Generative AI

Use cases in different industries

Exploring Generative AI: Industry applications

Generative AI is shaping diverse industries

In today's rapidly evolving landscape, Generative AI stands as a pivotal tool driving innovation across industries such as:

- **Financial services**
- **IT and devOps**
- **Retail and e-commerce**
- **Manufacturing**
- **Healthcare and pharmaceutical**
- **Media and telecommunications**

Generative AI has also rapidly transformed industries with **emerging use cases**, categorized by adoption level and the types of generative AI employed (financial reporting analysis, personalized & automated UI/UX design, etc.)
These emerging use cases highlight the expanding scope of generative AI applications

Maximizing business impact with Generative AI

Generative AI has ushered in transformative changes across industries, optimizing diverse business functions and generating substantial value. These business functions include:

- **Marketing and sales**
- **Strategy and finance**
- **Customer operations**
- **Corporate IT**

However promising, the journey towards integrating Generative AI comes with **a set of challenges** that companies must navigate, including:

- **Technical complexity**
- **Technical debt**
- **Legacy systems**
- **Misuse and AI hallucination**

Financial Services (1/2)

Use Cases

▪ **Fraud Alerts**: Generative AI has the potential to aid in detecting fraud within the financial sector by producing fabricated instances of fraudulent actions, aiding in the refinement and expansion of machine learning algorithms. This helps improve the models' ability to recognize fraudulent patterns in financial data and generate immediate bulk alerts for prompt action

▪ **Differential Privacy:** Generative AI adds noise to datasets to protect individual data points, enhancing privacy and deterring breachers

▪ **Loan Underwriting:** Generative AI creates synthetic data for training loan models, improving accuracy. It automates document verification, enhances risk assessment, and streamlines loan processes, increasing efficiency and satisfaction. This positively impacts loan approval rates and customer loyalty in banking

▪ **Portfolio Management:** Generative AI supports portfolio optimization in finance by simulating investment scenarios based on historical data. It can analyze market trends, identify opportunities, and optimize asset allocation. By replicating market conditions and events, experts can enhance investment approaches and achieve improved financial outcomes for clients and institutions

▪ **Credit Risk Assessment:** Generative AI creates synthetic data for simulating diverse risk scenarios, enhancing the effectiveness of training risk assessment models. It evaluates credit risk based on credit scores, financial history, and other data, enabling banks to make informed lending decisions and mitigate default risk

Gen AI impact on functions

Marketing and sales	
Customer operations	
Product and R&D	
Software engineering	
Supply chain and operations	
Risk and legal	
Strategy and finance	
Corporate IT	
Talent and organization	

High Impact ————— **Low Impact**

Gen AI value generated

2.8-4.7%
% of industry revenue

200-340
Billion USD
Revenue generated

Note: The impact of GenAI on functions and the estimated value generated are according to McKinsey's report "The economic potential of generative AI".
Sources: McKinsey "The economic potential of generative AI" (2023) **,** Press Search

Financial Services (2/2)

AI Transformation in Financial Services

- Financial institutions are leveraging Generative AI to enhance customer service availability around the clock, strengthen fraud detection mechanisms, facilitate real-time decision-making, and fortify risk management strategies

- Leading the way, **Morgan Stanley** integrates generative AI for advisors, piloting an OpenAI tool to enhance research synthesis. Over 900 advisors already benefit, with a full rollout planned. The move underscores the sector's AI-driven transformation, with AI tools changing advisory operations, data access, and decision-making

- **Raymond James Financial** has also begun implementing AI-based tools that utilize machine learning to assist advisors in identifying potential sales prospects

Kasisto

- **Kasisto** is an AI program that provides conversational AI solutions for banking and finance. Kasisto introduced **KAI-GPT**, a generative AI tool designed for banking, accompanied by **KAI Answers**. KAI-GPT empowers bank employees with contextual AI-driven insights

- It offers precise, transparent, and customizable responses, transforming customer experiences. Rigorous testing confirmed KAI-GPT's value as a transformative tool that reshapes the landscape of banking

