

FutureBridge



REPORT

Future of AI

Pathbreaking advancements spanning
across industries

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This report seeks to provide a thorough understanding of rapidly evolving artificial intelligence (AI) space to highlight most important AI technologies, trends, applications and their industry potential.

We strongly believe that AI technologies have reached an inflection point, from here on industry will see an exponential growth in real life applications and value creation. This view is also shared at least by the major technology giants, who see it as a race for existence. A race that no technology organization can afford to stay behind on. It is also reflected in the astronomical investment figures this sector has seen, leaving behind any recent technology hype train.

However, this also calls for caution, Taking AI to the industry applications has its own challenges across computation, data power, algorithms' ability and the will to implement. In this dynamic space, leaders must choose technologies and applications very carefully considering the current as well as projected state of capabilities and challenges to get the best outcome.

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Executive Summary

1. AI investments keep pouring with the profitability threat still looming around

Startup funding in AI more than doubled in Q2'24 cumulating to USD 24 Bn. On the contrary, several companies which are struggling to generate profits and are being acquired or acquired by bigger tech companies



2. Smaller GenAI models could sustain in long term, driving wider affordable adoption

Lighter models could enable more AI applications on edge devices such as smartphones, industrial robots and more. Longer thinking models and agentic systems provide better results and they can be cost effective only with smaller models



3. Explainable AI could be crucial for adoption in critical sectors such as healthcare

AI reliability is still a major concern for wide scale adoption, particularly in critical sectors. With Explainable AI, users could have more trust and confidence in the process and quality of output



4. Increasing computational requirements are driving partnerships to build large data centers

Many technology leaders believe it will require multi-trillion dollars' investment in AI infrastructure to meet the demand. Major players are forming partnerships to create massive data centers



5. Vision-language-action models will propel general-purpose robots into commercialization

General-purpose robots could prove to be the game-changer for industry and consumers alike. If the data scarcity is resolved through simulations, reinforcement learning and other emerging techniques for robotics, this can become a multi-billion market by 2030 and an order larger by 2035



6. Multi-agent, iterative and architecture driven by LLMs will transform next-gen applications

Longer test time compute lends another dimension to enhance robustness and accuracy of AI systems by leveraging new architectures like agents, self-reflection, tool usage, function calling, RAGs and many more



7. Race for acquiring high-quality data to train models

As availability of real high-quality data is coming to an end, tech majors are investing in data aggregators and improving on synthetic data to train their AI models



8. Coding-related task advancement could return significant yield across industries

Consistent increase in model performance has been observed with latest updates reporting ~96 percent accuracy with human-generated code



9. Multimodal content generation has huge potential for services sector

Image, audio and video generation have made significant progress in technology and commercialization. With further model advancement, it will strongly impact services sector such as media, research, entertainment and gaming

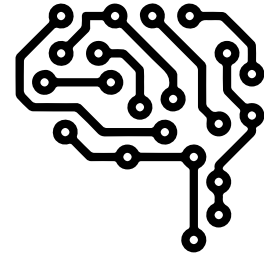


10. Industry specific AI copilots will emerge for key applications

Enterprise applications first, followed by other narrower applications will see emergence of co-pilots or AI assistants. Simplifying the work, guiding on procedures and providing the contextual information to workers, supporting middle management and taking over many of the planning & communications task



AI tasks and benchmarks



Technical tasks categorized based upon their level of impact across applications and model complexity. Also, their benchmarks indicate current and potential performance.



Technical advancements: tasks & benchmarks

Almost all AI technologies have three things in common: **hardware**, **data** and **model**. From the first AI applications in the form of a self-learning game created in 1952, to the advent of large language models (LLMs) driving generative AI, it has become possible with the advancements across these three domains. Currently, these can be observed in the form of graphical processing units (GPUs), multimodal data and advanced machine learning algorithms.

In the evolving landscape of emerging applications and competing players, technical performance benchmarks serve as an objective parameter for evaluating underlying capabilities. These benchmarks provide a standardized framework to measure the efficacy, accuracy, and robustness of AI models across diverse tasks, from image classification to natural language processing. By offering quantifiable metrics and facilitating comparisons, benchmarks not only drive innovation but also ensure transparency and accountability in AI development. These benchmarks guide researchers and developers towards creating more intelligent, reliable, and human-like systems.

With the increase in processing capabilities and model sophistication, we have been able to achieve significant progress across basic tasks such as English language understanding, text summarization, and image classification. For instance, SuperGLUE (an English language benchmark) scored of 91.30 in 2022, against the human baseline score of 89.80. In the current context, there are more evolved tasks and benchmarks, which are in the focus area of industry leaders, as they are trying to launch new and advanced models

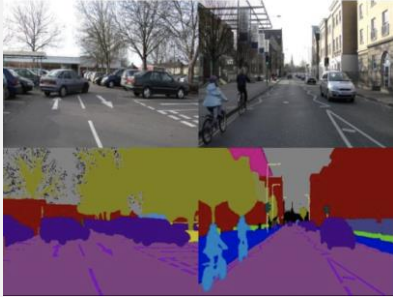
EXHIBIT 1: Broad set AI tasks

Fundamental	English language understanding Text summarization Speech recognition Image classification	Image generation Video generation Audio generation Causal reasoning Agent-based behavior Coding
	Image segmentation Activity recognition Image instruction-following	Vision-language assisted robots (VNM/ VLM/ VLA/ PalME) General reasoning 3D generation Mathematical reasoning Planning
Application	Basic	Advanced

Task complexity →

Source: FutureBridge Analysis

The tasks **highlighted** above are relevant in current context with respect to their applications and pace of innovation. These have been covered in detail along with key benchmarks and progress achieved.

EXHIBIT 2: Labeled image view

Source: University of Cambridge

Image segmentation

Dividing an image into multiple parts or regions that belong to the same class, based on specific criteria, for example, color or texture.

Benchmark

- Proportion to which the image segments predicted by the model, overlap with the actual segments, mean intersection-over-union (mIoU)
- Plateaued improvement in previous few years, with highest model score of 84.30 percent mIoU (2022) on Cityscapes dataset

**Activity recognition**

To categorize multiple activities occurring in the audio/video content.

Benchmark

- Matching model activity tagging with human output reference
- **Consistent growth in accuracy over previous 2-3 years**, with model scoring upto 91.80 percent accuracy (2022) on Kinetics-600 dataset

EXHIBIT 3: Comparison of relevant benchmarks

	Accuracy percent (2022)
Kinetics-600	91.8 percent
Kinetics-400	91.1 percent
Kinetics-700	84.0 percent

Source: Paperswithcode

EXHIBIT 4: Few sub-parameters to compare

Reasoning over graphs	Art knowledge	Contextual knowledge of events
Location understanding	Recognition	Hazard identification
Chemical identification	Game playing	Figurative speech explanation

Source: Github

Image instruction-following

Ability of AI models to interpret text-based directives related to images.

Benchmark

- Scanning results across multiple instruction categories such as plot analysis, content creation, and location understanding
- **GPT-4 Turbo came at par with the human reference score** for VisIT-Bench (2023)

Image generation



To generate realistic images based on the input text prompt

Benchmark

- **Plateaued improvement in results since previous couple of years**
- Comparison across multiple parameters such as quality, aesthetics and originality
- Under Holistic Evaluation of Text-to-Image Models (HEIM) benchmark, models displayed different results across various parameters



Video generation

To create videos from text or images

Benchmark

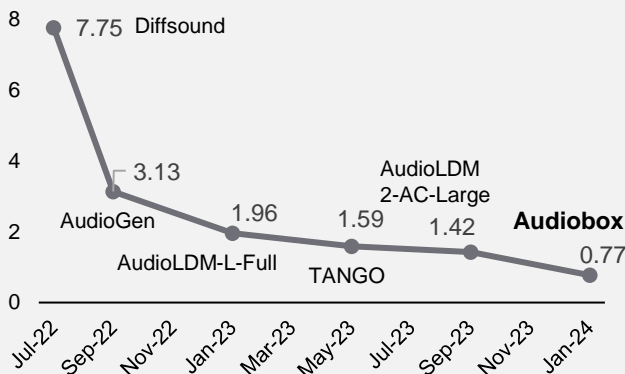
- There has been a **significant progress in previous 2-3 years**, however, it still has major lag as compared to actual recorded content
- UCF101, a benchmark dataset with over 13,000 clips, has been used to compare AI models. As a result, W.A.L.T.-XL model ranked top with strong resemblance with actual video

EXHIBIT 5: Model benchmark performance

Dataset	Parameter	Model
UCF-101	FVD score	W.A.L.T.-XL
Realistic videos with ~101 action categories	A metric which indicates variation from human judgement	Ranked highest in 2023 comparison

Source: University of Central Florida

Audio generation

**EXHIBIT 6: Model benchmark performance**

Source: Paperswithcode

To create synthetic audio content, ranging from human speech to music files

Benchmark

- AudioCaps dataset is used for benchmarking audio generation models.
- Meta's Audiobox yielded significant results with high correlation with perceptual quality (2023)

ADVANCED

FUNDAMENTAL



Agent-based behavior

AI-modules which can execute specific tasks independently operating flexibly in different environments.

