



Disrupting business with GenAI

GenAI is reshaping the business narrative. We explore its complexities and opportunities through the lens of real-world scenarios.



Today's innovation giants, tomorrow's case studies

The decline of corporate giants that fail to respond to disruption is a common theme in business schools – and a cautionary tale for boardroom decision-makers.

Kodak was the last word in photography until their decision to stick with film rather than go digital led to bankruptcy. Nokia, once the world's leading manufacturer of mobile phones, lagged competitors that were focusing on software. BlackBerry released a touchscreen model of their smartphone too late to recover market share.

It's not that these companies didn't see change coming – it's impossible to ignore shifts this big. But they adapted too little, too late.

And this is the lesson we need to take into the era of generative AI (GenAI): that success lies in our ability to adapt quickly and successfully to these innovations.

AI everywhere

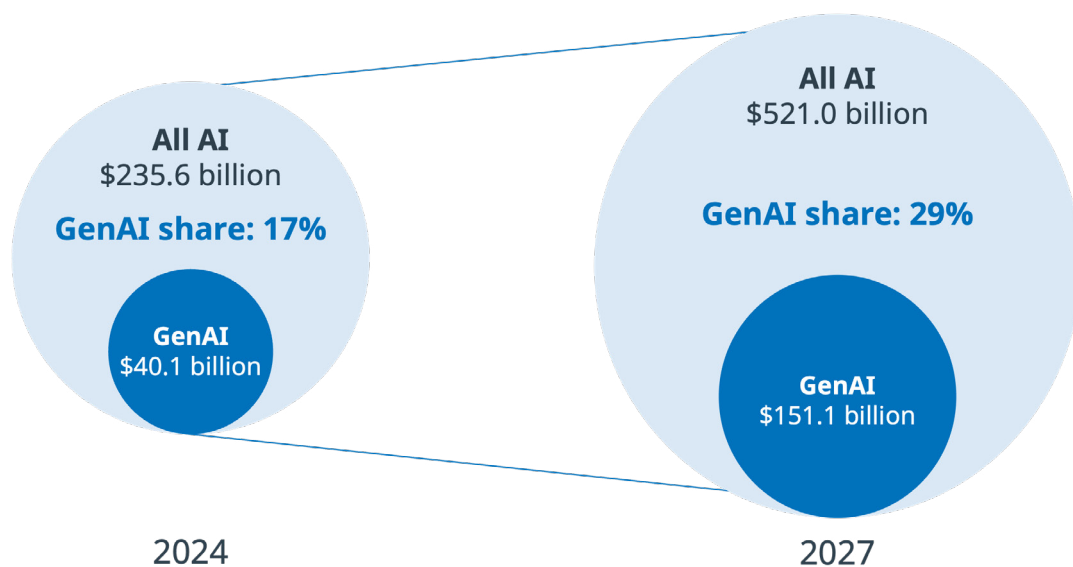
As enterprises move from proofs of concept to scaled pilots and tailored solutions, they're committing significant budget to GenAI.

Goldman Sachs notes that, for large-scale GenAI transformation to happen, enterprises need to make significant upfront investments – which could amount to around \$200 billion globally by 2025 – before seeing major gains in productivity.¹

IT service providers are also making significant investments in GenAI training, capabilities and intellectual property (IP).

These investments signal confidence in the potential of GenAI to reshape industries.

GenAI core IT spending as a percentage share of all AI IT spending, 2024 to 2027



Source: IDC²

The current state of AI adoption also reflects that organizations across industries are increasingly recognizing its strategic significance.

In the **pharmaceutical** sector, renowned companies like Amgen and Insilico Medicine, alongside academic researchers, are using GenAI to revolutionize the design of proteins for medicinal purposes. The complex challenge of predicting protein folding, a long-standing obstacle for geneticists and pharmaceutical developers, is now being addressed with the precision of GenAI.³

GenAI has also revolutionized the way businesses operate in **manufacturing and supply chain logistics**.

In the manufacturing sector, industry leaders such as Autodesk and Creo are leveraging GenAI to redefine the design process for physical objects. This technology goes beyond conceptualization; in some instances, it plays a pivotal role in the creation of objects through innovative methods like 3D printing, computer-controlled machining and additive manufacturing.

