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Capturing the Generative AI Pulse

An Exploration of the CIO Mindset

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Contents

Introduction

Today's enterprises are navigating a paradigm shift as they integrate next-generation technologies to make their operations more intelligent and autonomous. Generative AI, with its ability to develop new content in various forms and modalities, stands out as a transformative force among many other new and intriguing technologies – gen AI promises to revolutionize the way businesses make decisions and generate and engage with content.

In this report, we examine the current level of gen AI maturity within enterprises and share insights into key user industries and use cases. In considering these insights, it is essential to appreciate that factors such as organizational readiness, ethical considerations, regulatory compliance, and the fast-paced evolution of the technology all play crucial roles in determining the success and sustainability of gen AI efforts. This report outlines three distinct waves of gen AI adoption for enterprises and key considerations for Chief Information Officers (CIOs) to keep in mind to progress from the initial wave.

The findings in this report are based on collective insights from a CIO survey, conducted by Everest Group, Yates Ltd., and CalypsoAI, coupled with insights from Everest Group's internal research and perspectives. As part of this study, 50+ CIOs were jointly interviewed for their perspectives on current adoption maturity, key strategies and challenges, and future investment plans in gen AI. In particular, we found that:

- Nearly 83% of global enterprises are either actively testing its capabilities through pilot programs or have already adopted gen AI for one or more production-grade use cases
- Accelerating consumption of existing tools, reducing knowledge latency, and shortening the product development lifecycle are the top three objectives CIOs are trying to achieve through gen AI
- As many as 64% of enterprise leaders feel that the fast-evolving and confusing technology landscape is among the top three challenges for them to scale their gen AI initiatives

Current state of enterprise gen AI adoption

As we wrap up 2023, the year of gen AI, several questions have picked interest – not least of which are: Has gen AI proven to be more than just a passing trend? Has it successfully penetrated enterprise adoption? If nothing else, it has managed to find its way into every organizations' boardroom conversation at some point this year. Our analysis shows that a staggering 83% of global enterprises are either actively testing its capabilities through pilot programs or have already adopted gen AI for one or more production-grade use cases. Exhibit 1 shows the current level of gen AI adoption across enterprises.

EXHIBIT 1

Status of enterprise adoption* of gen AI

Source: Everest Group (2023)

61%
Actively exploring and piloting gen AI

22%
Have deployed gen AI for at least one or more processes

15%
Planning to pilot gen AI soon

2%
Have not discussed it yet

*Analysis based on percentage of responses by enterprise leaders

This widespread interest in gen AI goes beyond business operations. Venture capitalists, recognizing its transformative potential, have poured billions into developers of gen AI technology in 2023 alone. Moreover, governments and regulatory bodies are increasingly engaging in discussions and formulating policies both to support and regulate the responsible development and deployment of gen AI. This collective interest from various stakeholders demonstrates the profound impact gen AI is already having on companies, economies, and society at large.

With its ability to autonomously create, manipulate, and synthesize new content that did not exist before in various forms and modalities, gen AI is catalyzing profound transformations across industries and functions. While we anticipate that it will eventually influence every industry and function to varying degrees, specific cases have progressed to production-grade implementation. Exhibit 2 outlines the key gen AI applications that have demonstrated success in the initial production phases and are currently transitioning toward scaled implementations.

EXHIBIT 2

Top three gen AI areas that have gained substantial adoption

Source: Gen AI CIO survey conducted by Everest Group, CalypsoAI, and Yates (2023)

Use case	Description	Illustrative scenarios
Content creation and preparation 	• Leveraging foundation models to create human-like text, images, or other forms of content • Key sub use cases include creative writing, email generation, image generation, auto-completion, language translation, report generation, and conversational agents	• Accor has partnered with Prasee to create marketing messages across the digital customer journey for maximized ROI • Yahoo Mail is integrating gen AI features such as auto-completion, email summarization, and personalized search • Shopify has launched Shopify Magic, which automatically generates product descriptions
Knowledge management 	• Involves the use of foundation models to understand complex queries expressed in natural language to generate relevant, context-aware responses considering the broader context of the organization's data • Key sub use cases include context-aware search, summarization, conversational employee interface	• Google Cloud and the Mayo Clinic have partnered on gen AI-driven healthcare data search functionality with conversational features • Anheuser-Busch InBev, Nestle, and General Mills are using GPT 4 for consumer goods business intelligence discovery • Morgan Stanley is testing gen AI to help its financial advisers leverage insights from the firm’s more than 100,000 research reports
Software development 	• Leveraging gen AI to automate the Software Development Life Cycle (SDLC) • Key sub use cases automatically generating code snippets, scripts, or even entire programs based on natural language descriptions or high-level requirements	• More than 10,000 organizations have signed up for GitHub Copilot, including Coca-Cola, Duolingo, and General Motors • Goldman Sachs is using ChatGPT-style AI in house to assist developers with writing code

