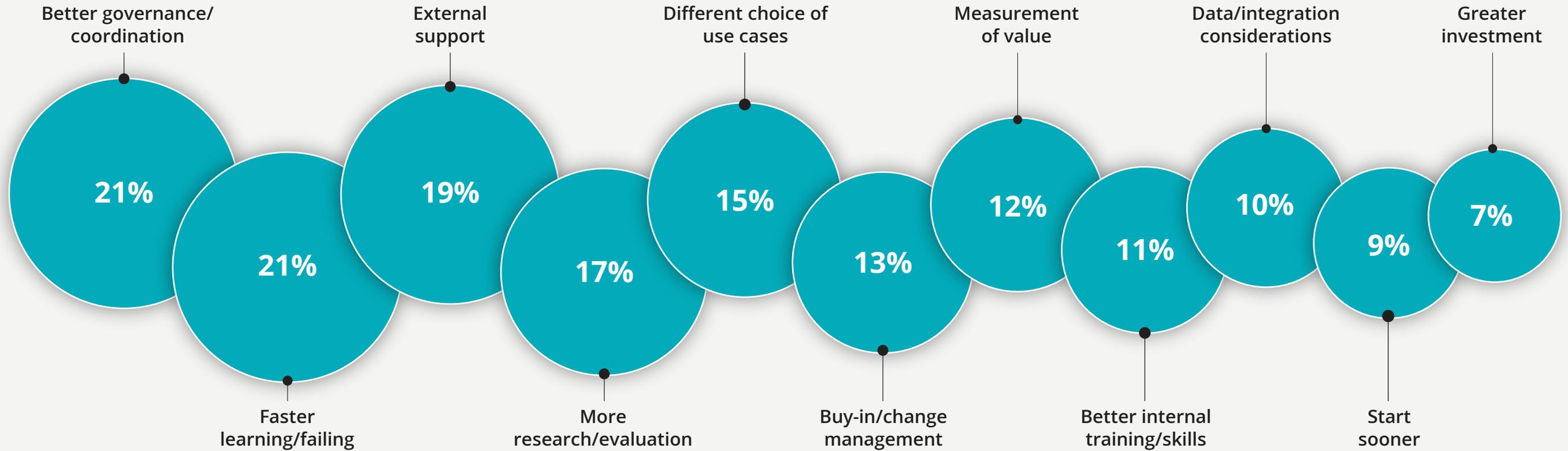
AI governance is no longer a futuristic consideration but an immediate necessity due to the rapidly increasing number of deployments of GenAI. Despite its growing importance, many enterprises still do not prioritize it sufficiently.

The lack of a clear governance definition, the skills gap and the need for comprehensive frameworks present significant challenges. However, addressing these issues is crucial for harnessing the full potential of AI responsibly and ethically. As AI continues to evolve, so too must our approaches to governing its use, ensuring it serves as a force for good in society.



When asked what they would do differently to enhance value or accelerate time to value in a significant GenAI initiative, one of the top responses from enterprises was the need for improved **governance** and **coordination**.

What would you do differently?



Data Source: ISG 2024 MarketLens™ GenAI Use Case Study

Ethical Approaches to GenAI

Every enterprise today needs an ethical AI framework rooted in sociotechnical principles. The best of these frameworks will transcend legislation, focusing on shared responsibility within AI operations to promote an ethical foundation from the outset.

The integration of responsible data usage is a fundamental aspect of AI design. Establishing accountability during the design phase allows enterprises to prioritize ethical practices, ensuring that the implications of AI align with corporate values and enhance customer satisfaction rather than detracting from it. For example, some companies are replacing customer-facing employees with AI to reduce costs. While this may improve efficiency, it raises questions about its impact on user experience and company values.