Amazon is using GenAI in its supply chain management to accurately forecast and manage inventory levels, which in turn helps minimize costs and improve customer satisfaction.

¹Goldman Sachs (1 August 2023). AI investment forecast to approach \$200 billion globally by 2025.

²IDC (December 2023). Worldwide Core IT Spending for GenAI Forecast, 2023–2027: GenAI is Triggering Hyper-Expansion of AI Spending.

³Amgen (2023). How AI and Life Sciences Research Are Revolutionizing Protein Drug Development.

Global **hospitality** marketplace Airbnb has leveraged GenAI to bridge language barriers effortlessly. With the help of an AI-powered translation plug-in, it now enables hosts and guests to communicate seamlessly in various languages, in real time. This transition has improved the booking experience for both visitors and hosts across the globe.

GenAI can be used for a variety of **media** applications, such as generating news articles, social media posts and even entire books. BloombergGPT is a powerful tool that uses natural language processing and machine learning to analyze large amounts of data and generate human-like text.

The **entertainment** industry is also adopting GenAI, using tools like DALL·E to generate conceptual art. OpenAI's Sora10, a text-to-video model that generates one-minute videos (currently) based on user prompts, demonstrates a deep understanding of language, accurately interpreting prompts to create compelling characters that express vibrant emotions. These tools are set to play a central role in the future, contributing to the creation of complete environments and reshaping the way content is generated in this industry.

Organizations are integrating GenAI into their operations to facilitate efficiency, innovation and elevated customer experiences.

According to Gartner, "By 2026, more than 80% of enterprises will have used generative artificial intelligence (GenAI) application programming interfaces (APIs) or models, and/or deployed GenAI-enabled applications in production environments, up from less than 5% in 2023."⁴

"According to Gartner predictions, by 2026, over 100 million people will engage robo-colleagues (synthetic virtual colleagues) to contribute to enterprise work."⁵

AI is no longer the domain of large technology companies or educational institutions. Anyone can now use AI-based tools to improve their quality of life. GenAI tools have opened the eyes of the world to its capabilities. This is especially the case with ChatGPT, which can improve individual productivity significantly by saving time.

However, the question remains: "How do we remain competitive in this rapidly changing market and how quickly must we respond?"

The answer lies in taking a proactive approach to GenAI integration.

Consequences of not adopting GenAI

Competitive erosion

Resisting GenAI risks losing market share to competitors who are gaining from advanced technology.

Customer disconnect

Failure to meet customer expectations through GenAI-enabled experiences may result in dissatisfaction with outdated services.

Operational inefficiencies

Failure to embrace GenAI may cause operational inefficiencies and increased costs, and hinder agility in adapting to business change.

Innovation stagnation

Resisting GenAI hampers innovation, limiting the ability to explore and implement novel ideas, and hindering long-term growth.



⁴Gartner (11 October 2023). Press release: Gartner Says More Than 80% of Enterprises Will Have Used Generative AI APIs or Deployed Generative AI-Enabled Applications by 2026.

⁵Gartner. The Impact of Generative AI on Manufacturing.

The multidimensional impact of GenAI on business

The integration of GenAI into business operations offers many compelling benefits, making it a strategic imperative for organizations aiming to thrive and remain relevant.

 Productivity and efficiency	 Innovation and creativity	 Competitive advantage and market differentiation
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Automating repetitive tasks

Using advanced transformers and specialized, domain-specific small language models (SLMs), businesses can automate mundane and repetitive tasks efficiently, freeing up human resources for more creative and strategic work.

Streamline processes

Implementing transformers and retrieval-augmented generation (RAG) in data processing streamlines complex operations, optimizing workflows and minimizing inefficiencies.

Improve decision-making

The powerful processing capabilities of transformers and SLMs means vast datasets can be analyzed swiftly to improve decision-making processes and outcomes.

Generating new ideas and solutions

Transformers, such as GPT-3 and Azure AI, act as catalysts for innovation, generating novel ideas and solutions and contributing to a culture of continuous improvement.

Identify unexplored opportunities

Alongside the RAG framework and conversational AI, these technologies aid in uncovering unexplored opportunities, helping businesses to stay ahead in dynamic markets.

