White Paper

The Enterprise's Guide for Generative AI

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IN THIS WHITE PAPER

Generative AI (GenAI) has captured the attention, imagination, and concern of most technology and business leaders across the world. While most artificial intelligence (AI) systems so far have been used for classifications and predictions, GenAI has the potential to change the way organizations operate, bringing in new types of efficiencies and innovation. GenAI is an important technology for organizations to get familiar with and adopt as soon as possible. An enterprise that applies GenAI could revolutionize its industry and transform the way it operates. GenAI will drive innovation and boost efficiency, and enterprises that embrace it could automate repetitive tasks, improve decision making, and personalize experiences for their customers and employees. To maximize the GenAI opportunity, enterprises need to partner with their technology ecosystem and prepare for AI and automation in all phases and areas of their organization.

According to a recent IDC worldwide survey in 2023, over 77% of organizations across the world are either exploring potential use cases or are investing significantly in GenAI technologies in 2023 (see Figure 1). GenAI has captured a lot of mindshare recently, but adoption in the enterprise is still relatively small right now. This means there is a big opportunity for the companies that act with GenAI. The ones that embrace it early stand to gain a significant lead in productivity, automation, customer satisfaction, and increased agility.

FIGURE 1

Organization Plans for GenAI

Q.   What's your organization's current approach to generative AI?
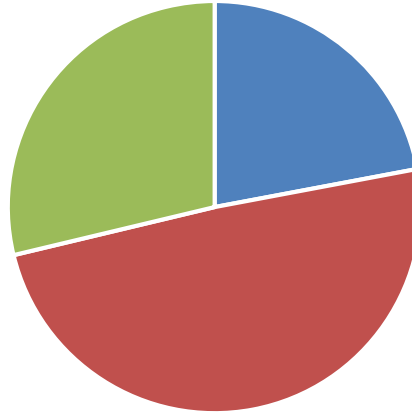
- We are not doing anything yet
- We are doing some initial exploration of potential use cases
- We are investing significantly in generative AI technologies in 2023

n = 890

Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 6*, July 2023

SITUATION OVERVIEW

Introduction

GenAI is a branch of computer science that involves unsupervised and semi-supervised algorithms that enable computers to create new content using previously created content, such as text, audio, video, images, and code in response to short prompts. GenAI is powered by foundational models, which are essentially a class of machine learning (ML) models that are trained on diverse data and can be adapted or fine-tuned for a wide range of downstream tasks including language, vision, software coding, and other capabilities.

Examples of generative foundation models include:

- OpenAI's GPT-3.5 and GPT-4 (large language models [LLMs]), DALL-E 2 (image model), and Whisper (speech recognition model)
- Hugging Face Bloom et al.
- Google's PaLM, LaMDA (Language Model for Dialogue Application) (large language models), and Bard

Where Should Organizations Focus?

GenAI is set to impact everything as we know it, both from a consumer and from an enterprise standpoint. GenAI is already having a meaningful impact today inside organizations. For example,

GenAI can work alongside employees and improve their productivity. GenAI can also work alone with minimal human involvement or by eliminating human labor altogether. The impact of GenAI is expected to be felt in the next 18 months throughout organizations at the business function level from software development and marketing to back-office functions like document summarization (see Figure 2). Organizations are already beginning to evaluate where GenAI can have the most initial impact to their business processes and are experimenting with GenAI tools to improve conversational AI, knowledge discovery, and even software development.

Several software vendors are now including GenAI-based code generation capabilities in their products. In addition, several vendors have announced or released "copilots," which act as digital assistants for software developers providing custom-made code based on the developer's needs. Other GenAI-based use cases include knowledge management applications, summarization, and even automated generation of content like blogs, emails, marketing sheets, and even manuals.