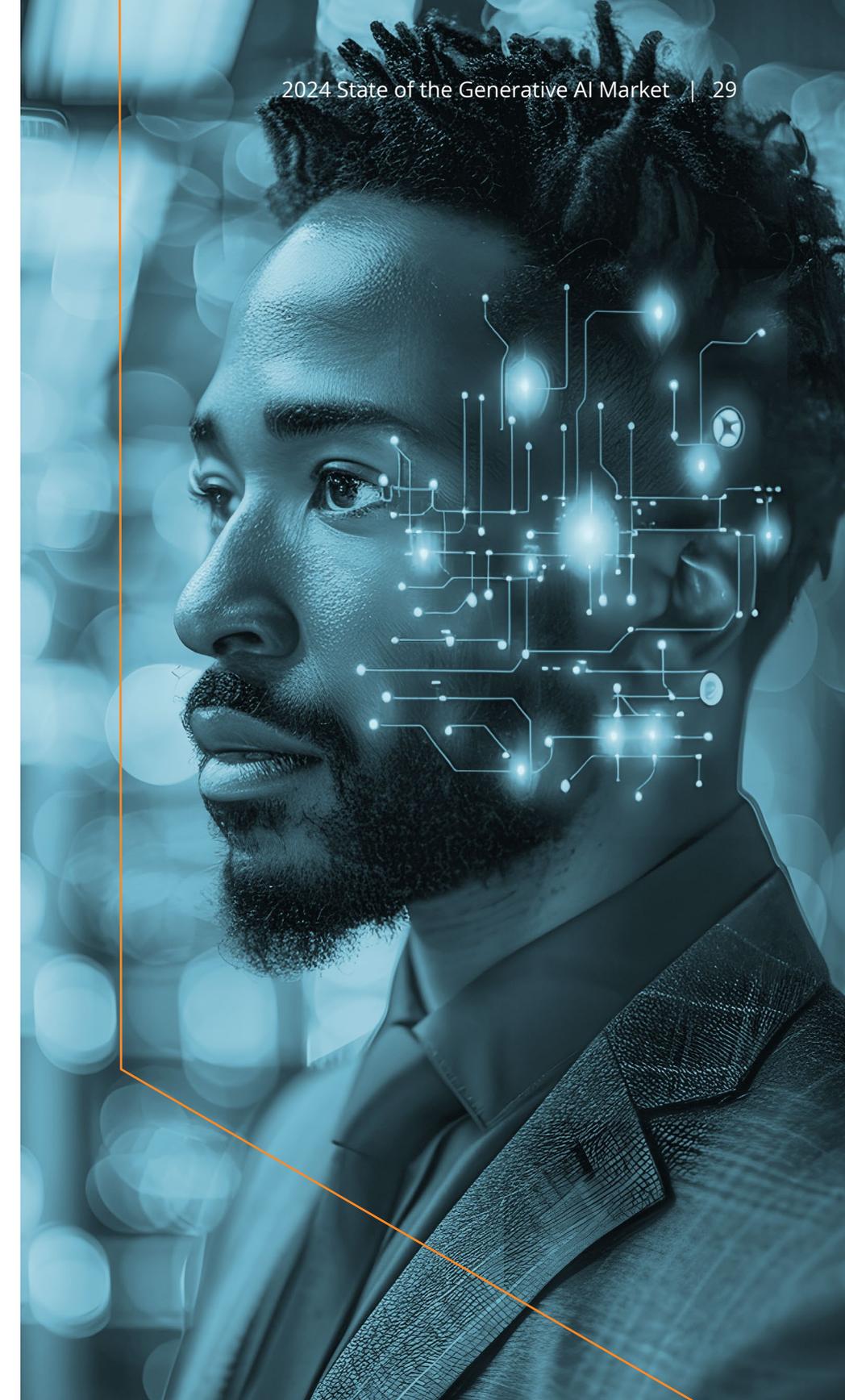
Safety measures are imperative in case AI technology behaves unpredictably. Enterprises should seek informed consent from both employees and customers regarding data handling and its benefits. Preemptive strategies can address potential issues such as algorithmic bias, inaccurate outputs and the overall potential for harm.

Transparency and explainability are essential in the use of AI. **Companies that openly communicate how AI is deployed are likely to build stronger trust among all stakeholders.**

Accountability for ethical usage falls on technology owners, who are responsible for overseeing AI's role within products and ecosystems, engaging with the appropriate communities, and ensuring transparency throughout the design and implementation processes.

Understanding AI's effects on human behavior will smooth adoption. Users are inclined to embrace technologies that enhance processes rather than those that require a complete relinquishing of control. Engaging diverse stakeholders will foster a more comprehensive understanding of how to responsibly and successfully deploy these tools, both now and in the future.

By prioritizing ethical AI practices, enterprises can navigate the complexities of automation while staying true to their stated values and meeting the expectations of employees and customers alike.



Differentiation in a World of GenAI

As GenAI proliferation accelerates, enterprises and service providers need to rethink how to use technology to differentiate from the competition. Early adopters of GenAI may enjoy a brief technological advantage, but it appears that adoption will be nearly universal.