Improve the customer experience

Personalization and customization, driven by transformers and SLMs, contribute to a better customer experience, which in turn promotes customer satisfaction and loyalty.

Personalizing and customizing products and services

Transformers and SLMs empower businesses to tailor products and services to individual customer preferences.

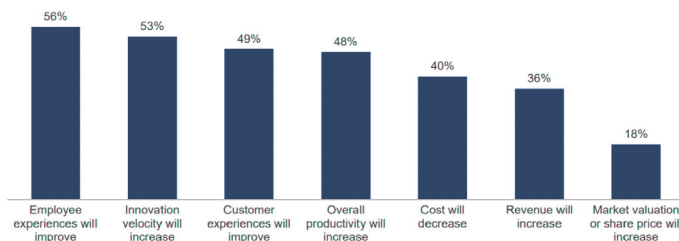
Real-time insights and responsiveness

RAG, conversational AI and other technologies enable businesses to retrieve real-time information that allows them to respond quickly to market trends and customer demands.

Adapt to changing market conditions

The versatility of LLMs and SLMs gives organizations the agility to adapt to rapidly changing market conditions, ensuring sustained relevance and competitiveness.

HFS notes that GenAI will have a multidimensional impact on various industries, as shown in the graph below.



Source: HFS⁶

The adoption of state-of-the-art GenAI models is not just a technological upgrade; it is a strategic decision that unlocks many advantages.

From operational efficiency to market differentiation, these models position businesses at the forefront of innovation and competitiveness in an era marked by rapid technological advancements.

⁶HFS (October 2023). HFS Horizons Report: Generative Enterprise™ Services, 2023.

The delayed leap

8 barriers to GenAI adoption

GenAI is undoubtedly a technology with transformative potential. But there are barriers to overcome before it can be adopted successfully.

1 Knowledge and understanding: shaping the path to AI adoption

The barrier to adopting GenAI often lies in a lack of awareness and understanding of its potential applications. Overcoming this hurdle requires a concerted effort to create awareness and foster a deep understanding of AI's transformative possibilities. Organizations must proactively invest in educating themselves about the capabilities of AI to determine how it could impact on operational excellence.

2 Financial frontiers: deciphering the investment puzzle

The perceived high cost of AI technologies can be a deterrent to their adoption. While AI investments may initially seem substantial, organizations should carefully consider the long-term benefits and return on investment. Exploring diverse funding options, forming strategic collaborations and prioritizing AI initiatives can help overcome budget constraints, enabling organizations to allocate resources effectively and realize the long-term value of AI.

3 Data dynamics: navigating availability and quality

AI thrives on data, yet insufficient data availability and poor data quality can impede progress. Establishing robust data management strategies, ensuring data quality and forging partnerships for data acquisition are critical to leveraging data as a valuable asset to AI strategies.

4 Ethical navigation: charting the course for responsibility

As AI advances, ethical and legal considerations loom large. Organizations must set clear guidelines and frameworks for responsible AI use, with transparency, fairness and data privacy at the forefront. This ethical foundation is crucial for building trust and overcoming barriers related to the ethical implications of AI adoption.

5 Cultural transformation: shifting from resistance to resilience

Resistance to change is a common hurdle in adopting new technologies. Cultivating a culture of innovation, fostering open communication, and providing training and support to employees can instill resilience and enthusiasm for AI adoption. Involving employees in the AI adoption process is pivotal for overcoming resistance and cultivating an organizational mindset that embraces technological evolution.

6 Skills empowerment: bridging the workforce gap

AI technologies demand skilled professionals who are proficient in data science, machine learning and AI implementation. Organizations should therefore invest in upskilling existing employees and attracting new talent to bridge the skill gap. Building a competent workforce equips organizations with the confidence to use AI and its capabilities effectively.

7 Integration harmony: aligning with existing systems

Integrating AI solutions with existing systems poses challenges, yet organizations can dismantle silos by fostering collaboration across departments and leveraging technology partners. Streamlining integration processes allows organizations to incorporate AI into their operations seamlessly so that new and existing technologies work well together.

8 Facing the unknown: managing risks and uncertainties

AI adoption inherently involves risks and uncertainties. Organizations must approach AI implementation with a mindset of ongoing learning and improvement. Thorough risk assessments, model testing and robust monitoring mechanisms are essential for mitigating risks and ensuring a smoother journey toward AI adoption.