> Finding and humanizing organizational knowledge is 75% of any organizational task.
>
> – CIO, Fortune 500 industrial manufacturing company

Top use cases by industry

While enterprises are exploring net-new gen AI use cases, gen AI also enhances traditional AI applications. An illustrative example is its substantial impact on the global intelligent search market, which is transforming the way we seek information. However, we advise using caution in determining the appropriate use of gen AI, given its significant cost implications. For instance, the utilization of large foundation models, the driving force behind gen AI, may not be prudent in scenarios with limited generative requirements, such as financial fraud detection.

Although enterprise adoption of gen AI is far from its anticipated peak, enterprises continue to experiment with unique use cases. The transformative impact of gen AI on the operational and innovative aspects of businesses spans industries, including high-tech, Banking, Financial Services, and Insurance (BFSI), Healthcare and Life Science (HLS), and Retail and Consumer Goods (RCG). Exhibit 3 details innovative gen AI use case experiments that are likely to gain high adoption in coming years.

EXHIBIT 3

Top gen AI use cases being explored across industries

Source: Gen AI CIO survey conducted by Everest Group, CalypsoAI, and Yates (2023)

ILLUSTRATIVE

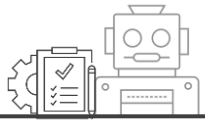
Industries	Key industry use cases				
BFSI	• Report summarization • Unstructured data summarization	• Financial bots • Insurance bots	Synthetic data for risk simulation	• Contract assistant • Underwriting	Claims processing
Hi-tech	Conversational UI/UX	Content generation and summarization	Personalization		
HLS	Medical data summarization	Clinical documentation	Healthcare bots	Medical report generation	Drug research and discovery
M&E	• Writing assistant • Article summary	• Synthetic voice • Text-to-music	Image/Video creation and enhancement	• Game development • AI avatars	AI-generated media posts
RCG	Generating product descriptions	• Customer interaction bots • Order processing	Personalization	• Sentiment analysis • Product personalization	• New product designing • Sketch-to-design

EXHIBIT 3 (continued)

Top gen AI use cases being explored across industries

Source: Gen AI CIO survey conducted by Everest Group, CalypsoAI, and Yates (2023)

ILLUSTRATIVE



Horizontal use cases

IT	• Code generation • Text-to-SQL	Synthetic datasets for model training	Test cases generation	IT document creation	Website development
Customer service bots	Customer service bots	• Call notes creation/ • Summarization	Automatic email responses for customer queries		
Employee experience	Enterprise search	• Employee assistance bots • CRM bots	Automatic emails	Automatic slide generator	
Human resources	• Policy draft creation • Contract creation	AI-generated job descriptions	L&D content creation		
Finance and accounting	Financial statements preparation	Contract assistant			
Sales & marketing	Campaign and advertisement creation	Content personalization	Media posts and promotional content		

> As long as it does not degrade quality, what I am prioritizing are use cases where gen AI delivers improved velocity.
>
> – CDO, global health insurance company

Despite immense potential, enterprises face critical challenges in scaling gen AI

Despite high interest, most enterprises face significant challenges to implement and scale gen AI. The underlying limitations of the technology, such as potential biases, lack of industry-specific expertise, and difficulties in fine-tuning for specific use cases, hinder its adoption, precluding it from having the truly transformative impact of wider application. Hence, to drive broader industry acceptance, there