Benchmark

- AgentBench is a framework to evaluate LLM-based agents
- **GPT-4 scored highest** in 2023 assessment
- Overall, models lagged on aspects related to long-term reasoning, decision-making, and instruction-following.

EXHIBIT 8: Model benchmark performance

Benchmark	Parameter	Model
HumanEval	Proportion to which output is closer to human generated code	AgentCoder (GPT-4 based)
Consists of multiple programming problems		Scored 96.3 percent (2023), an y-o-y increase of 11.2 percent

Source: Paperswithcode

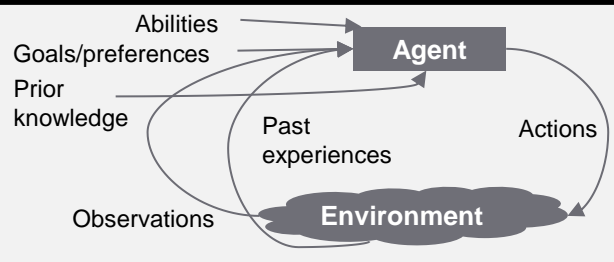
Causal reasoning



To establish cause and effect relationships, and enable AI models to make inferences using causality.

Benchmark

- BigToM (a benchmark to evaluate social and causal reasoning capabilities of LLMs)
- **LLMs performance is trending upwards** with GPT-4 delivering results close to human levels

EXHIBIT 7: Model benchmark performance

Coding



To generate practical usable code across multiple computer science applications.

Benchmark

- Parameters include code efficiency, complexity, and ability to handle different execution environments
- **Consistent increase in accuracy since previous few years** with a 96.3 percent score on HumanEval (2023)

ADVANCED

APPLICATION



Vision-language assisted robots (VNM/ VLM/ VLA)

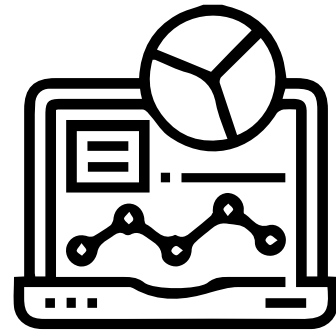
Ability of robots to perform general tasks through vision and language input.

Benchmark

- VisIT Bench, a benchmark for evaluation of instruction-following vision-language models
- Assessment parameters include accuracy of motion and task completion based on the input



AI trends



Analysis of a broad set of AI trends, and detailed analysis of select few which could have a transformative impact on multiple industries

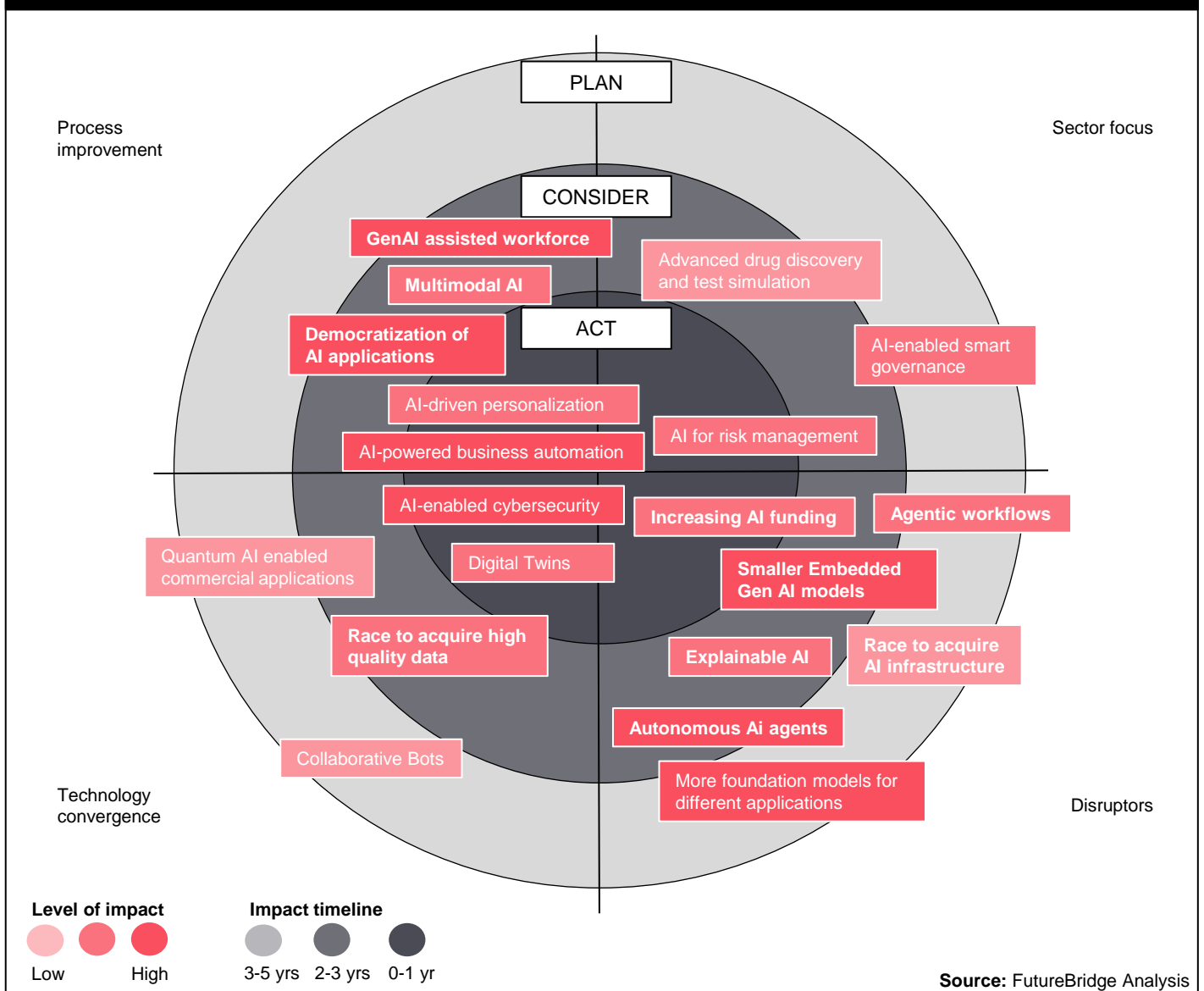


AI trends: Current and beyond

AI is at an inflection point with dynamic events impacting computing infrastructure, data collection, and model techniques. There are significant developments happening around acquiring GPUs and building vast data centers, pouring huge investments in AI startups, finding new and innovative ways to gather data for training models, and solving the quest to reach profitability. Technology companies are rapidly advancing by launching new models and investing for long-term growth.

The advent of GenAI stormed all industries, making it a key strategic element for growth accompanied with a fear of losing out on creating competitive advantage in a challenging business environment. However, companies are still unable to strike the right chord to integrate it across the enterprise and are experimenting with multiple tools and applications. In addition to this, with more advanced models entering the market, leaders are under intense dilemma to identify the right use cases and solution providers. To solve this challenge, we have analyzed a broad set of industry trends derived from various events and activities. Among these, we have shortlisted top 10 trends which could have a transformative impact across industries, which we will elaborate in detail.