Through investments in awareness, resources, skills and ethical frameworks, organizations can overcome many of these barriers and use AI effectively for innovation, efficiency and a competitive edge.

GenAI is here to stay

GenAI's ability to create new, unique data and models will revolutionize industries such as healthcare, finance and manufacturing by enabling the creation of personalized treatments, financial models and product designs. Its impact will also be felt in the creative industries, as GenAI will enable the production of new forms of art, music and video that were previously unimaginable. Additionally, GenAI will play a critical role in the development of smart cities and transportation systems, as it will enable the creation of intelligent infrastructure and optimized traffic flow.

1. Text and coding

Financial services

By automatically generating comprehensive profiles of new customers that include vital information for know your customer (KYC) processes, GenAI can help employees make informed decisions for customer onboarding, efficiently.

Technology, media and telecommunications

GenAI presents innovative solutions for cybersecurity threat detection and generating executive reports highlighting potential threats such as malware, anomalies and other security vulnerabilities.

Life sciences and healthcare

GenAI can revolutionize patient care by summarizing complex electronic health records (EHR).

Retail

For supermarkets, GenAI offers the potential for a personalized retail experience. By generating email campaigns with custom meal plans and shopping lists tailored to individual buyers or families, considering store availability and personal preferences, retailers can increase customer engagement and satisfaction.

2. Image and video

Financial services

Image-based innovations present innovative solutions for fraud detection. By generating customer signatures, institutions can improve their internal fraud models, especially in areas like credit card authorization, and effectively summarize potential fraud hotspots for proactive mitigation.

Technology, media and telecommunications

Through advancements in semiconductor chip design, GenAI enables the rapid iteration and enhancement of chip designs based on performance parameters, thereby reducing development time.

Life science and healthcare

By generating large sets of synthetic medical images, GenAI can revolutionize medical imaging. It can also be used to train imaging algorithms to better identify abnormalities.

Retail

GenAI can produce detailed and ultrarealistic photographs of new and existing products in various environments, providing consumers with a more immersive and engaging shopping experience.

3. Speech and audio

Financial services

GenAI can greatly improve retail-banking transaction support. It can provide human-like support for complex retail transactions, including customer applications, questions, negotiations and more, enhancing customer service and streamlining operations.

Technology, media and telecommunications

GenAI offers groundbreaking capabilities in translations, subtitles and descriptions.

Life sciences and healthcare

GenAI can automate follow-up processes. By ingesting clinical notes, it can identify patients who require follow-up care and create audio messages to schedule appointments and encourage healthy habits, improving patient outcomes and reducing the administrative burden.

Retail

GenAI can enable conversational retail experiences. It can provide detailed product support and guidance using human-like chatbots in retail stores, focusing on specific brands and categories. This enhances the shopping experience by providing personalized and informative interactions.

4. 3D

Financial services

GenAI can augment financial models by generating synthetic data to pressure test an institution's liquidity and processes.

Technology, media and telecommunications

By training digital twins on synthetic data to identify network faults and provide remediations for on-field technicians, GenAI can aid in telecom network maintenance.

Life sciences and healthcare

GenAI can accelerate new drug discovery by generating the structure and function of proteins and biomolecules.