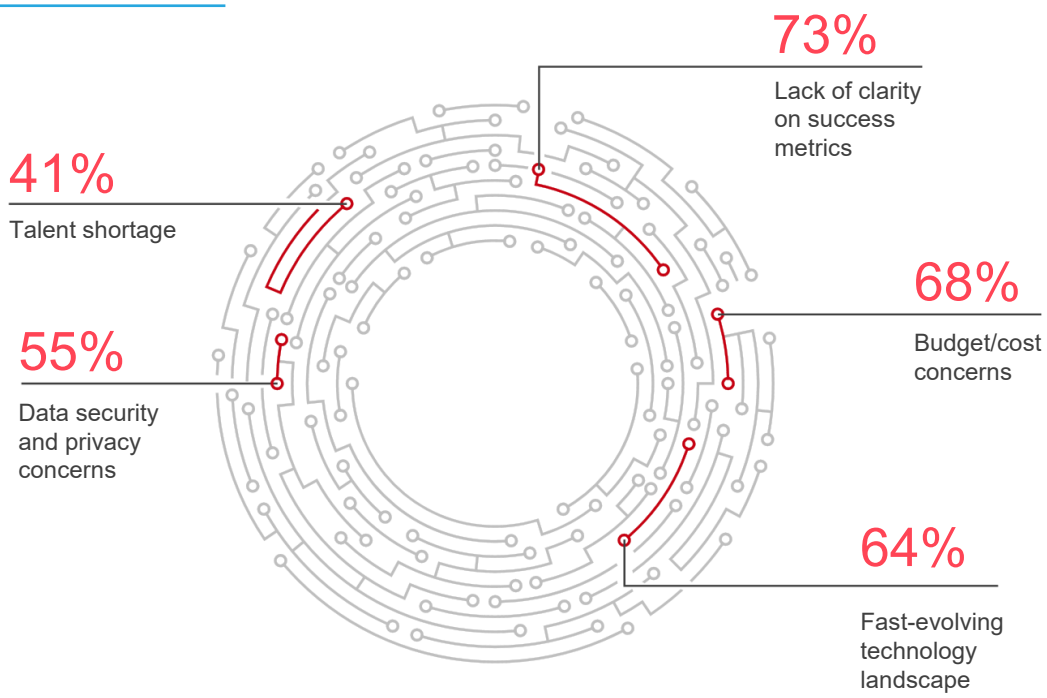
need to be demonstrable gen AI use cases that show measurable value and address different businesses' unique requirements; this scenario would propel gen AI beyond its current role as a captivating conversational tool into a more integral and impactful element of enterprise operations.

Exhibit 4 shows the critical challenges enterprise leaders face in scaling their gen AI initiatives.

EXHIBIT 4

Top challenges CIOs face in scaling gen AI

Source: Everest Group (2023)



Percentage of enterprise leaders who counted the specific challenge as one of the top three concerns

Expected enterprise journey: three waves of gen AI adoption

Depending on their current technical maturity and other factors, enterprises find themselves at various stages of gen AI adoption. This adoption journey can be characterized by three distinct waves, reflecting the evolving landscape and differing levels of comfort and readiness among enterprises.

Exhibit 5 describes the three waves of gen AI adoption and their distinct characteristics.

> Your gen AI output needs to be based only on data you have access to.
>
> – CDO, global M&E conglomerate

EXHIBIT 5

Three waves of enterprise gen AI adoption

Source: Everest Group (2023)

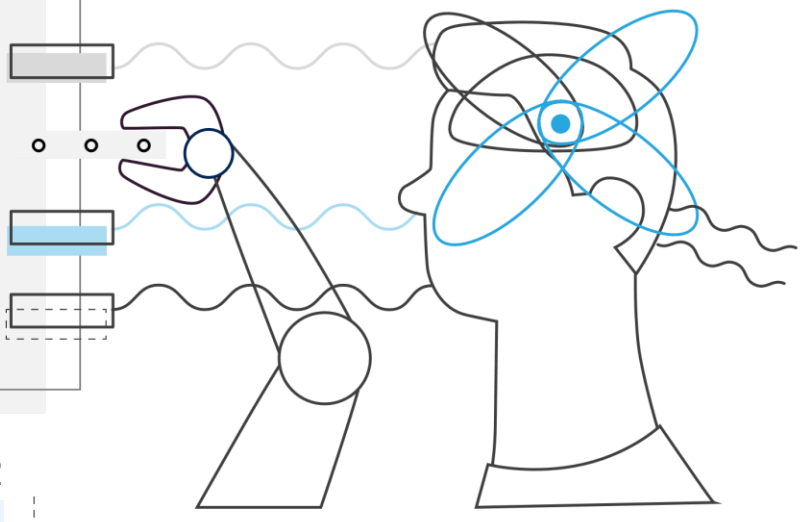
Wave 1

2023 and before

Pilot programs: Enterprises engage in small-scale pilot projects and experiments to understand the capabilities and limitations of gen AI