EXHIBIT 9: Trend impact radar



Increasing AI funding amid profitability concerns

ACT

EXHIBIT 10: AI investment data, Q2'24



USD 24 Bn
Global AI funding,
Q2'24

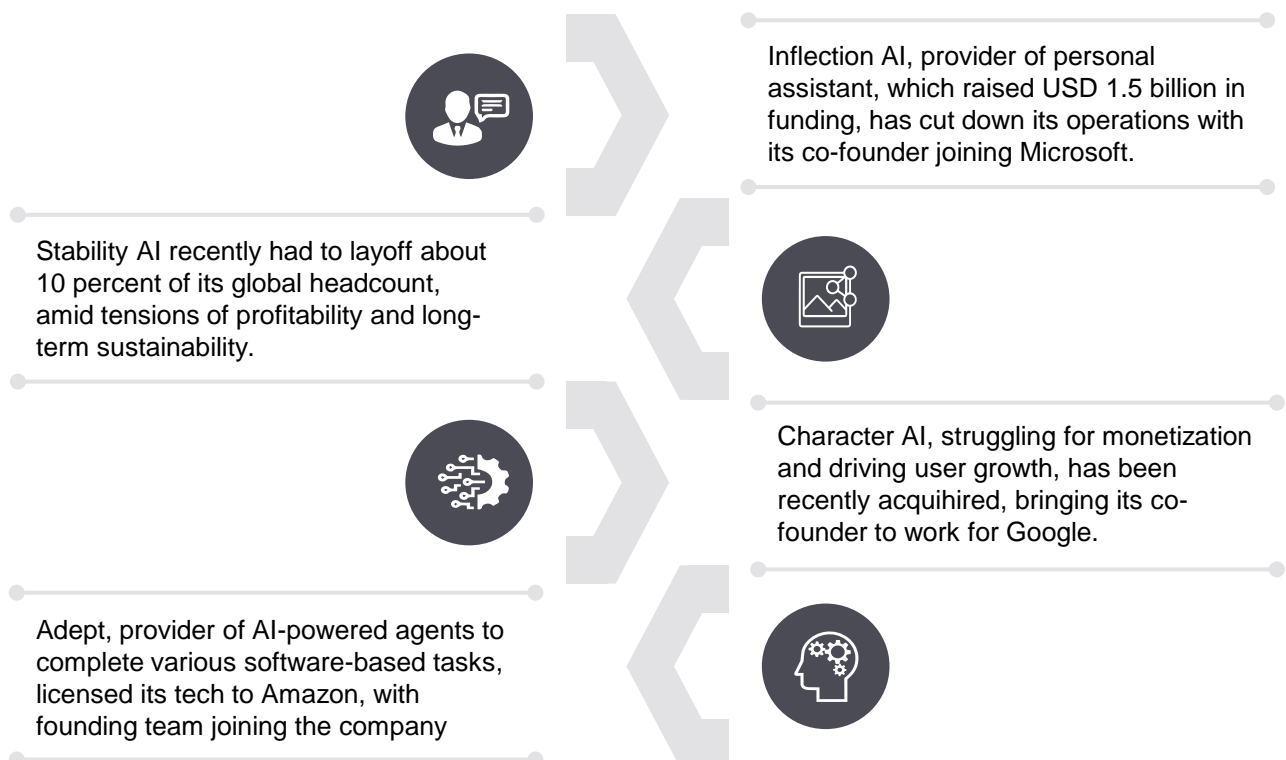
According to Crunchbase, funding to companies in AI more than doubled in Q2'24 — representing 30 percent of total amount invested, the largest quarter for AI funding in recent years.

Source: Crunchbase

5 out of 6 Billion-Dollar funding rounds went to AI companies

xAI	USD 6 Bn	Scientific discovery
Waymo	USD 5 Bn	Autonomous driving
CoreWeave	USD 1.1 Bn	Ai infrastructure
Scale AI	USD 1 Bn	Data preparation
Xaira Therapeutics	USD 1 Bn	AI biotech

AI became the leading sector garnering huge investments since the launch of OpenAI's ChatGPT in the beginning of 2023. Since then, AI has been continuously in the green raking in billions of dollars in funding. As per the Crunchbase data, Q2'24 witnessed the largest amount raised by AI companies in recent quarters. However, **lately there has been a concern over the slow revenue growth and high valuations of target companies.** Since the underlying technology requires a lot of resources for development, there is lack of certainty over long term profitability of these companies.



Recent developments indicate a lot of big tech play happening in the market, with leading tech companies either acquiring assets or talent from struggling AI startups. With multiple AI startups booming post GenAI, there has been an ongoing struggle to find market fit and generate revenue. In the future, **AI sector could witness consolidation and emergence of few deep-pocket players** who can sustain huge model training costs and forge long-term partnerships.

GenAI assisted workforce

CONSIDER

GenAI models, such as GPT-4, are being integrated into workflows to automate routine tasks, generate content, and provide insights. For instance, in the marketing sector, GenAI tools are used to create personalized content, draft emails, and develop marketing strategies. In customer service, AI chatbots and virtual assistants handle inquiries, resolve issues, and improve customer satisfaction. Additionally, in the field of software development, GenAI assists in code generation, debugging, and documentation, significantly reducing the time and effort required by developers.

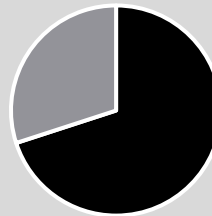
Industry adoption of GenAI is accelerating, with notable examples across various sectors. Companies such as **Microsoft and SAP have added GenAI-powered copilots into their enterprise software** to help with multiple tasks such as summarizing documents and analyzing insights intuitively. **Prominent players in the financial and professional services domain have partnered with GenAI solution providers** such as OpenAI and Google to create tools for employees. PwC created ChatPwC in partnership with OpenAI. McKinsey deployed Lilli, a GenAI knowledge assistant. Cognizant launched Innovation Assistant, a GenAI tool to support its internal innovation program. The future potential of GenAI is vast, with applications extending to areas such as legal research, financial analysis, and educational content creation. As these technologies continue to evolve, they promise to further augment human capabilities, leading to more efficient and innovative workplaces.

EXHIBIT 11: AI investment data, Q2'24

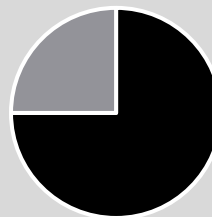
According to a survey of software professionals,

49 percent of respondents highlighted that **GenAI improves overall software quality**

27 percent of organizations are **actively exploring GenAI potential through pilot projects**



According to Global Workforce of The Future Report 2023, **70 percent** of the workers are already using GenAI at work



According to a state of GenAI in the enterprise survey, **~75 percent** of the respondents expect to change their talent strategies within two years in response to GenAI

Source: Capgemini, Adecco, Deloitte

As GenAI technologies become more sophisticated, they will seamlessly integrate into various sectors, providing real-time insights, automating routine tasks, and enabling personalized experiences. This transformation will lead to a more agile and adaptive workforce, where employees can focus on strategic and innovative activities rather than mundane tasks. Moreover, the **collaboration between humans and AI will foster a culture of continuous learning and improvement**, as AI systems provide feedback and suggestions based on vast datasets. However, **this shift will also necessitate robust ethical frameworks and upskilling initiatives** to ensure that the workforce is equipped to leverage these advanced tools responsibly and effectively. Overall, the GenAI-assisted workforce will be a cornerstone of the future, driving efficiency and innovation across the global economy.

Democratization of AI applications

CONSIDER

Cloud-based AI

Faster solution deployment, and wider range of plug-and-play applications

Low code/ No code

Enables business users to experiment with tools, resulting in faster adoption

Consumer EdgeAI

Smaller models and chips drive AI apps in consumer devices such as smartphones

1

2

3

4

5

Open-source

Enhances model adoption and versatility. Increases affordability and breaks vendor lock-in

GenAI

Freemium tools allow large scale adoption, with new prompting techniques and use cases being developed

The democratization of AI applications is transforming industries by making advanced AI tools and technologies accessible to a broader audience. **It is driven by the proliferation of user-friendly AI platforms, open-source frameworks, and cloud-based services, enabling businesses of all sizes to leverage AI without requiring deep technical expertise.** Use cases span across various sectors, and industry adoption is accelerating as companies recognize the competitive advantage of integrating AI into their operations, leading to increased efficiency and innovation.

Looking ahead, it holds immense potential for fostering innovation at low cost, empowering individuals and small enterprises. Since the onset of GenAI, even technical teams can create coding scripts faster, leading to saved time on low-value adding tasks. **This could pave the way for holistic transformation with more experimentation and brainstorming, keeping everyone involved in the process.** Increasing developments around Explainable AI, could further enhance the transparency of AI applications, and drive adoption across multiple sectors. With an appropriate implementation plan and governance policy, enterprises could adopt this trend to fasten response to new technologies and stay ahead of the competition.