FIGURE 2

Where GenAI Will Have the Most Impact

Q.   *In which business area do you think generative AI could make the most impact in the next 18 months?*
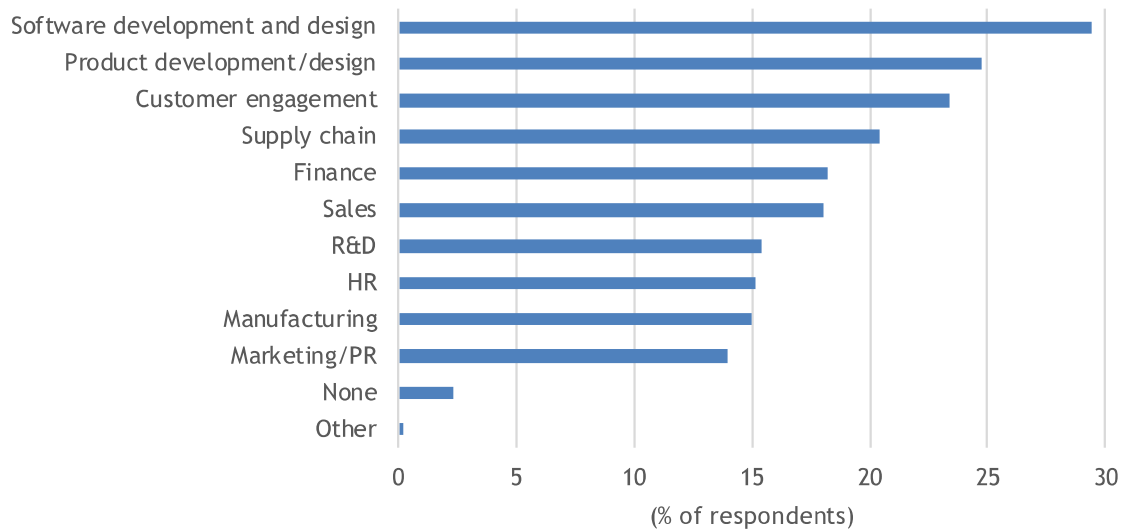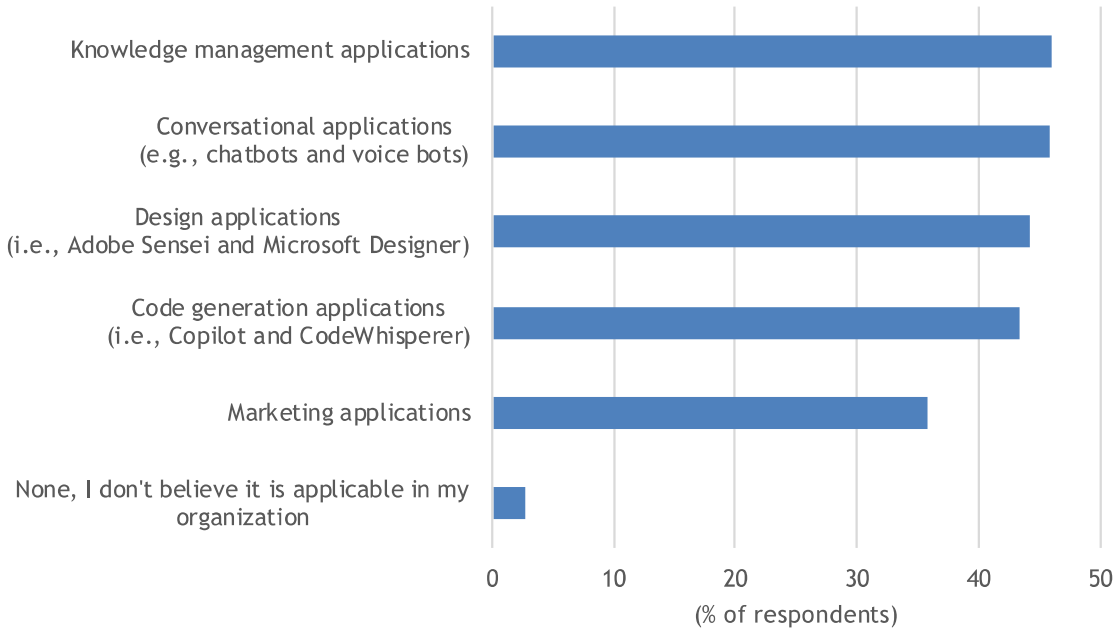

n = 890

Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 6,* July 2023

In addition, some of the most common use cases for GenAI are knowledge management, conversational AI (for HR, IT service desk, and sales), design applications, and code generation (see Figure 3).