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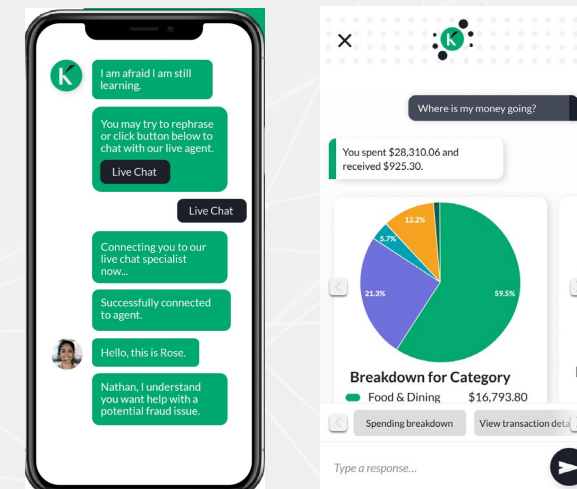
Retail and e-commerce (1/2)

Use Cases

- **Consumer research:** Generative AI can conduct scenario testing and improve customer targeting by creating simulations for practice

- **Customer support:** In retail, generative AI enhances customer support by using AI chatbots and virtual assistants, streamlining processes, providing quick and accurate information, and aiding customers with tasks like FAQs, authentication, multilingual support, troubleshooting, and real-time updates on product status and preferences

- **Marketing content creation:** By employing data analysis, natural language processing, and machine learning, generative AI can generate content designed for a specific audience. It analyzes consumer behavior and patterns to create a unique content strategy. Generative AI also speeds up the process of writing marketing content and advertising scripts

- **Enhancing procurement:** Generative AI can help create playbooks for enhancing the procurement process by drafting negotiation strategies with suppliers

- **Disruptive and creative innovation:** Generative AI enables companies to create innovative marketing campaigns that drive success by generating creative concepts and drawing insights from past experiences. It helps identify customer insights to create relevant marketing strategies, and accelerates the process of developing new versions of products by rapidly creating innovative designs

Gen AI impact on functions

Marketing and sales	
Customer operations	
Product and R&D	
Software engineering	
Supply chain and operations	
Risk and legal	
Strategy and finance	
Corporate IT	
Talent and organization	

High Impact ———————— **Low Impact**

Gen AI value generated

1.2-1.9%

% of industry revenue

240-390 Billion USD

Revenue generated

Note: The impact of GenAI on functions and the estimated value generated are according to McKinsey's report "The economic potential of generative AI".

**Sources:** McKinsey "The economic potential of generative AI" (2023) **,** Press Search

Retail and e-commerce (2/2)

Generative AI has revolutionized content creation, offering marketers an array of tools to enhance engagement and create intuitive campaigns. Some of the roles that generative AI plays in shaping marketing content include:

- **Visual Creation:** Visuals generated can elevate storytelling, fuel social media presence, and enrich presentations
- **Automating Content Creation:** AI drafts social media posts, blog articles, and emails, while human touch adds refinement
- **Hyperpersonalization:** Generative AI tailors content based on individual preferences, yielding hyperpersonalized campaigns