Challenges Ahead

- Usage by non-technical staff could lead to improper training and model bias
- Inability to sustain long-term and enterprise scale transformation
- Issues such as regulatory concerns could spring up due to improper data usage
- Robust security measures need to be deployed



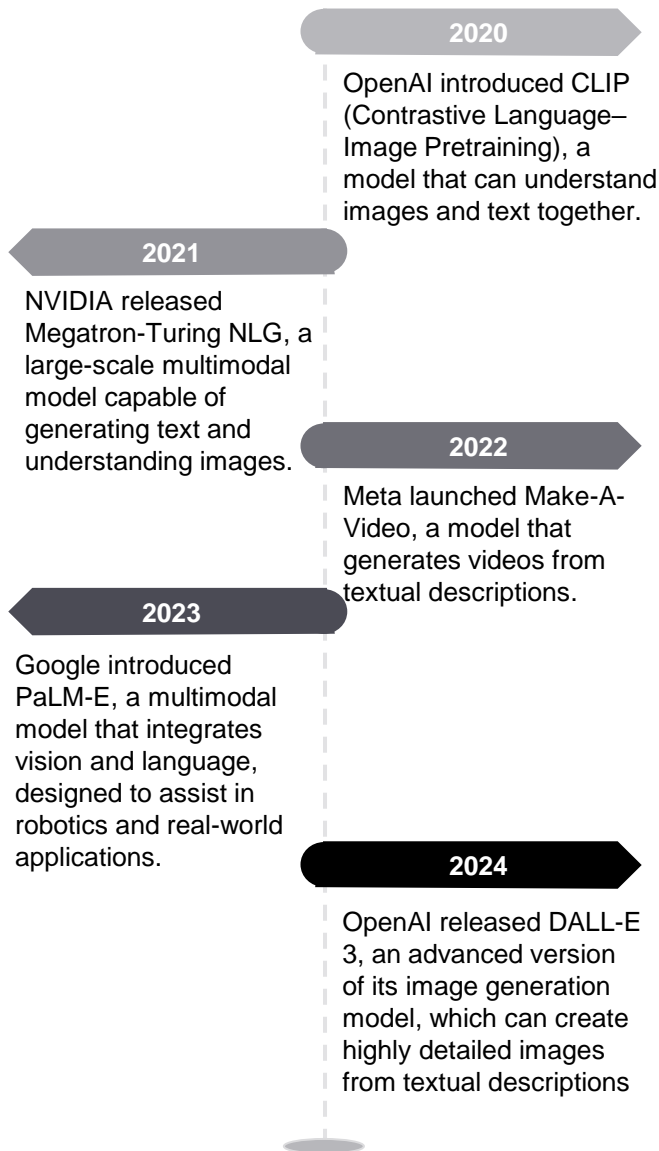
Value Proposition

- Upskill employees with relevant digital skills
- Adopt new technologies by experimenting with low-hanging use cases
- Drive innovation with collaborative thinking
- Mitigate dependency on IT talent
- Gain competitive advantage by providing faster response to market changes

Multimodal AI to create human-like interactions

CONSIDER

Industry developments: at a glance



Multimodal AI represents a significant leap in the field of AI, integrating multiple forms of data such as text, images, audio, and video to create more comprehensive and contextually aware systems. Currently, it is being leveraged in various applications, including advanced virtual assistants, healthcare monitoring and risk management. For instance, virtual assistants are evolving to understand and respond to complex queries by integrating voice, text, and visual data. Patient care and treatment planning are getting better by integrating data from wearable devices, electronic health records, and medical imaging. Also, it is used for fraud detection and risk assessment by analyzing transaction data, customer behavior, and other relevant information.

Organizations can harness this technology to improve customer experiences, streamline operations, and drive innovation. For example, in retail, multimodal AI can provide personalized shopping experiences by analyzing customer behavior across different channels. In manufacturing, it can optimize production processes by integrating data from various sources, such as machinery sensors and supply chain information. As organizations increasingly adopt digital transformation strategies, the relevance of multimodal AI will continue to grow, providing better decision making, and thereby enhancing efficiency and scalability.

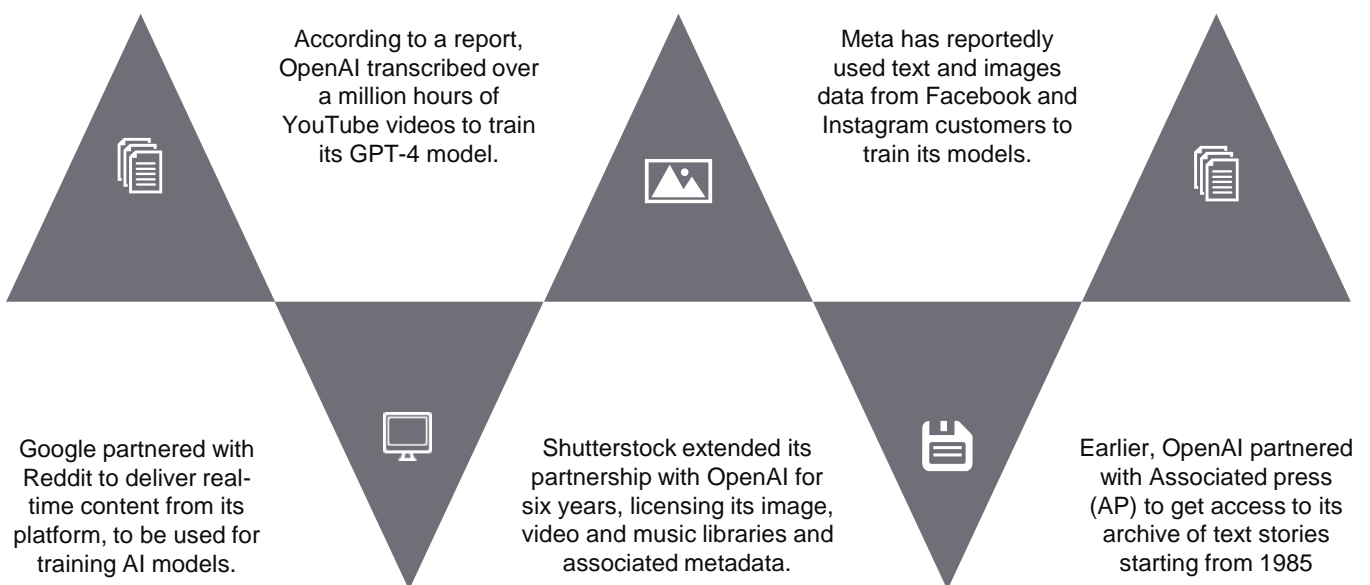
Multimodal AI represents a transformative leap in artificial intelligence, integrating multiple data types such as text, images, audio, and video to create more comprehensive and contextually aware systems. **The future of multimodal AI is poised to revolutionize various industries by enabling more intuitive and human-like interactions.** Moreover, the development of more sophisticated virtual assistants and chatbots will facilitate seamless communication across different modalities, making interactions more natural and efficient.

As multimodal AI continues to evolve, ethical considerations and data privacy will be paramount, ensuring that these powerful systems are used responsibly. Overall, the future outlook for multimodal AI is incredibly promising, with the potential to significantly enhance the way we interact with technology and each other.

Race to acquire high quality data

CONSIDER

In addition to the availability of sophisticated AI techniques and robust infrastructure, quality of data is also critical to create a successful model. Large language models are trained on trillions of tokens, which need access to huge amount of high-quality data. **As companies are working on new techniques to advance these models, there is a dearth of quality data on which these can be trained. This is leading to huge amount being spent on training models and also looking for alternate ways to acquire data.** For instance, Google and Microsoft using customer data to train models, with changes in their user agreement and privacy policies. Data storage providers such as Photobucket and Shutterstock are licensing its images data to AI companies for training models. However, these are just standalone developments, and often lead to issues related to copyright infringement or privacy related claims. Moreover, with increasing restrictions through website protocols, web crawlers are unable to gather data from high-quality sources.



Going further, technology companies are exploring multiple alternatives, with synthetic data providing a feasible approach for data generation. **As AI models require vast amounts of data to train effectively, synthetic data provides a scalable and cost-effective solution by generating realistic, artificial datasets that mimic real-world data.** This innovation is particularly transformative in sectors where data privacy and scarcity are significant concerns, such as healthcare, finance, and autonomous driving. By enabling the creation of diverse and representative datasets, synthetic data can enhance model accuracy and robustness while mitigating biases inherent in real-world data. Furthermore, it facilitates the development of AI systems in scenarios where acquiring real data is impractical or ethically challenging.

Looking ahead, the integration of synthetic data with advanced AI techniques like generative adversarial networks (GANs) and reinforcement learning could drive unprecedented advancements in model training and validation. However, the future of synthetic data will also necessitate rigorous standards and frameworks to ensure data quality and ethical use. As this technology matures, it promises to democratize access to high-quality data, accelerating innovation and fostering more equitable AI solutions across various industries.

Autonomous AI agents for specific applications

CONSIDER

Autonomous AI agents are designed to operate independently, making decisions based on pre-defined goals and real-time data analysis. These agents can vary significantly in complexity, ranging from simple systems that perform predefined tasks in a structured environment, to sophisticated AI systems that learn and adapt in complex, dynamic situations.