FIGURE 3

GenAI Use Cases

Q.   What generative AI use cases do you anticipate having the most promise for your organization?

n = 890

Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 6,* July 2023

FUTURE OUTLOOK

The growth of AI in general and GenAI in particular has been explosive, since GenAI software is a subset of the overall AI software market. Both GenAI platforms and GenAI applications are seeing accelerated adoption, resulting in huge revenue increases. IDC projects that the worldwide GenAI platforms market will grow from $599 million in 2022 to $15.912 billion in 2026, representing close to 19% of the total AI platforms market (see Table 1). The worldwide GenAI applications will grow from $1.061 billion in 2022 to $20.8 billion in 2026, representing close to 31% of the total AI-centric applications market. According to a recent IDC survey, organizations will be spending an average of slightly more than $9 million on GenAI projects in the next year.

TABLE 1

Explosive Generative AI Growth

	Growth of Generative AI Applications and Platforms
Generative AI platforms market growth	
2022	599 million
2026	$15.912 billion
Generative AI applications growth	
2022	$1.061 billion
2026	$20.8 billion

Source: IDC, 2023

To Build or Buy GenAI

Large language models serve as the foundation for natural language processing and open new possibilities for analyzing and generating text. For example, large language models can be used to analyze sentiment, create conversational assistants, summarize text, translate text, classify documents, and generate textual content, inclusive of code used for programming. This ability of large language models to generate code has the potential to disruptively transform the development experience by creating intelligent suggestions to complete code or even generate entire digital solutions.

Not surprisingly, there's a very healthy and dynamic ecosystem around open source large language models right now, since everyone wants to do what OpenAI, Microsoft, and Google are doing, but most companies don't have the resources to which internet giants such as Microsoft and Google have access to. Pooling resources is one of the hallmarks of open source software, and it appears that open source will come to the rescue, creating a viable way for universities and start-ups to participate without signing their life away to OpenAI.

More and more organizations are considering building and developing their own proprietary foundation models using open source and their own internal data. Examples of this include Bloomberg's BloombergGPT, which provides a conversational interface around Bloomberg financial information as well as a financial services company that has developed a custom foundation model to do conflict of interest checking. To do this, however, organizations need to have skilled ML developers, adequate compute resources, and access to the data necessary for training.

However, many enterprises are already prototyping and using commercial foundation models for everything from question and answer to generating code. In addition, many native GenAI tools and

products are emerging into the market to assist with tasks such as generating emails for salespeople, writing marketing copy, and even helping generate designs for new products.

CHALLENGES

While GenAI holds huge promise for enterprises, it is important to acknowledge that the technology adoption currently has limitations and challenges, and an organization needs to be aware and handle these concerns (see Figure 4).

Security

Misuse

GenAI has the potential to produce misleading, harmful, or misappropriate content depending on the process used to create it. This content could be used for unethical business practices such as manipulating online reviews for marketing purposes or mass-creating thousands of accounts with false identities. GenAI could also be misused to create convincing and realistic-sounding social engineering attacks, such as phishing emails or phone calls. These attacks could be designed to trick individuals into revealing sensitive information, such as login credentials or financial information, or to convince them to download malware.

Deepfakes can be used to generate synthetic media, such as images, videos, and audio. AI-generated content can be difficult or impossible to distinguish from real media, posing serious ethical implications. This type of content may spread misinformation, manipulate public opinion, or even harass or defame individuals.

To prevent misuse, organizations are now undertaking and setting up responsible AI practices, guidelines, and guardrails that employees can use to ensure that misuse of GenAI doesn't happen in their organization.

Copyright Ambiguities

An ethical concern around GenAI is the ambiguities over the authorship and copyright of AI-generated content – copyright infringement or copying another person's work without permission or attribution.