Retail

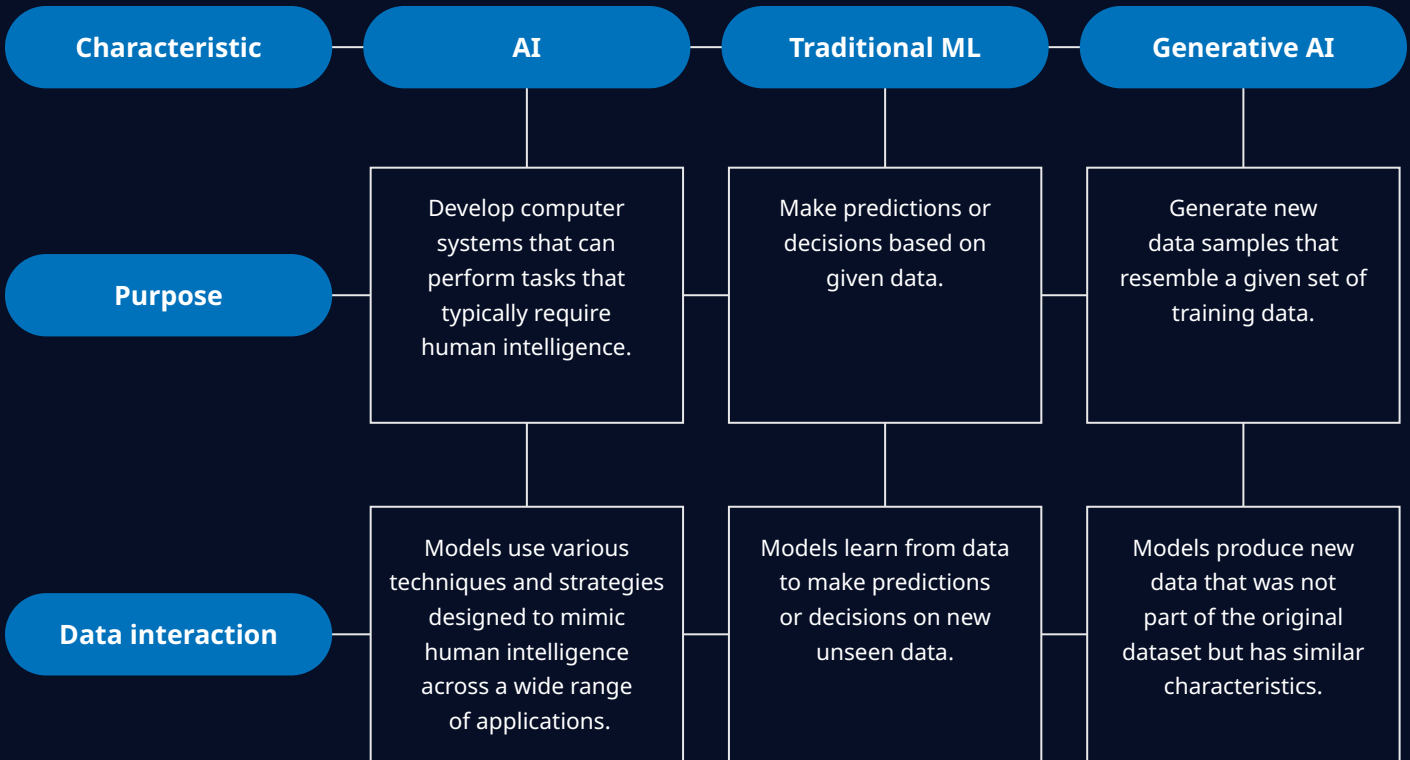
Product prototyping lifecycles can be accelerated by the creation of unique, high-fidelity product mock-ups and synthetic behavioral data for buyers.



Where to next?

By assessing different stages of AI adoption and options for the efficient and effective deployment of AI, specifically GenAI, organizations can determine how best to leverage this technology for maximum business impact.

AI, traditional machine learning (ML) and GenAI



Source: Techopedia⁷

⁷Techopedia (3 September 2024). [Generative AI](#).

How to get there

Understand the impact of GenAI on the organization

GenAI establishes connections across the organization, fostering innovation, creativity and adaptive responses. The introduction of transformers amplifies the organization's processing capabilities, enabling the rapid synthesis of information and fostering a dynamic, learning-centric culture.

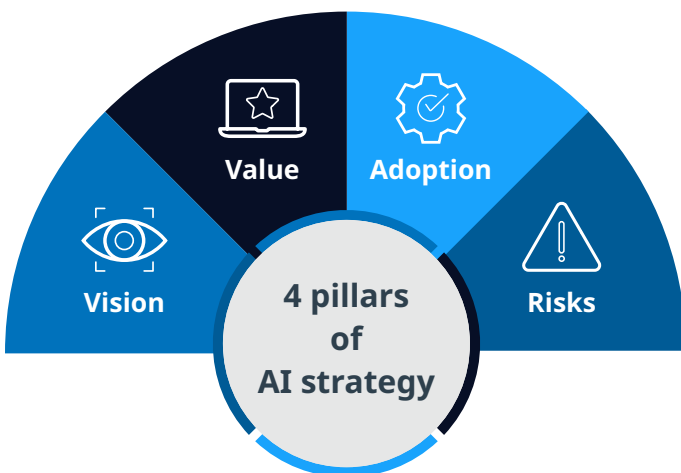
Focus on skills

We know that the human mind is adaptable and capable of analytical judgment, intellectual curiosity and emotional intelligence. The advent of transformers, recurrent neural networks and deep learning means organizations need a workforce that's adept at harnessing these tools.