With the advent of GenAI, agents could collaborate with people and other agents, and improve their performance, acting as a skilled virtual coworker. These agents can be directed with natural language and work with existing software tools and platforms. In recent years, tech players such as **Google, Microsoft and OpenAI have invested in software libraries and frameworks to support agentic functionality**. Moreover, companies are focusing on building action-based models and multi-agent systems, in place of knowledge-driven tools.

AI agents are emerging as enablers of various tech applications across multiple sectors. These cover **industry verticals such as healthcare, transportation, logistics** etc.. As these technologies advance, they could impact multiple industries by increasing efficiency, reducing costs, and enabling new levels of innovation. Further, the integration of autonomous AI agents into everyday operations could likely lead to more intelligent, responsive, and adaptive systems, ultimately transforming how we live and work.

Tech applications enabled by autonomous AI agents



Self-driving vehicles

- Autonomous cars, trucks, buses and drones for multiple use cases



Customer support

- Agents handling queries in natural language
- Personalized recommendations



Robotics

- Used in assembly lines, warehouses or remote environments
- Assisting in surgeries and patient care



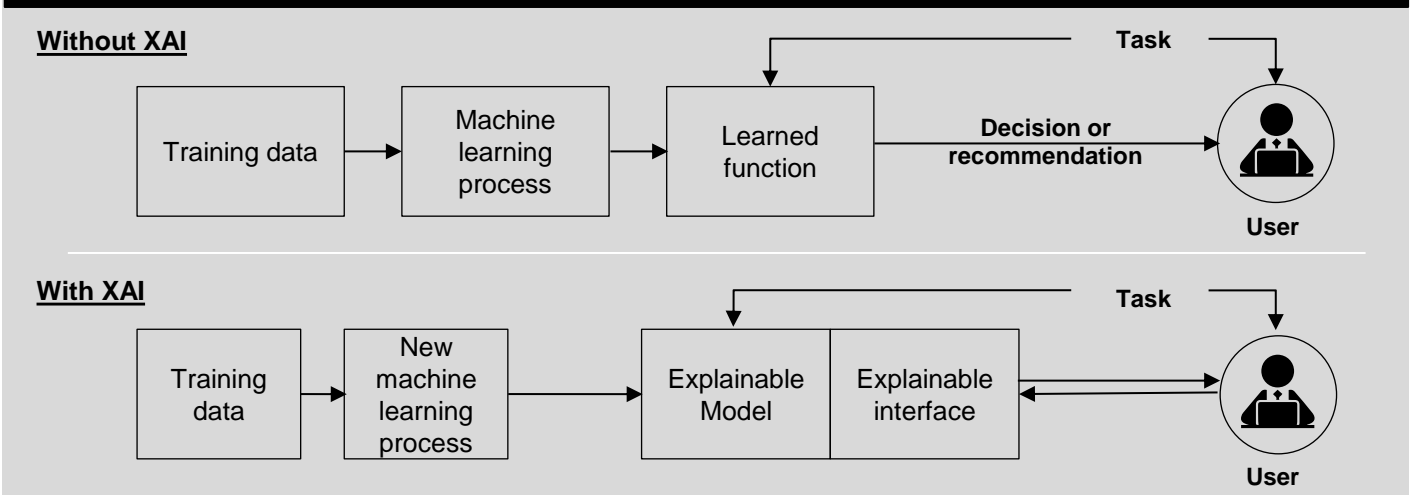
Environment monitoring

- Monitor crops for precision farming
- Track pollution levels and natural disasters

As these agents become more sophisticated, **ethical considerations and robust regulatory frameworks will be crucial to ensure their safe and responsible deployment**. The continuous evolution of autonomous AI agents promises to drive efficiency, innovation, and transformative changes across multiple sectors, making them a cornerstone of the future AI ecosystem.

Explainable AI

CONSIDER

EXHIBIT 12: AI model view with Explainable AI


As artificial intelligence systems become increasingly integrated into critical decision-making processes across various industries, the demand for Explainable AI (XAI) has surged. This is particularly crucial in sectors such as healthcare, finance, and legal, where the implications of AI-driven decisions can be profound and far-reaching. For instance, in healthcare, XAI can help clinicians understand the rationale behind AI-generated diagnoses or treatment recommendations, thereby fostering trust and facilitating better patient outcomes. Similarly, in finance, XAI can provide insights into credit scoring models, ensuring that decisions are fair and non-discriminatory. The adoption of XAI is also driven by regulatory requirements, such as the European Union's General Data Protection Regulation (GDPR), which mandates the right to explanation for automated decisions.

The future potential of Explainable AI is vast, with applications extending beyond compliance and transparency. **As AI systems evolve, the ability to explain their decisions will become a key differentiator, enhancing user trust and acceptance.** Industries are increasingly recognizing the value of XAI in improving the accountability and reliability of AI systems. For example, autonomous vehicles equipped with XAI can provide explanations for their actions, which is essential for safety and public acceptance. Moreover, XAI can play a pivotal role in advancing AI research by offering insights into model behavior, thereby facilitating the development of more robust and generalizable AI systems. As the field progresses, we can expect to see more sophisticated XAI techniques that balance the trade-off between model complexity and interpretability, ultimately leading to more transparent and trustworthy AI applications.

Ericsson integrated XAI within its cognitive software portfolio

With XAI, CSPs will have full explainability on actions recommended by the AI-powered solution that identifies the root causes of events affecting network performance and end user experience.

Temenos launched explainable GenAI solution for banking

Temenos integrated patented XAI solutions and GenAI capabilities with its banking platform. It allows users and regulators to verify the results produced and enable faster deployment.

Google Vertex Explainable AI on cloud

Google's Vertex AI offers a solution through its Explainable AI feature, designed to provide clarity on how AI models arrive at their decisions.

Smaller Embedded Gen AI models

CONSIDER

The trend towards smaller GenAI models is gaining significant traction in the industry. Unlike their larger counterparts, which can contain billions of parameters, smaller GenAI models are designed to be more efficient and cost-effective. Recent developments, such as Meta's release of LLaMA models with 7 and 13 billion parameters, have demonstrated that smaller models can still deliver powerful performance. **These models are particularly advantageous for organizations with limited resources, as they are easier to deploy and manage.** Additionally, smaller models can be fine-tuned for specific tasks, making them highly customizable and suitable for a wide range of applications. This shift is driven by the need for more nimble and secure AI solutions that can operate locally on devices rather than relying on cloud infrastructure.

The industry potential for smaller GenAI models is vast. As businesses continue to adopt AI technologies, the demand for models that are both effective and economical is growing. **Smaller models are not only cheaper to run but also offer enhanced security and privacy, as they can be managed entirely within an organization's infrastructure.** This makes them particularly appealing for sectors that handle sensitive data, such as healthcare and finance. Furthermore, with the growth of AI at edge across consumer devices, there is a demand for models which can compute locally with limited resources and bandwidth.

“Small language models can make AI more accessible due to their size and affordability. At the same time, we're discovering new ways to make them as powerful as large language models.”

– *Sebastien Bubeck, VP of Applied Research, Microsoft*

Microsoft launched a range of lightweight models, with Phi-3.5-Min as the latest one. These models are faster and cheaper, as they are based on only few billion parameters.

OpenAI launched GPT-4o mini, a small language model (SLM) which is **more than 60 percent cheaper than GPT 3.5 Turbo.**

Google launched two models, one with 9 billion and other on 27 billion parameters, as part of its open lightweight model series.

Additionally, these models contribute to sustainability by reducing the energy consumption associated with large-scale AI training and inference. As research continues to advance, we can expect them to become even more efficient and versatile, driving innovation and making sophisticated AI accessible to a broader range of users and applications.

Race to acquire AI infrastructure

PLAN

Growing advancements in AI, emanating from the widespread rollout of GenAI applications, has led to a massive rush to build better models which rely on high computing power. These applications require advanced AI hardware (graphical processing units or GPUs) which are critical for training the models and then computing tasks at low latency. **Due to limitation of resources, many AI companies are partnering with major investors and hardware manufacturers to create large data centers.** In recent times, with rising demand for chips, NVIDIA (which holds more than 90 percent share of the data center GPU market), witnessed ~200 percent share growth with market value crossing USD 3 billion.