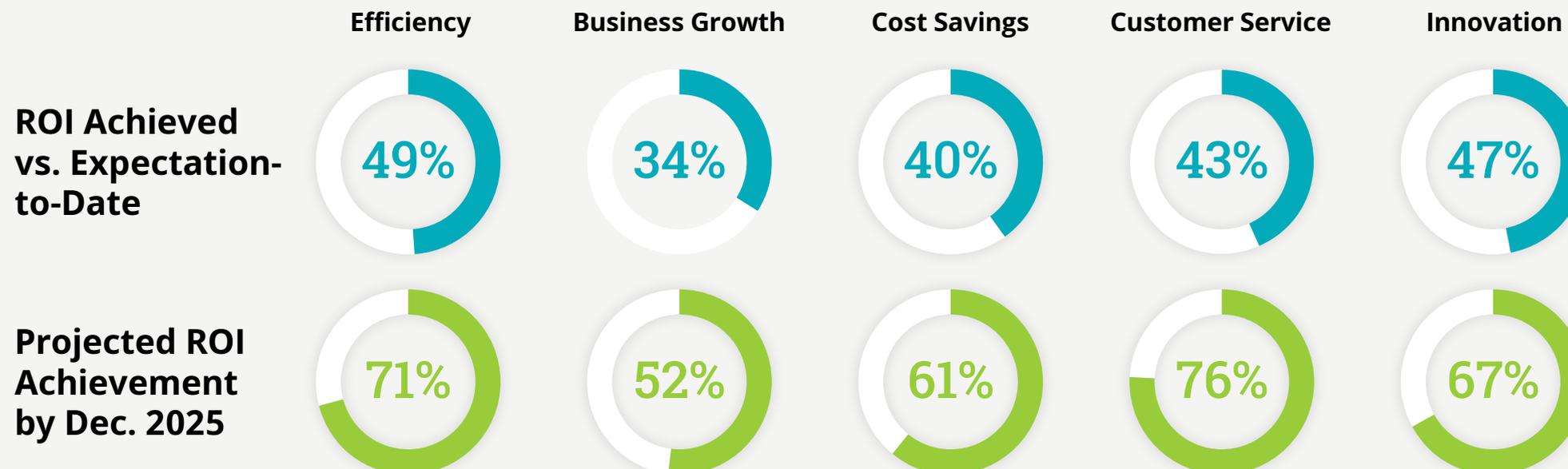
This means that expertise in applying AI may also provide some differentiation in the near term. But in the long run, the market will reach equilibrium and skills will be more widely available. In the meantime, service providers can fill in the gaps.

Algorithms are not likely to provide a sustained advantage either. Most algorithms, and even the models they produce, are widely available in the open-source community. While there is continual refinement in the algorithms, we've reached the point where the algorithms are not a major source of differentiation. The performance of open-source models is converging with proprietary ones. Given that scenario and the cost of training LLMs, few enterprises will make the investment necessary to create their own GenAI models.

We currently see a lack of AI skills within enterprises, as only 23% of enterprises report that they have personnel with the requisite skills. Put another way, over half (56%) of enterprises identify the lack of AI skills as a key inhibitor to GenAI adoption, more than any other factor.

Enterprises have many initiatives, and in 2024 they spent, on average, \$2.6 million on their single largest use case. **These enterprises report they expect to increase their spending on GenAI by 50% in 2025.** Think your customer service chatbot will create a competitive advantage? More than half the participants in our research (53%) are creating customer service chatbots.

Data Source: ISG 2024 MarketLens™ GenAI Use Case Study; ISG Analytics and Data Benchmark Research



In this world where algorithms and models are nearly universal, and all applications are AI-enabled, how can an enterprise achieve differentiation?

Data and business processes become the differentiators. Each enterprise has a unique set of data and can use that data to enhance its operations and customer interactions. In the longer run, your data will provide the key differentiation. The more data, and the better data an enterprise has, the better its AI results will be.

No other enterprise has access to all the data that drives your enterprise. Therein lies the opportunity to differentiate in the world of generative AI.

It will be critical to know how to apply AI and to identify a source for those skills, whether internal or external. But it will be more critical to collect, curate and manage data to feed models to produce accurate results. It will be critical to know how to interpret those results. It will also be critical to think in innovative ways about how to use the data to create new or improved business processes.