Derivative works mean creating a new work based on someone else's original idea. Anyone can create derivative works, whether they have permissions from the original creator or not, but there are legal consequences if you use someone's work without permission.

Generated data can be used for training machine learning models. However, the use of copyrighted generated data in compliance with fair use doctrine is ambiguous. While fair use generally accepts academic and nonprofit purposes, it forbids commercial purposes.

Recently, the U.S. Copyright Office has been working to create new rules and regulations around generative AI and how the technology uses the work of authors and other creators. While this work is still in process, IDC recommends that organizations seek to avoid commercial foundation models that may be based on copyrighted material and work with vendors that avoid or mitigate copyright data lineage issues.

Data Privacy

Due to its ability to generate fake photos and images closely resembling the real thing, GenAI may increase identity theft, fraud, and counterfeiting cases. Data privacy issues can arise in highly regulated industries if it involves collecting private information about individuals.

IDC recommends that organizations have a well-defined data privacy policy, especially when it comes to the use of sharing sensitive data with commercial foundation models. In the case of regulated industries, organizations should consider building their own foundation models or working with partners that can help them create and use proprietary foundation models that fit their needs.

Trustworthiness

GenAI uses machine learning to infer information, which brings the potential inaccuracy problem to acknowledge. Also, pretrained large language model applications like ChatGPT are not dynamic. ChatGPT can only fetch data prior to the year 2021 as its training stopped in the year 2021.

Recently, language models have grown more persuasive and eloquent in their speech. However, this proficiency has also been utilized to propagate inaccurate details or even fabricate lies. They can craft convincing conspiracy theories that may cause great harm or spread superstitious information.

To avoid these kinds of problems, many organizations are now developing techniques and approaches where the commercial foundation model is used for their capabilities with summarization, natural language processing, and other properties using a procedure called retrieval augmented generation (RAG). RAG is an AI framework for retrieving facts from an external knowledge base to ground large language models on the most accurate, up-to-date information and to give users insight into LLMs' generative process.

FIGURE 4

Top Barriers Using GenAI

Q.   What are the top 2 barriers to using generative AI in your organization?
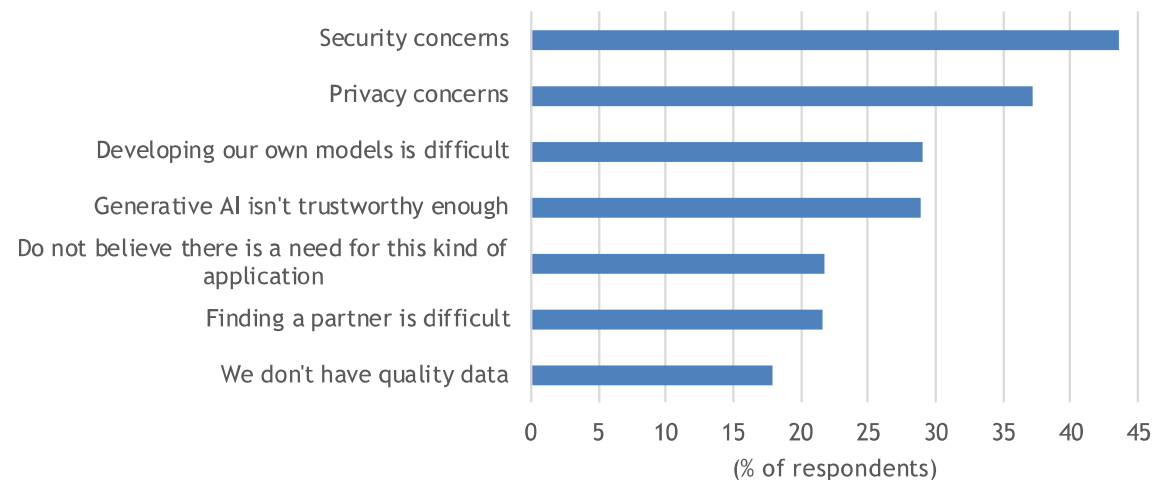
n = 890

Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 6,* July 2023

CONCLUSION

To mitigate the aforementioned concerns, and others, organizations need to have plans and strategies in place to take advantage of GenAI. Organizations should develop a process for defining, prioritizing, and executing GenAI use cases. IDC recommends that organizations assemble a GenAI Steering Committee from all parts of the enterprise along with IT to ensure well-rounded business decisions that encapsulate the opportunities available with this new technology.