Microsoft, BlackRock, Global Infrastructure Partners and MGX created the Global AI Infrastructure Investment Partnership (GAIIP) to mobilize **USD 100 Bn for investments in data centers and power infrastructure**



Amazon Web Services (AWS) and NVIDIA announced strategic **collaboration to offer computing infrastructure, software and services** for GenAI applications

The boom in demand for AI computing infrastructure is leading to pressure on datacenters capacity, with significant stress on electricity grids, generation capacity, and the environment. According to a report by SemiAnalysis, **Global Datacenter Critical IT power demand will surge from 49 Gigawatts (GW) in 2023 to 96 GW by 2026, of which AI will consume ~40 GW.** Major tech companies are investing in long-term partnerships for creating more data centers, partnership with power providers, and opting for layouts and techniques to enhance Power Usage Effectiveness (PUE). **Microsoft signed a 20-year agreement to buy electricity from Constellation Energy's Three Mile Island (TMI) nuclear plant, locking in carbon-free nuclear power.** With rising concerns regarding climate change and availability of critical infrastructure, companies would need to strike a right balance between the potential and 360-degree impact of emerging GenAI applications.

“

Rather risk building capacity before it is needed, rather than too late, given the long lead times for spinning up new infra projects.

– **Mark Zuckerberg**, CEO, Meta

”

“

“the risk of under-investing is dramatically greater than the risk of over-investing. Even if it turns out that we are over-investing, these (GPUs and data centers) are infrastructure which are widely useful for us.”

– **Sundar Pichai**, CEO, Google

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Agentic workflows enabling wider applications

PLAN

Agentic workflows are revolutionizing industries by enabling autonomous AI agents to manage and optimize complex tasks and processes. These workflows are being rapidly adopted across sectors such as healthcare, finance, manufacturing, and customer service. In healthcare, they streamline patient care pathways by coordinating tasks from diagnosis to treatment and follow-up. In finance, they enhance fraud detection by monitoring transactions in real-time and flagging suspicious activities based on learned patterns. Manufacturing benefits from optimized supply chain management, where AI agents dynamically adjust processes to minimize downtime and maximize efficiency. Customer service sees improvements through AI-driven chatbots that provide personalized and instant responses.



Microsoft launched AutoGen Studio, a low-code interface for building multi-agent workflows, based on open-source Python-based framework



Bud Financial deployed a consumer agent for banks, which can be embedded into its GenAI and customer-facing product suite to help individuals optimize their finances



Salesforce launched its Agentforce platform to enable enterprises to build and deploy autonomous agents, leveraging the data from Salesforce cloud



Endava launched Agentic AI industry accelerator, to deploy AI in highly-regulated sectors such as healthcare, insurance, financial services, and private equity



According to Gartner, **by 2028, one-third of interactions with generative AI (GenAI) services will use action models and autonomous agents** for task completion

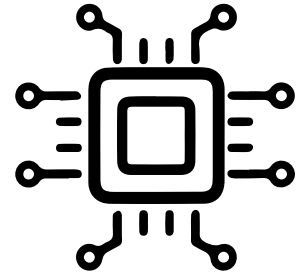
Source: Gartner

“It won’t just be chatbots or copilots or agents serving business needs — it will be all of them operating as one to shape the future of enterprise IT.”

– **Jayesh Govindarajan**, EVP of Salesforce AI Platform

As these workflows become more sophisticated, they will facilitate seamless integration across different systems and platforms, driving interoperability and collaboration. However, it will also necessitate robust governance frameworks to ensure ethical use and data security. Overall, agentic workflows are poised to revolutionize the way organizations operate, fostering greater agility, precision, and innovation in the AI-driven future.

AI signals and technologies



Detailed analysis of high-impact AI technologies which are expected to transform multiple industries



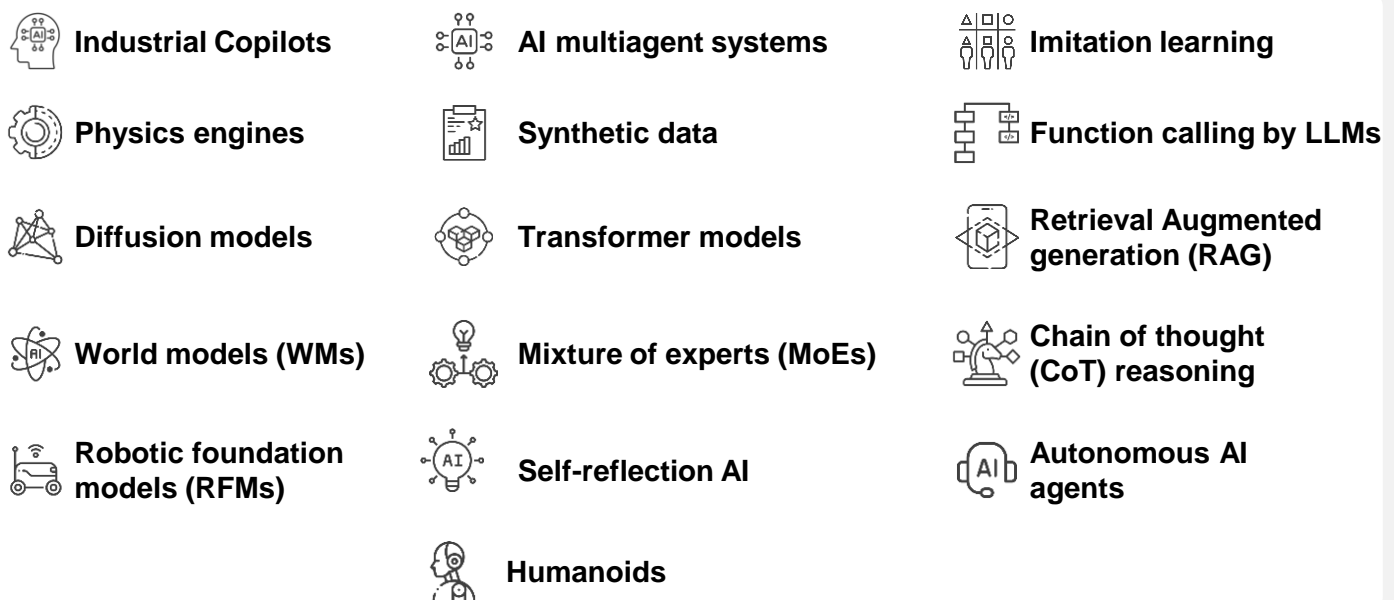
Signals tracking and analysis

The significant transformation potential of AI trends is based upon underlying technologies, which are getting better day by day. New techniques drive models which are faster and more accurate. Tech industry leaders are always on the lookout for creating better solutions by focusing upon R&D efforts. In 2023, According to WIPO Patent Landscape Report on Generative AI, **over 14,000 GenAI patents and more than 34,000 GenAI scientific papers have been recorded in 2023**. Major application areas for GenAI patents include software, life sciences, document management and publishing. Leading tech companies with maximum patents are Tencent, IBM and Google.

Recent developments suggest that tech solution providers are enhancing GenAI capabilities with new techniques such as imitation learning and chain of thought reasoning. Further, **in place of standalone GenAI tools, applications are moving towards multiagent systems** which can interact with each other. Organization across industries need to track and analyse these advancements so that they can align their investments accordingly.

The below exhibit has a list of 40 AI signals which are in different stages of tech maturity and sector focus. Based on a subjective assessment, considering wider applicability and potential, we have selected a total of 16 signals which have been analyzed and discussed in detail.

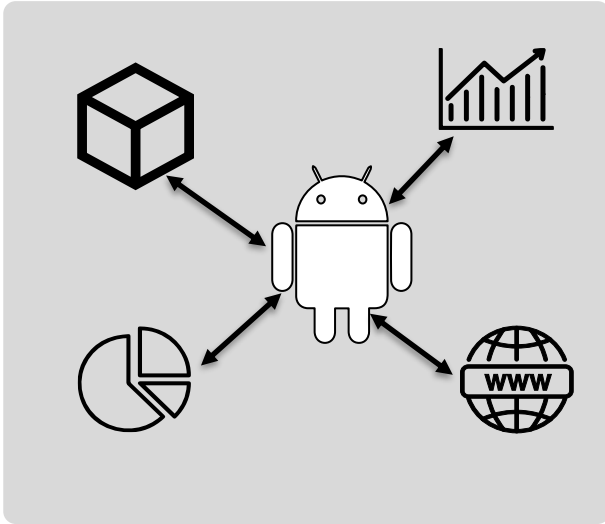
EXHIBIT 13: Broad set of AI signals



Embodied AI	Neuro-symbolic AI	Quantum machine learning	Federated learning	Explainable AI	Emotional AI
Superpods (AI supercomputers)	'Segment anything' models	Visual SLAM	VLA models	Factory Copilot	Protein structure prediction
Co-packaged optics in AI accelerators	Hyperscale data centers	Multi-agent reinforcement learning	AI accelerators	Graph neural networks	Structured output
Coding models	GANs	Self-supervised learning	No-code AI platforms	CUDA	Photoelectronic computing

Source: FutureBridge Analysis

Industrial Copilots



AI-powered virtual assistant which uses LLMs and NLP to support users with various tasks, also connecting with enterprise systems.