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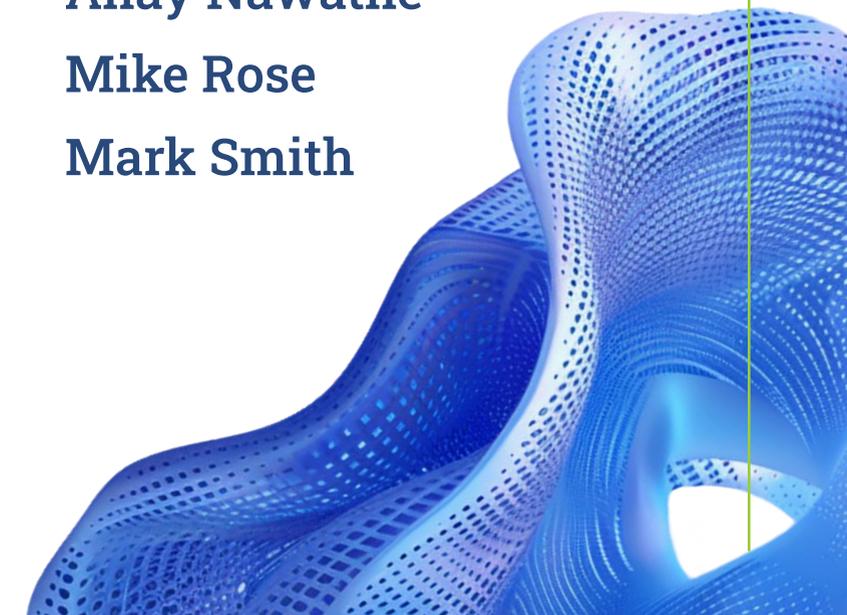
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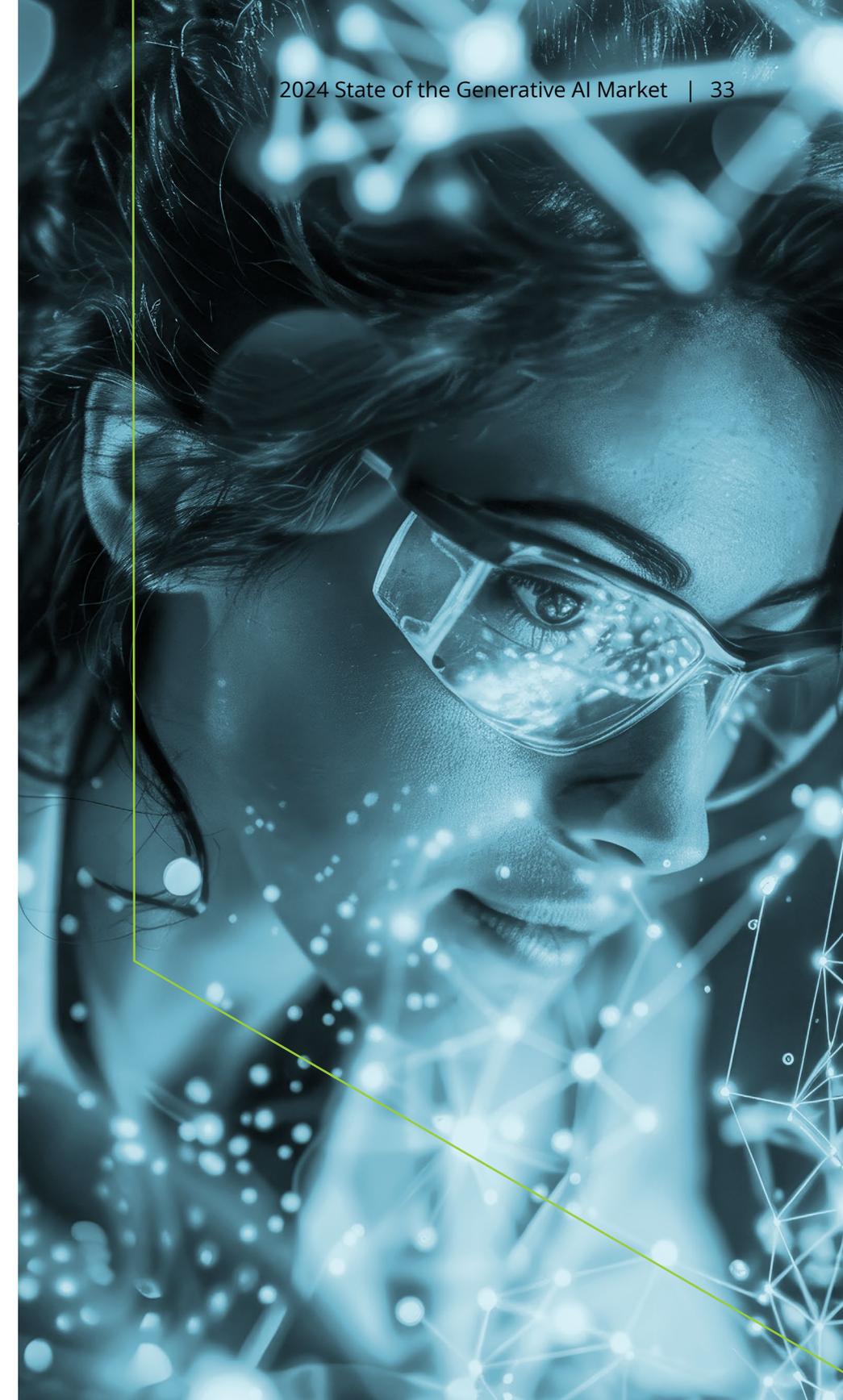
About the research cited in this report