Stitch Fix uses generative AI to revolutionize content creation. By leveraging large language models like OpenAI's GPT-3, it transforms client feedback into tailored recommendations and streamlines advertising copywriting. This approach enhances personalization, accelerates processes, and elevates engagement
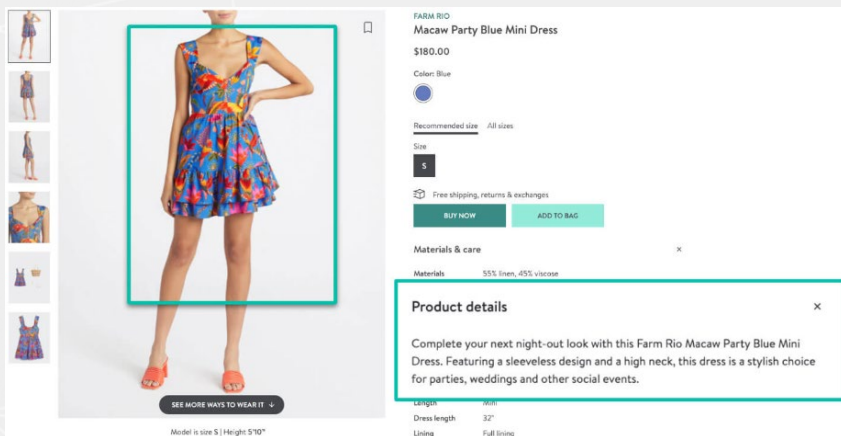
Companies have been using different generative AI tools to generate content and, therefore, maximize their consumer reach. **Phrasee** is a tool that generates creative and high-performing marketing messages through different channels: **Email, SMS, Web and App, and Social Media**
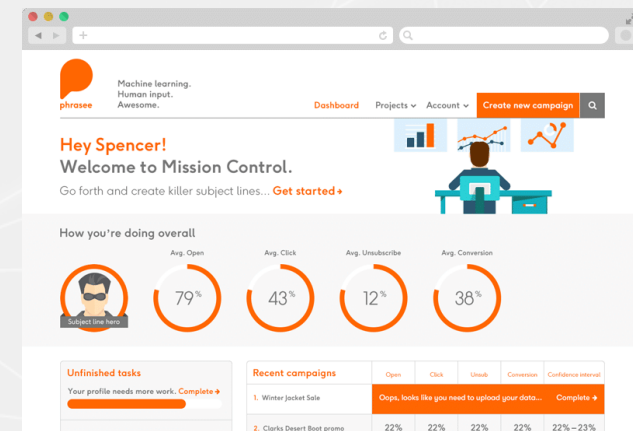
Healthcare and pharmaceutical (1/2)

Use Cases

- **Drug Discovery Acceleration:** Generative AI expedites drug development by efficiently generating potential molecules, reducing the time and cost involved in this traditionally lengthy process

- **Enhanced Disease Diagnosis:** Diagnostic precision can be enhanced by identifying disease-specific patterns in various medical images, including skin cancer and lung cancer, ultimately aiding healthcare professionals in making more accurate diagnoses

- **Personalized Medical Chatbots:** Through the creation of medical chatbots, like Babylon Health's innovative platform, generative AI offers patients personalized medical advice based on their symptoms

- **Tailored Patient Care Plans:** Generative AI leverages patient-specific data, including medical history, genetic information, and lifestyle factors, to develop personalized treatment plans. For instance, it can predict complications after surgery and recommend treatment strategies based on a patient's risk profile

- **Advanced Medical Imaging:** By learning from vast datasets of medical images, generative AI can generate higher-resolution images, improving the accuracy of diagnoses. This is particularly useful in scenarios like enhancing MRI images to detect subtle brain changes

- **Medical Simulation for Training:** Generative AI facilitates the creation of realistic medical simulations. For instance, researchers at the University of Michigan have harnessed generative AI to simulate scenarios for treating sepsis, a life-threatening condition caused by infection

Gen AI impact on functions

	Health care	Pharma
Marketing and sales		
Customer operations		
Product and R&D		
Software engineering		
Supply chain and operations		
Risk and legal		
Strategy and finance		
Corporate IT		
Talent and organization		

High Impact ⟶ **Low Impact**

Gen AI value generated

	% of industry revenue	Revenue generated
Health care	**1.8-3.2%**	**150-260**
Pharma	**2.6-4.5%**	**60-110**
		Billion USD