By prioritizing skills development over specific roles, and facilitating ongoing learning and upskilling, organizations can equip their employees with the skills required to use GenAI effectively.

From vision to execution

Gartner states, "For more AI impact, fortify four key pillars of your AI strategy: Vision, value-realization, risk and adoption plans."⁸



Source: Gartner



Vision

Implementing transformers and neural network architectures requires a clear vision that transcends organizational boundaries. Define how GenAI aligns with your objectives and how it will reshape operations.



Value

The value proposition of GenAI lies in its transformative impact on operations. Leverage the power of GenAI models to innovate products and services. Integrating transformers can enhance natural language processing, empowering applications to elevate customer interactions and internal communication.



Adoption

Seamless adoption of GenAI depends on meticulous planning and integration. Develop strategies for incorporating GenAI models into existing workflows. Consider how transformers can optimize data processing, enhancing the efficiency of machine learning algorithms and augmenting decision-making processes.



Risks

Understanding and mitigating risks is paramount. As GenAI interacts outside the organizational firewall, cybersecurity becomes a critical consideration. Assess the impact of transformers and deep learning models on data privacy, ensuring robust measures to safeguard sensitive information.

⁸Gartner. Building a Value-Driving AI Strategy for Your Business.

6 steps to GenAI deployment



1 Understand GenAI

Before adopting GenAI, it's essential to understand its functionality, benefits and drawbacks.



2 Identify use cases

Which areas could benefit most from GenAI in your organization? Look at use cases for content creation, outcome prediction and automating decision-making processes.



3 Build a skilled team

Put together a team with diverse skills: data scientists, ML engineers, and developers proficient in generative models, natural language processing (NLP) and deep learning.



4 Develop a prototype

Create a preliminary version of the AI system to generate content. This allows you to evaluate its effectiveness, identify potential problems and make the necessary adjustments before full implementation.



5 Implement in a controlled environment

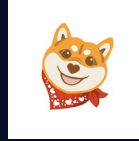
Introduce GenAI in a limited, supervised environment so you can monitor performance closely, detect issues quickly and make adjustments as needed.



6 Scale up and monitor

After the successful deployment in a controlled environment, you can scale up GenAI across the organization. Ongoing monitoring and optimization are key to making sure the system remains effective and relevant. This may involve retraining the model, incorporating new data sources and fine-tuning the system's architecture.

GenAI solutions by NTT DATA



CareMates brings digital care accessibility to senior communities in the U.S.

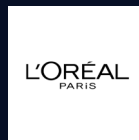
NTT DATA brings GenAI capabilities to a unique senior-care platform, helping to extend access to wellness, lifestyle and other services.

[Read the story](#)



NTT DATA leverages Microsoft Azure OpenAI to transform Almirall's medical research, enhancing efficiency and accuracy in domain-specific data and document processing.

[Read the case study](#)



NTT DATA collaborated with L'Oréal, integrating advanced conversational AI⁹ to create a personalized ecommerce experience that has revolutionized customer engagement.

[Read the report](#)

⁹NTT DATA: Syntphony Conversational AI.

Conclusion




It is clear that GenAI has vast potential to redefine industries. This transformative technology promises unparalleled innovation and competitive advantage for organizations committed to technological leadership.

Real-world applications show its impact on industries from pharmaceuticals to entertainment.

This brings organizations to a turning point for innovation. Those that take a strategic approach to upskilling their workforce and integrating GenAI into their operations will be well placed to capitalize on the opportunities of this technology and redefine the narrative for their industries.

Let's get started

See what NTT DATA can do for you

-  Deep industry expertise and market-leading technologies
-  Tailored capabilities with your objectives in mind
-  Partnerships to help you build and realize your vision

All images in this report were generated using Azure Open AI, Adobe Firefly and Microsoft Co-Pilot.



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