Embedded offerings: Focus is on embedding gen AI into existing tools/functionalities as add-on functionality

Employee awareness: Enterprises invest in initiatives to build awareness among employees about gen AI technologies



Wave 2

2024 to 2025

Wider implementation: Enterprises-wide scaled pilots and early production-grade implementations

Optimizing outputs: Enterprises focus on optimizing the performance of gen AI models, fine-tuning them for specific tasks and improving efficiency

Platformization: Initial adoption of enterprise AI platforms to manage and orchestrate gen AI solutions across stakeholder groups

Digital transformation 2.0:

- Scaled gen AI-specific hiring and upskilling
- Change management initiatives
- Focus on strengthening data foundation
- Building guardrails and standards of AI adoption

Wave 3

2026 and beyond

Scaled Adoption: Gen AI is implemented across various departments and functions within the enterprise, leading to widespread usage

Tailored Solutions: Enterprises innovate and create custom-built gen AI solutions to meet specific business needs

Platformization 2.0: Wider adoption of enterprise AI platforms to manage and orchestrate gen AI solutions across stakeholder groups

Though most enterprises are in wave one of adoption, we have started to see a few technically advanced enterprises moving into wave two. This early sign of transition to wave two signifies a more committed approach to gen AI integration and innovation. For example, OCBC Bank announced its deployment of a gen AI-powered chatbot for its 30,000 employees across 19 countries after a successful six-month pilot, which resulted in a 50% reduction in employee time to complete specific tasks.

The success of the shift into wave two requires a comprehensive approach. Wave two demands a more nuanced strategy that incorporates technological advances, organizational readiness, and ethical considerations to unlock gen AI's full potential. In the following section, we explore key enterprise considerations that are important for this transition.

Winning the gen AI race – key enterprise considerations for advancing gen AI adoption

As organizations strive to transition from wave one to wave two of gen AI adoption, understanding and adopting effective success models is essential. Based on our interaction with leading CIOs, there are four critical considerations that define a successful gen AI strategy.