Note: The impact of GenAI on functions and the estimated value generated are according to McKinsey's report "The economic potential of generative AI".
Sources: McKinsey "The economic potential of generative AI" (2023) , Tempus, Press Search
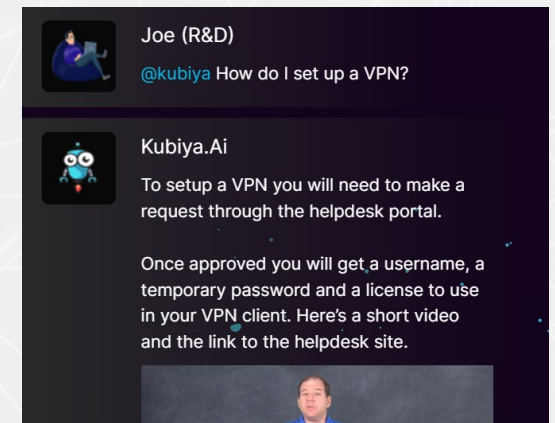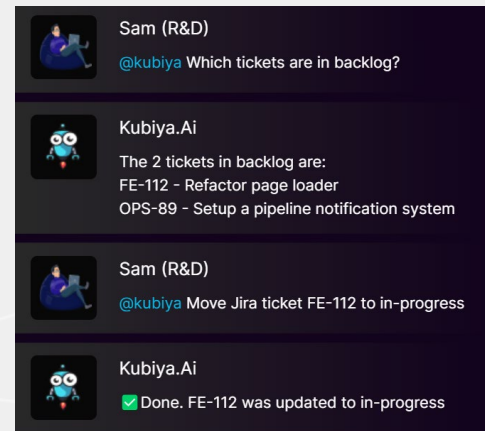
Healthcare and pharmaceutical (2/2)

Developing Anticancer Drug Discovery

- **Evotec**, a German biotech firm, **and Exscientia**, a UK-based company using AI for drug discovery, collaborated to create a promising anticancer molecule **in just 8 months**

- This molecule aids T cells in combating solid tumors and has entered phase 1 clinical trials

- Exscientia's AI platform, 'Centaur Chemist,' **streamlined the discovery process**, reducing it from **the traditional 4-5 years**

- Additionally, Exscientia rapidly secured substantial funding (436M USD) and has formed partnerships with key industry players

- More established tech companies, such as IBM, Microsoft, and Google, are getting interested in the discovery

TEMPUS

- **Tempus** has launched Tempus One, an AI-enabled clinical assistant for oncologists. Its purpose is to grant clinicians rapid access to comprehensive patient profiles, including clinical and molecular data, aiding real-time clinical decision-making alongside other pertinent datasets

- It provides quick access to patient data, clinical test reports, biomarker information, and clinical guidelines using generative AI
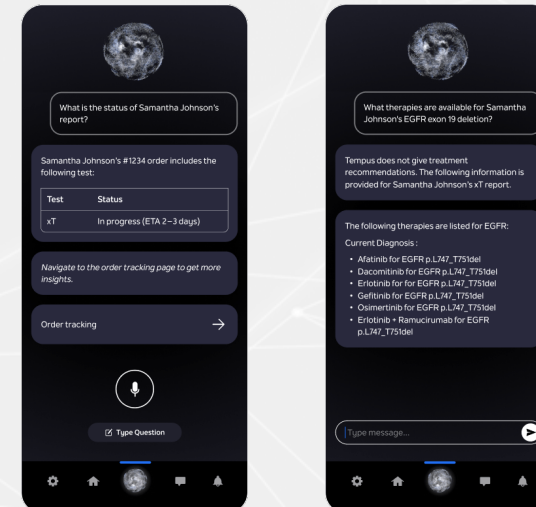
IT and DevOps (1/2)

Use Cases

- **Software development:** Generative AI empowers IT professionals to quickly create solutions by instructing the AI model with their requirements and desired outcomes

- **Data synthesis and augmentation:** Generative AI enhances and generates data, especially in situations where obtaining or labeling extensive datasets is difficult. It can produce artificial data to enhance neural network performance, especially in deep learning, when combined with real-world data

- **Reporting and interfacing:** Generative AI can generate descriptive reports from IT data, allowing IT administrators to interact using natural language queries

- **Test generation:** Generative AI excels at creating data and text, making it ideal for crafting data and test cases during software testing. Also, AI systems can run these tests and provide test outcome reports. A generative AI tool can even detect defects and propose code improvements based on test results

- **Bug remediation:** Generative AI models assess both human- and AI-generated code for errors and suggest remedies. This enhances software quality by minimizing mistakes and upholding the organization's coding standards