Use case and benefits

- Assist engineering and operations teams, with contextual responses o queries related to maintenance and service requirements
- Support wider administration and management teams with strategic planning, product design and development

“In the future, Siemens envisions a suite of generative AI-powered industrial copilots across the entire value chain—design, planning, engineering, operations and services.”

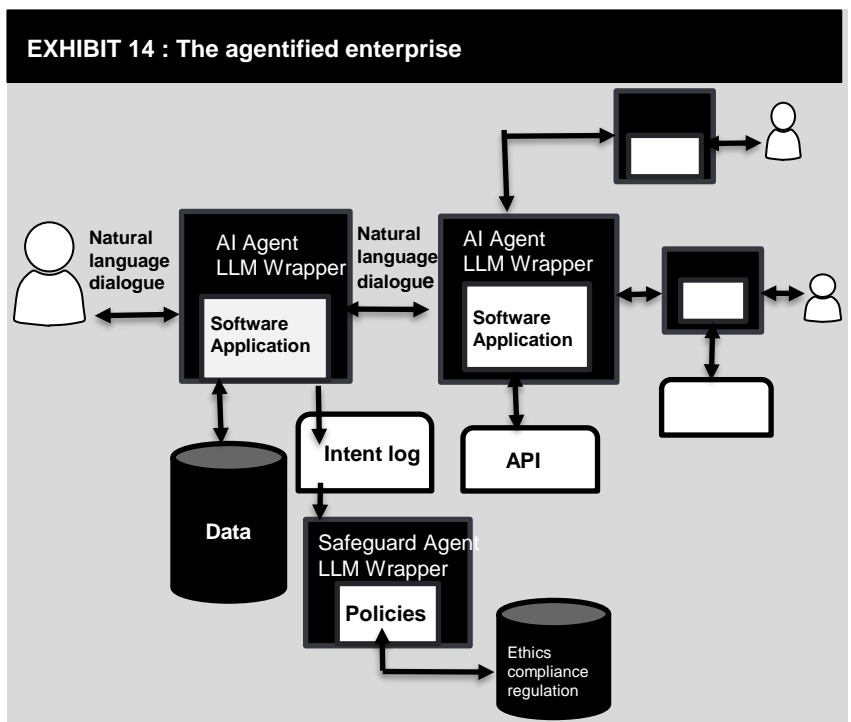
– Gorge Rekhi, National Business Development with Digital Enterprise at Siemens

AI multiagent systems

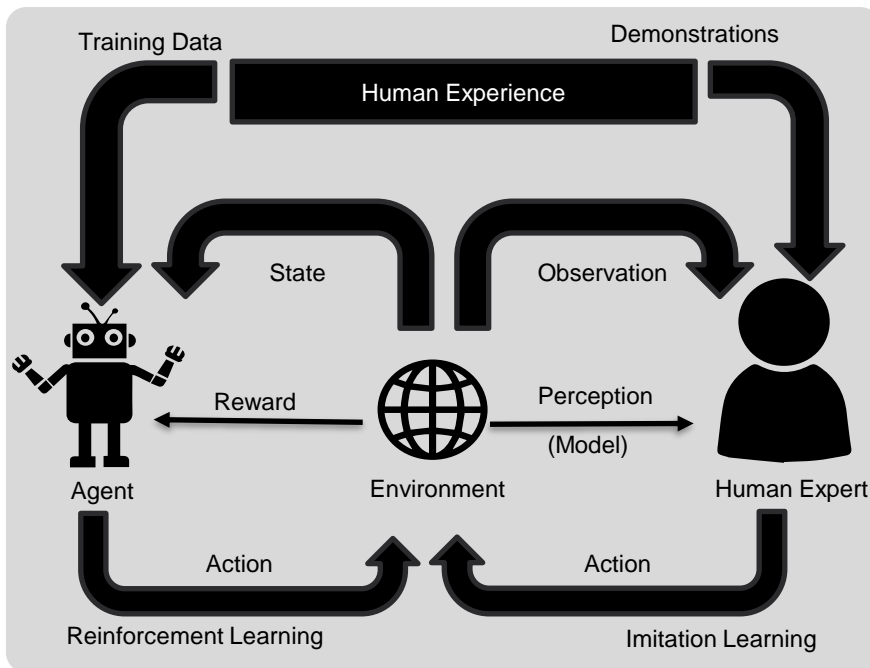
Multiple AI agents which cater to a specific task respectively, operate together to interact, collaborate and execute a complex task.

Use case and benefits

- Enhanced user experience with natural language-based interactions, and robust inter-agent communication
- Better resource management and data handling leads to efficiency and waste reduction
- Agent modularity enhances reliability with better fault tolerance



Imitation learning



In imitation learning, the agent learns from a dataset of demonstrations by an expert, typically a human. The goal is to replicate the expert's behavior in similar, if not the same, situations.

Use case and benefits

- Imitation learning is useful when typical reinforcement learning technique falls short due to less or no specific reward to guide the agent
- It could support in training robots on complex tasks, gaming bots, and autonomous vehicles

“we’re automating the automation. Engineers are teaching the robots to train themselves.”

– Fred Parietti, PhD, co-founder and CEO of Multiply Labs

Physics engines (ray tracing, softbody dynamics, AI agents)

A physics engine provides an approximate simulation of certain physical systems, such as rigid body dynamics (including collision detection), soft body dynamics, and fluid dynamics.

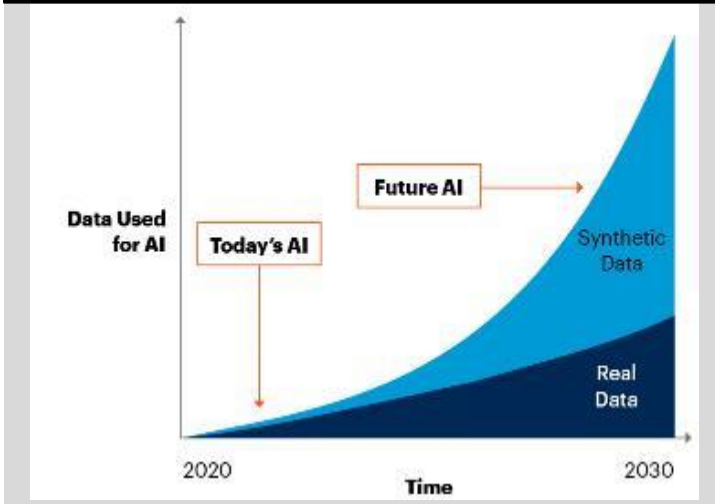
Use case and benefits

- Provide the ability to simulate physics phenomena, used in animation, video games, architecture and engineering
- AI based physics engine can leverage historical data, accelerate design cycles, and generate predictions on a broad range of topics such as computational fluid dynamics (CFD), crash, and manufacturing
- GenAI solutions also provide a text-to-video interface



Synthetic data

EXHIBIT 15: Data-use mix projections till 2030, Gartner



Synthetic data is artificially created rather than recorded from real-world events. It can be generated using various techniques such as generative models or agent-based modelling.

Use case and benefits

- Synthetic data can be deployed to train and validate machine learning models faster, while keeping sensitive data safe
- It could be critical for sectors such as financial services and healthcare where privacy of original data is a significant concern

According to a survey of IT and D&A leaders by Gartner, the respondents mentioned the reason for adopting AI-generated synthetic data as real-world data accessibility (60 percent), followed by data complexity (57%) and data availability (51%).

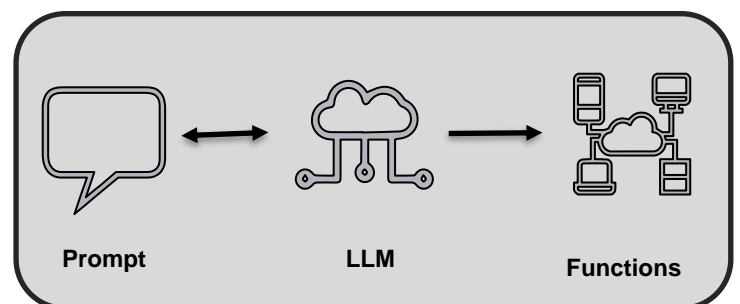
Only 3% of respondents say their organization did not face any challenges with real-world data.

Function calling by LLMs

Technique that allows LLMs to interface with external systems, APIs and tools.