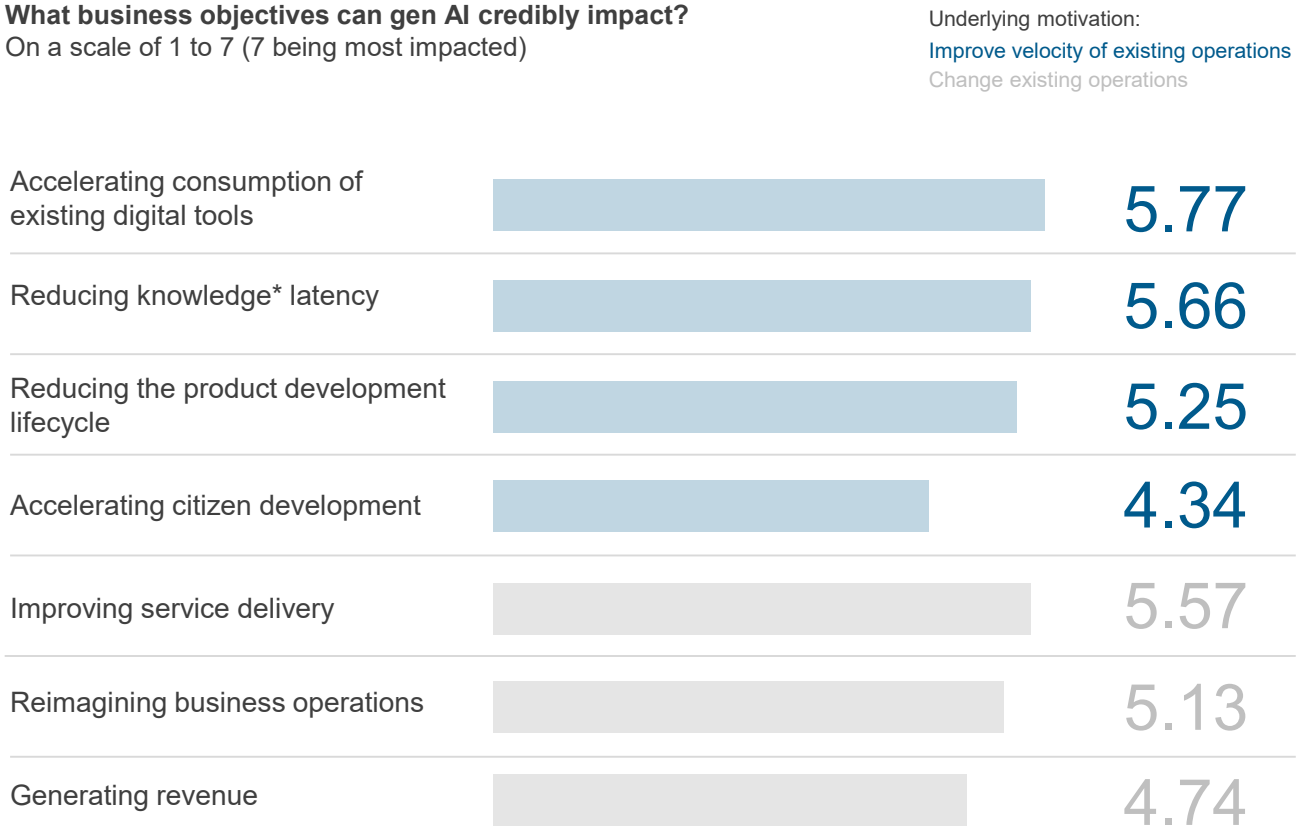
1. Crafting the right value equation

It is no surprise that gen AI is an expensive technology. As much as every enterprise leader wants to experiment with it, budget constraints are a serious hurdle, as we discussed earlier. On top of that, tracking and governing gen AI's usage are extremely challenging for enterprise leaders. Therefore, it is imperative to establish and translate the right business objectives into the right value equation to create a successful gen AI strategy. Exhibit 6 highlights CIOs' top objectives to drive value from their gen AI implementations.

EXHIBIT 6

Top business objectives impacted by gen AI

Source: Gen AI CIO survey conducted by Everest Group, CalypsoAI, and Yates (2023)



* Organizational knowledge management: executives, customers, employees, developers, functions

2. Ensuring digital preparedness

Assessing your digital maturity is critical to laying a strong foundation for gen AI, ensuring that the organization has the requisite technical maturity, streamlined processes, and data-driven culture necessary to maximize the impact of impact of gen AI over the long term. Foundation models powering gen AI, such as GPT, rely heavily on diverse and well-curated datasets for training. Furthermore, given that these systems integrate with the organization's existing technologies, it is important to ensure that the current technical infrastructure is updated and can support the needs of these next-generation systems. There are two crucial aspects of digital preparedness:

- **Priming your data foundation:** Data is core to any gen AI application. Foundation models such as GPT, Jurassic, Bloom, or others are trained on vast amounts of publicly available data. However, often, these models do not deliver enterprise-level results without being fine-tuned on company-specific data. Although the fine-tuning requires much less data than the initial setup, the quality data requirement is not insubstantial. While data quality has always been vital for enterprises, the importance of high-quality data has risen significantly in the context of gen AI. These changes are driving substantial interest in concepts such as data observability, which observes and ensures high quality throughout the data journey.
- **Making your talent gen-AI ready:** Gen AI has democratized access to advanced AI technology, allowing business users to experiment with it directly. However, non-technical workers are invariably less aware of technical nuances when engaging with technology; then need to be equipped with knowledge about the tech, its implications, and applications.
  - Technology: Business users must equip themselves with a solid understanding of the technology itself, including understanding the underlying algorithms, architectures, and frameworks that power gen AI systems.
  - Implications: Users need to be aware of gen AI's potential implications, including its potential risks and limitations, as well as its ethical and legal implications.
  - Applications: Finally, business users must be trained on prudent applications of gen AI that can generate long-term sustainable value for themselves and their organizations.

While it is important to spread AI literacy among business domains, doing so has been difficult given the lack of technical experts. The pace of this technology's innovation has outpaced the existing talents' learning curve, so it is important that enterprises train their in-house experts on the technology and develop an army of skilled experts to accelerate and scale gen AI initiatives when the industry or organization is ready.