The Steering Committee should establish a centralized and cross-functional (line of business and IT) GenAI platform group to define protocols and develop platform services. This needs to be staffed with people who have the right set of skills, starting with a senior technical leader as general manager. In addition, the group needs two teams to help design, develop, and deploy GenAI solutions – a technical team and a business team. This group will act as the central hub for any organizational GenAI activities. Finally, the organization needs to be working to hire and/or upskill their employees to build a culture of innovation.

IT plays a central role in all these activities, and CIO/CTOs should be at the forefront of their organization's GenAI plans. The priorities for the CIO/CTO leadership include:

- Overarching leadership to manage the organization's business reputation
- Identifying and working with partners to mitigate risk to intellectual property (IP) by insisting that GenAI providers maintain transparency and accountability
- Development of internal policies and risk management around GenAI

In addition, CIO/CTO leadership and the IT organization can help the organization identify and work with trusted partners. The keys to identifying and working with a partner include evaluating the following:

- The opportunity between public cloud-hosted foundation model services/LLMs and private cloud foundation models/LLMs and on-premises models
- Discussions around data sovereignty, control, reducing IP leakage, and not exposing to IP infringement possibilities
- Understanding buy versus build, especially in the case of foundation models that may require significant amounts of data and compute resources to create and operate

To make effective use of GenAI in any organization, IDC believes that the following set of key activities needs to be put in place:

- **A responsible AI policy** that includes defined principles around fairness, transparency, and accountability relating to the data that is being used to train models as well as the usage of the results (This activity should also include a methodology to provide explainability of any GenAI model output with clear transparency on roles and responsibilities of developers, users, and any stakeholder involved with these initiatives.)
- **Strategy and road map** with a set of defined and prioritized use cases to align the organization on the key areas that will most likely deliver the maximum business impact in the short, medium, and longer term

- **Intelligence architecture** to manage the life cycle and governance of data, models, and business context for every use case, regardless of whether using custom models or preexisting models (This should also include protocols around data privacy, security, and intellectual property protection.)
- **Reskilling and training** to create a skills map for core AI technologies, adjacent AI tech, and broader tech and business capabilities to deploy GenAI at scale across the organization (This activity should also include a training program personalized for key roles and an organizational readiness assessment to ensure that a change management program is incorporated.)

Make the Most of Generative AI

GenAI is a journey and it's best not to be tackled alone. Preparation and the right partnerships are key. Organizations need to have a holistic approach to working with GenAI as noted previously, and trusted partners can help with this. Work with your vendors, partners, and service organizations to determine what your strategy and approach to GenAI should be and how it can help your organization create significant ROI. Specifically:

- Some vendors are offering prebuilt GenAI solutions for a certain number of use cases such as content marketing or blog writing that can be easily customized and adapted for use by an organization. Such a solution might be a starting point.
- If your organization is building a foundation model from the ground up, determine what kinds of data you have and how much you must have to build a custom large language model:
  - Will you have enough data to train a custom model, or will you have to build on your vendor's existing data?
  - What does your data quality for GenAI models look like? Is it sufficient for your needs and requirements?
  - What types of actions will the solution be taking? Will you need to integrate into existing enterprise solutions?
- How will your organization measure success?
  - What metrics are in place to measure success or failure?
  - Do you have measurements from before the system was put in place?

IDC believes that with the right approach, partners, and techniques, organizations can yield significant benefits from GenAI.

In conclusion, GenAI promises to be a once in a lifetime opportunity for enterprises and organizations to improve productivity, develop new business models, and increase revenue. Organizations should be working with their trusted partners to make sure that they don't get washed as away when the GenAI wave hits their industry.

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