Gen AI impact on functions
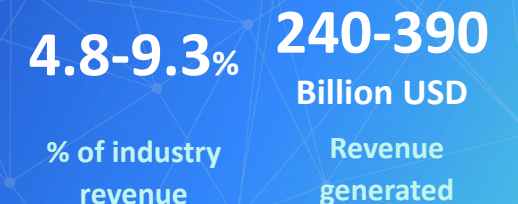
Marketing and sales	
Customer operations	
Product and R&D	
Software engineering	
Supply chain and operations	
Risk and legal	
Strategy and finance	
Corporate IT	
Talent and organization	

High Impact ◄────────► **Low Impact**

Gen AI value generated

4.8-9.3%

% of industry revenue

240-390 Billion USD

Revenue generated

Note: The impact of GenAI on functions and the estimated value generated are according to McKinsey's report "The economic potential of generative AI".
Sources: McKinsey "The economic potential of generative AI" (2023) **,** Press Search

IT and DevOps (2/2)

Revolutionizing DevOps with Generative AI

- DevOps companies are harnessing the power of generative AI to enhance various aspects of their operations. Many tools, such as **Kubiya,** have emerged in the past year to aid AI-enabled application developers

- The integration of AI into DevOps is seen as a means to automate tasks, streamline processes, and enhance developer productivity. This integration demonstrates a maturing developer ecosystem that is adapting to the potential of AI

- **Harness**, a software delivery platform that uses AI to simplify DevOps processes, introduced AIDA, an AI development assistant, revolutionizing software delivery. It strengthens security by addressing vulnerabilities and generating policies. This comprehensive AI approach marks a transformative step in DevOps

KUBIYA

- ChatGPT for DevOps developed **Kubiya**, an advanced conversational AI platform tailored for the DevOps domain

- Kubiya acts as a **smart assistant**, understanding user queries and interacting in natural language. It retrieves information from the company's knowledge system

- It learns from user interactions, optimizing suggestions and responses for both individuals and teams

Sam (R&D)
@kubiya Which tickets are in backlog?

Kubiya.Ai
The 2 tickets in backlog are:
FE-112 - Refactor page loader
OPS-89 - Setup a pipeline notification system

Sam (R&D)
@kubiya Move Jira ticket FE-112 to in-progress

Kubiya.Ai
✅ Done. FE-112 was updated to in-progress

Joe (R&D)
@kubiya How do I set up a VPN?

Kubiya.Ai
To setup a VPN you will need to make a request through the helpdesk portal.

Once approved you will get a username, a temporary password and a license to use in your VPN client. Here's a short video and the link to the helpdesk site.

Sources: Kubiya, Harness, Press Search

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Manufacturing

Use Cases

- **Product Development and Design:** Generative AI speeds up the development process, generates design alternatives, and aids in testing manufacturing capabilities

- **Quality Control:** Generative AI ensures product quality by quickly identifying equipment flaws and detecting production faults in real time

- **Supply Chain Management:** Generative AI facilitates supply chain collaboration, including demand and supply forecasting, warehousing and inventory management, and transportation optimization

- **Customer Interactions and Support:** Generative AI enhances customer experience by providing virtual sales agents, offering round-the-clock customer care and support, analyzing consumer data for insights, and scaling operations

Use Case Example

P&G

P&G employs generative AI to **forecast product success across various regions**. By analyzing consumer preferences, purchasing behaviors, and cultural trends, P&G tailors personalized marketing campaigns for each market

Developed tool example

Inspectorio

Inspectorio introduces the Inspectorio CAPA recommender, a generative AI tool that revolutionizes supply chain management by **enhancing quality control processes and addressing pain points**

Gen AI impact on functions[1]

Marketing and sales	
Customer operations	
Product and R&D	
Software engineering	
Supply chain and operations	
Risk and legal	
Strategy and finance	
Corporate IT	
Talent and organization	

High Impact ———————— **Low Impact**

Gen AI value generated

1.4-2.4%
% of industry revenue

170-290
Billion USD
Revenue generated

Note: The impact of GenAI on functions and the estimated value generated are according to McKinsey's report "The economic potential of generative AI". [1] Includes aerospace, defense, and auto manufacturing
Sources: McKinsey "The economic potential of generative AI" (2023) , Press Search

Media and Telecommunications

Use Cases

- **Content creation and management:** Generative AI empowers diverse content creation and streamlines management processes