The potential of gen AI to automate various tasks has sparked a debate about its impact on the workforce. While the technology is suitable to perform tasks such as creating synthetic data, summarizing extensive texts, and optimizing designs, it is crucial to acknowledge that these foundation models are only as good as the data they are trained on. Despite its capabilities, gen AI falls short in replicating human skills such as creativity, empathy, critical thinking, and decision-making. Hence, we strongly believe that the development, training, and supervision of gen AI should remain in human hands, with individuals taking accountability for these models' outputs.

3. Securing the perimeter

While this technology has virtually immeasurable upside, it also puts organizations at nearly unimaginable risk – exposure of confidential data, copyright infringement, and reputational impact to name a few. These risks highlight the importance of stringent security measures and clear processes to critically identify, assess, and identify and manage the impact of gen AI threats.

Exhibit 7 is a framework organizations can use to identify and assess key risks involved in gen AI adoption.

EXHIBIT 7

Gen AI risk framework

Source: Everest Group (2023)

Low Medium High

		Impact magnitude	Continuity and business impact	Trigger stage
01 Cyber and data security	Confidentiality – using confidential data for model training			
	Data leakages – exposure of private information	• Financial loss • Legal implications • Reputational damage	Existential threat	Data collection and storage
	Data reliability – incorrect output			
	Access management – access-aligned generative output			
02 Explainability	Trustworthiness			
	Hallucinations	• Social impact • Reputational damage	Product/service level threat	Model development and deployment
	Deepfakes			
	Data reliability and output accuracy			
03 Ownership and IP	Copywrite/Ownership – protecting gen AI-created IP			
	Accountability – legal issues arising due to incorrect data outputs or IP infringement	• Legal implications • Legal implications • Reputational damage	Product/service level threat	Post deployment
	Plagiarism – using copywritten data produced by LLMs			
04 Bias and ethical	Biased output			
	Unethical responses	Social impact	Limited/none	Training data and model training

To successfully embrace gen AI and make optimize its use, enterprises need a well-structured, enterprise-wide risk and governance strategy, which includes – but is not limited to – the following measures for preventing and mitigating risks associated with gen AI:

- Ensure a robust technical design by developing guardrails for handling and storing sensitive data used in training and inference, and integrating privacy-preserving techniques such as differential privacy to protect confidential data used in the training process
- Embed explainability and transparency by using models that are more interpretable and explainability tools that provide insights into large foundation models' decision-making processes
- Implement responsible AI practices throughout the gen AI development lifecycle, including data collection, model training, fine-tuning, and deployment
- Stay abreast of existing and emerging regulations related to AI and establish strong governance and compliance measures
- Implement continuous monitoring of gen AI systems and conduct regular audits to ensure ongoing compliance with ethical and regulatory standards

As many as 55% of enterprise leaders highlight data security and privacy as one of the top three gen AI challenge.