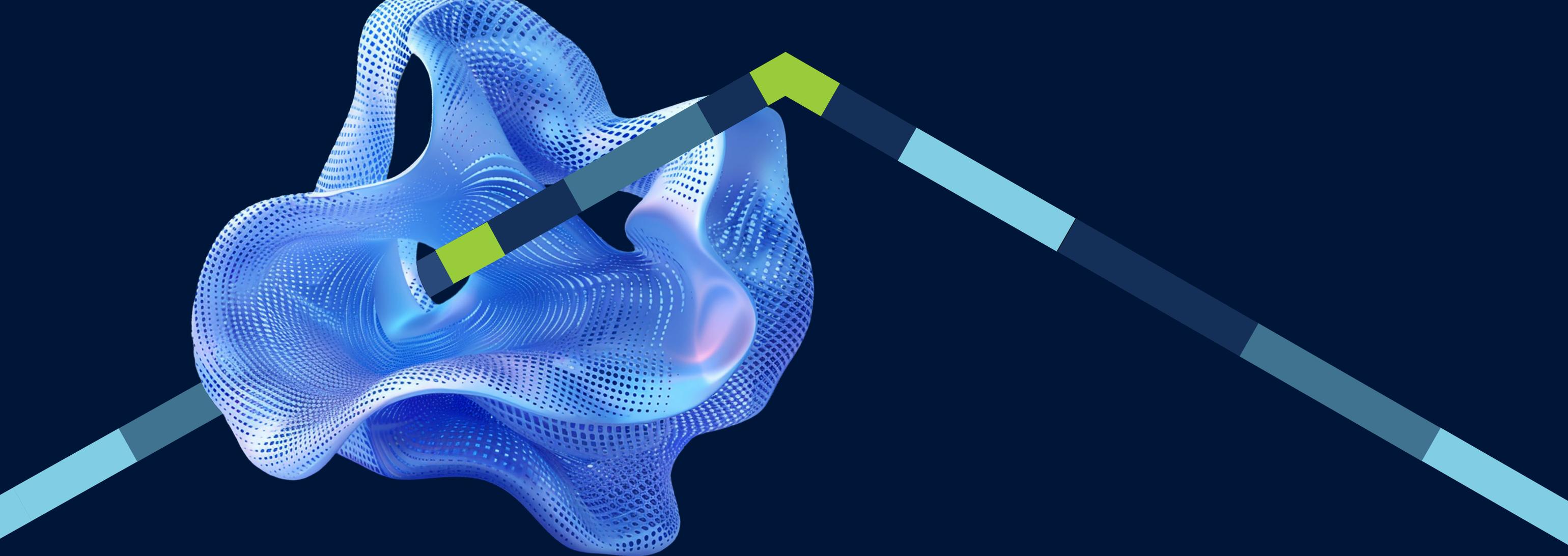
Research data cited in this report comes from the following sources:

- ISG 2024 MarketLens™ GenAI Use Case Study
- ISG 2024 MarketLens™ AI Study
- ISG 2024 GenAI Software Development Study
- ISG 2024 ProviderLens™ GenAI Study
- ISG Analytics and Data Benchmark Research

The 2024 GenAI Use Case Study was conducted in August 2024. 201 C-Level, Information Technology, Sales & Marketing, Line of Business, Finance, Shared Services operations, Legal/Compliance & Human Resources individuals were surveyed from a cross-section of industries including: Banking, Financial Services & Insurance, Manufacturing, Healthcare, Retail, Consumer, Travel, Transport & Hospitality, Media, Business Services, Chemicals & Energy and Public Sector across 10 regions.

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