- **Personalized audience experiences:** Generative AI improves viewer engagement by delivering personalized content recommendations and enhancing search capabilities

- **Monetization enhancement:** Generative AI boosts monetization through personalized advertising and reduces customer churn

- **Network Optimization:** Generative AI optimizes network performance by analyzing data and identifying issues like congestion or signal interference

- **Predictive Maintenance**: Generative AI predicts equipment failures, enabling proactive maintenance and reducing downtime

Use Case Example

NETFLIX **WIT STUDIO**

Netflix collaborated with Anime Creators Base, WIT Studio, and Rinna to produce an anime short called "The Dog & The Boy." **AI-generated images were used as background art**, depicting various landscapes.

Developed tool example

EnterpriseWeb ™
Smart · Connected · Adaptable

EnterpriseWeb, a New York-based software company specializing in digital business transformation, debuts the **first telco-grade demonstration of generative AI for network service** orchestration at Informa's Big 5G event

Gen AI impact on functions

	Telecom	Media
Marketing and sales		
Customer operations		
Product and R&D		
Software engineering		
Supply chain and operations		
Risk and legal		
Strategy and finance		
Corporate IT		
Talent and organization		

High Impact ———— **Low Impact**

Gen AI value generated

	% of industry revenue	Revenue generated
Telecom	**2.3-3.7**%	**60-100**
Media	**1.5-2.6**%	**60-110**

Billion USD

Note: The impact of GenAI on functions and the estimated value generated are according to McKinsey's report "The economic potential of generative AI".
Sources: McKinsey "The economic potential of generative AI" (2023), Press Search

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Generative AI emerging use cases (1/2)

Emerging ↑

Consumer & Retail	Health Care	Financial Services
Personalized conversational retail experience Walmart, Starbucks, and Domino's are jumping on the trend, utilizing conversational AI to enable personalized recommendations Text, Image	**Content generation for digital therapy** For example, constant Therapy Health and NeuroPerformance Engine have announced the integration of Generative AI, into their therapy delivery system Image, Audio, Video, Others	**Fraud simulation & pattern detection** PayPal employs generative AI to combat fraud by swiftly gathering and analyzing evidence like emails, phone calls, and social media posts Text, Code
Product details & photography generation IBM Watson Assistant, for example, is a conversational AI tool that can interact with people and provide information about a specific product Text, Image	**3D images of anatomy for education** Medical students now use HoloLens and HoloAnatomy for 3D anatomy learning, surpassing the limitations of cadaver availability and 2D illustrations Image, 3D	**Retail banking transaction support** Temenos, a Swiss core banking provider, created a generative AI tool for automated customer transaction classification, enabling personalized insights and recommendations Text, Audio
Personal art creation and edits GPT 4 can allow sellers to create art for their products to boost their marketing Image	**Drug discovery through molecule simulation** AI-based drug discovery utilizes generative AI models to generate high-quality proteins. These models learn from sequencing data on advanced HPC infrastructures Others	**Financial reporting analysis** Samsonite implemented Sentieo, an AI-powered solution integrated with their Workiva financial reporting platform. Text

Adopted

Legend: **T** Text · Image · Audio · Video · 3D · Code · Others

Note: The utilization scenarios and maturity levels are based on Deloitte's analysis, while examples of these applications are based on a thorough press search

Sources: Deloitte AI Institute "A new frontier in artificial intelligence" (2023), Press Search

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Generative AI emerging use cases (2/2)