4. Selecting the right gen AI model

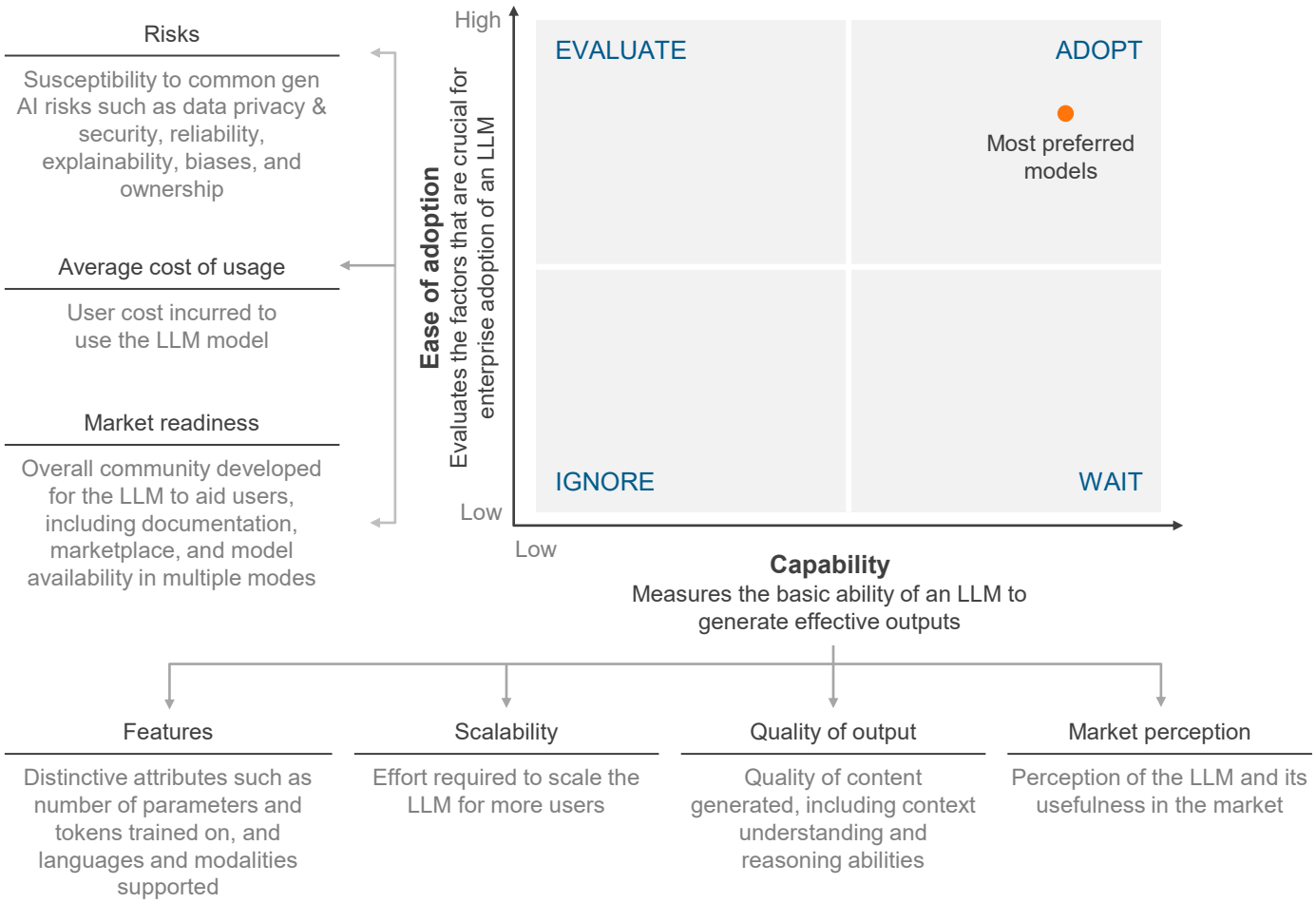
Foundation models, specifically Large Language Models (LLMs), are driving remarkable achievements across diverse language-related tasks; however, over the past couple of years, the market has been flooded with gen AI models, ranging from proprietary off-the-shelf to open-source options, designed for specific uses, industries, and functions. Hence, enterprise leaders may be challenged to select the best-fit vendor for their gen AI strategies. Meticulous vendor selection is, therefore, vital to successful and impactful implementations. It requires careful assessment of the vendor's expertise, particularly evaluating the model's performance on relevant benchmarks, adaptability, data security and privacy policies, and ensuring alignment with regulatory requirements.

Exhibit 8 is a comprehensive framework to assess the LLMs based on their capabilities and ease of adoption.

EXHIBIT 8

Framework to assess LLMs

Source: Everest Group (2023)



While it is important to assess the gen AI models, equally crucial is the alignment of a vendor's technological capabilities with an organization's unique requirements, supporting seamless integration into its existing infrastructure. Furthermore, evaluating the Total Cost of Ownership (TCO), including not only the initial implementation costs but also ongoing expenses related to maintenance, updates, and potential scaling, enables organizations to make financially astute decisions and foster long-term viability.

And last, it is important to be mindful that we are still in early stages of gen AI development and adoption, and as we progress from pilot to production, success models and best practices will continue to evolve.

Conclusion

As we enter 2024, we expect to see more enterprises making gen AI a strategic priority, moving past small pilots to larger and scaled implementations. This shift will demand enterprise leaders to cultivate data-driven cultures and invest in digital and data maturity. Further, as enterprises become more digitized, we believe more nuanced and tailored gen AI use cases will begin to emerge.

The way forward for enterprises embracing gen AI is to follow a path of innovation, responsibility, and adaptability. As the technology continues to evolve, enterprises that embrace gen AI with strategic vision will not only navigate today's challenges but also shape a future in which human-AI synergies will together new levels of creativity and productivity.

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