IT and DevOps	Media & Telecom	Manufacturing
Personalized VR/3D experience generation NVIDIA has incorporated ChatGPT into its system, allowing users of NVIDIA OmniVerse to type the 3D models they wish to place within a 3D environment	**Original game creation** NVIDIA introduced the NVIDIA Avatar Cloud Engine (ACE) for Games at COMPUTEX 2023, revolutionizing NPCs with AI-powered natural language interactions	**Generative simulation & safety testing** aiVA is an AI virtual advisor that optimizes industrial operations, while preserving domain knowledge and ensuring human safety in hazardous environments
Personalized & automated UI/UX design UIzard and similar tools can turn hand-drawn wireframes into UI designs by simply taking a photo with a smartphone, attracting companies like Microsoft and Adobe	**Script/Score design and subtitle generation** Vimeo integrated AI tools for paying users, including OpenAI-powered script generation. Users can create fully-produced videos in minutes	**3D environment rendering** Neural Radiance Field (NeRF) revolutionizes 3D representation, enabling photorealistic visualization from multiple viewpoints and leveraging efficient data compression
Software sales, CX & retention support Chatbots are gaining popularity in customer service. According to Gartner, by 2022, an estimated 70% of customer interactions involve emerging technologies like chatbots, compared to 15% in 2018	**Original fictional short story generation** Tools like OpenAI's GPT-3 can generate ideas based on given keywords or prompts, allowing writers to explore diverse narrative possibilities, various storylines, and plot suggestions	**Generative automation for smart factories** NVIDIA unveils a holistic digitalization workflow incorporating generative AI, 3D collaboration, simulation, and autonomous machines widely adopted by global electronics manufacturers

Legend: **T** Text — Image — Audio — Video — 3D — </> Code — Others

Note: The utilization scenarios and maturity levels are based on Deloitte's analysis, while examples of these applications are based on a thorough press search

Sources: Deloitte AI Institute "A new frontier in artificial intelligence" (2023), Aitomatic, Gartner, Press Search

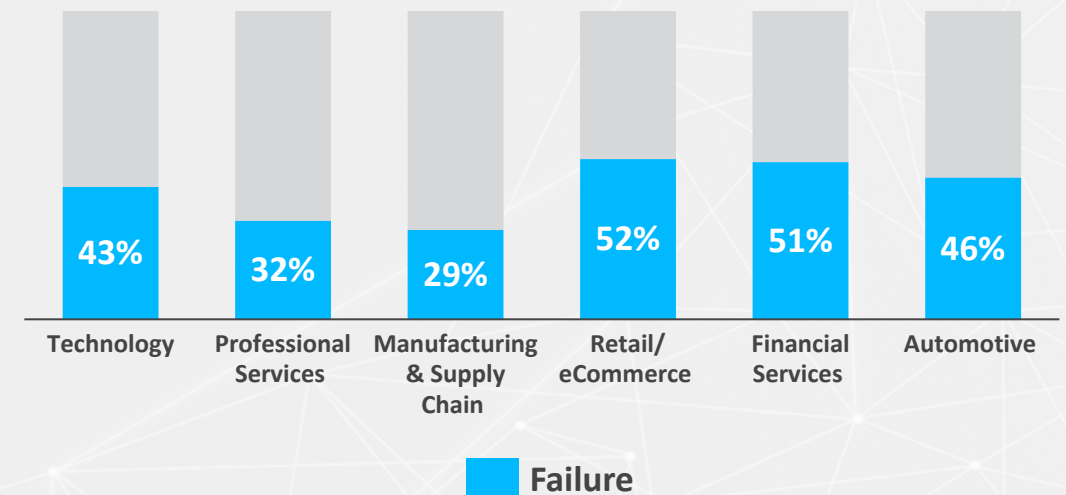# Potential challenges of Generative AI for companies

Companies need to embrace generative AI opportunities promptly, but they must also exercise caution to address the legal, ethical, and reputational risks

- **Handling technical complexity:** Generative AI models are complex and require significant computational power. This may lead to concentration of power among a few entities

- **Tackling legacy systems:** Integrating generative AI into older technology environments presents challenges, requiring organizations to decide between the integration or replacement of existing systems

- **Avoiding technical debt:** Failure to achieve significant change through generative AI adoption may result in it becoming a burden as technical debt, requiring meaningful optimization and process improvements

- **Monitoring for misuse and AI hallucinations:** Generative AI models can be misused by threat actors to create deep fakes, while the models themselves may produce hallucinations and misinformation

AI project failure rates vary across industries, with retail/eCommerce and financial services experiencing the highest rates, while the manufacturing and professional services sectors report the lowest failure rates

AI project failure rate by industry

Technology	Professional Services	Manufacturing & Supply Chain	Retail/ eCommerce	Financial Services	Automotive
43%	32%	29%	52%	51%	46%

■ Failure