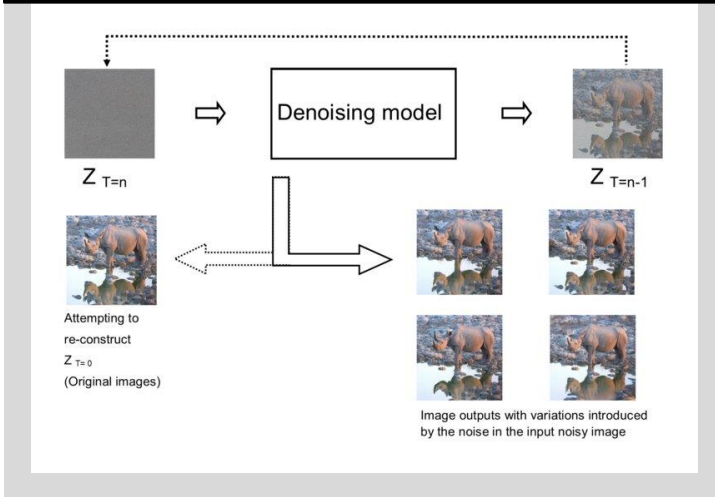
Use cases and benefits

- It is critical for interacting with external tools by converting natural language into API calls.
- Has multiple applications across domains such as conversational agents, math problem solving, API integration or information extraction



Diffusion models

EXHIBIT 16: Denoising Diffusion Model



Diffusion models are advanced machine learning algorithms that uniquely generate high-quality data by progressively adding noise to a dataset and then learning to reverse this process. Once the model has learned how to reverse the noise-adding process, it can generate new content similar to real-world.

Use cases and benefits

- These models could assist in various tasks such as video generation, text-to-image, and restoration of images and video
- It has applications in various sectors such as gaming, entertainment, architecture and healthcare

"We used transformers in search... So we've infused transformers across our products... we have a chance to do that better with generative AI and with the Gemini series of models."

– *Sunder Pichai, CEO, Google*

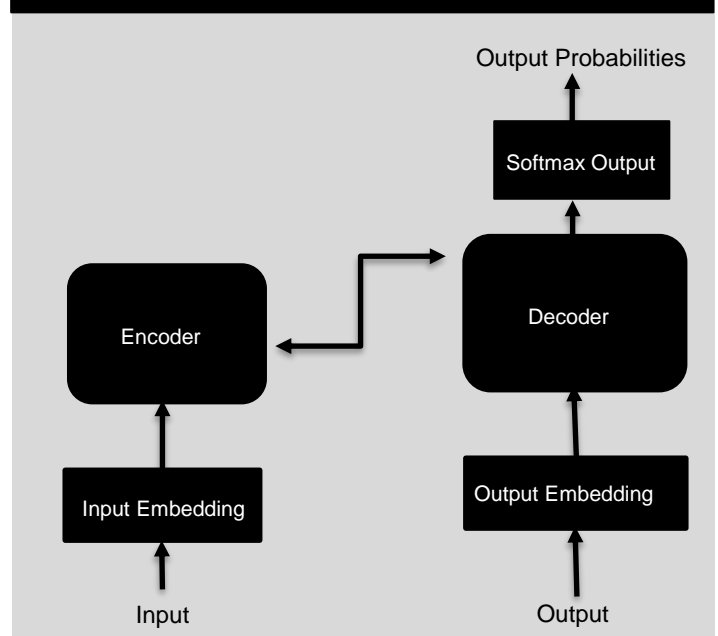
Transformer models

A transformer model is a neural network that learns the context of sequential data and generates new data using that. They are designed to comprehend context and meaning by analyzing the relationship between different elements.

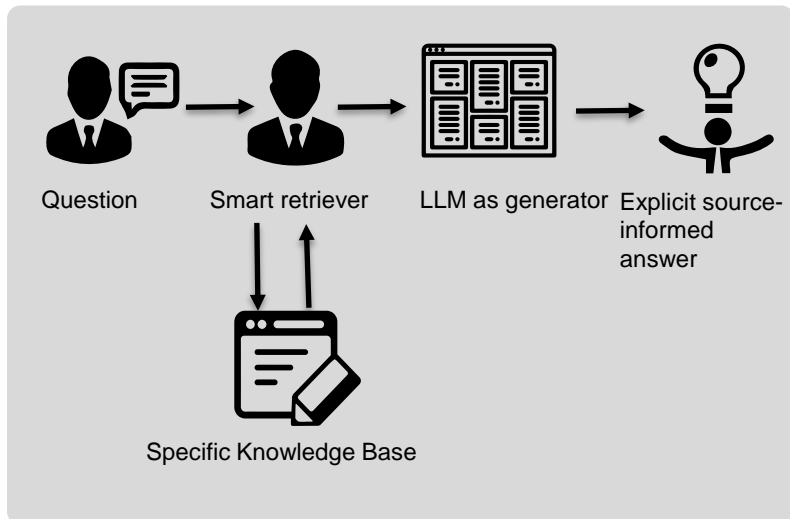
Use cases and benefits

- Prominent GenAI models such as LaMDA and GPT are based on transformers
- Major applications are related to general question answering and content generation
- Going further, commercial deployments and use for solving complex problems is likely to increase

EXHIBIT 17: Transformer Models Block diagram



Retrieval Augmented generation (RAG)



RAG is an AI framework that combines the capability of traditional information retrieval systems (such as databases) with generative large language models (LLMs).

Use cases and benefits

- Performs better than traditional text generation methods by integrating relevant facts and data points
- RAGs witness significant applications in sectors where contextual information is required, for instance, financial services, healthcare and legal services

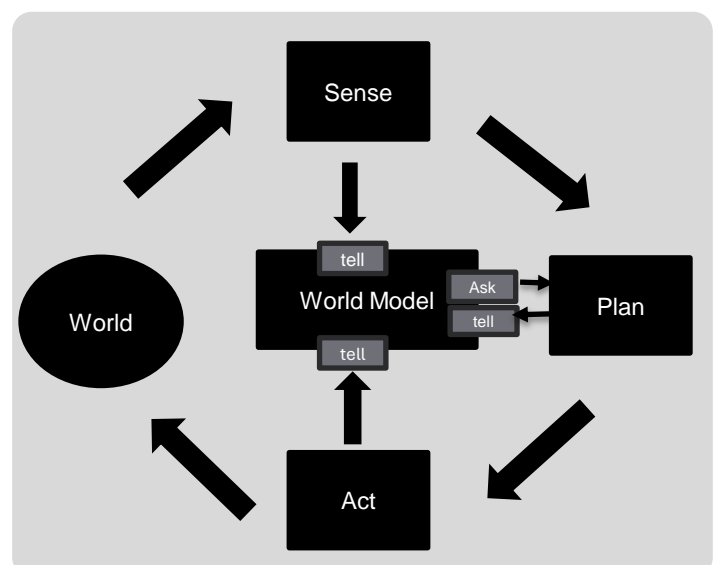
RAG market size is expected to grow at a CAGR of 44.7 percent from 2024-30, according to a recent market report by Grand View Research.

World models (WMs)

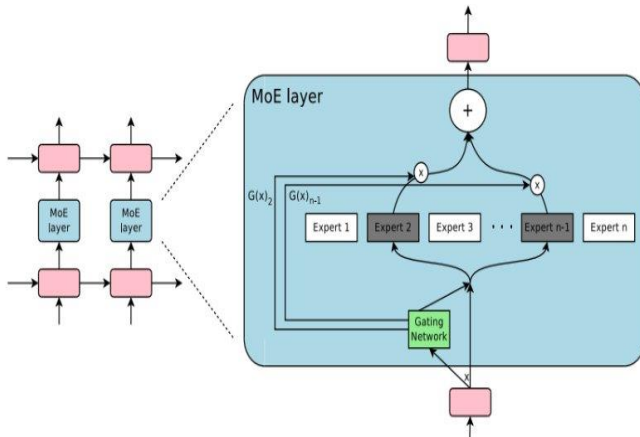
An AI system that builds an internal representation of an environment, and uses it to simulate future events within that environment. It could be trained in an unsupervised manner with compressed spatial and temporal representation.

Use cases and benefits

- WMs have the potential to enhance bots with advanced human sensory skills (visual and auditory) and non-human sensory inputs like infrared, radars, thermal scanners and other IoT data
- Industrial applications could include predicting health issues, robust urban planning, and optimum usage of natural resources by predicting climate patterns



Mixture of experts (MoEs)



MoE is a machine learning approach that divides an AI model into separate sub-networks (or “experts”), each specializing in a subset of the input data, to jointly perform a task.

Use cases and benefits

- MoE architecture enhances performance by focusing only on the relevant computation tasks. Also, since tasks are executed separately, it enhances resiliency
- It can be leveraged for creating applications such as computer vision and recommendation systems

CoT technique is leading to better model results, as well as supporting the pillar of explainable AI. Both of these could propel its adoption in the future.

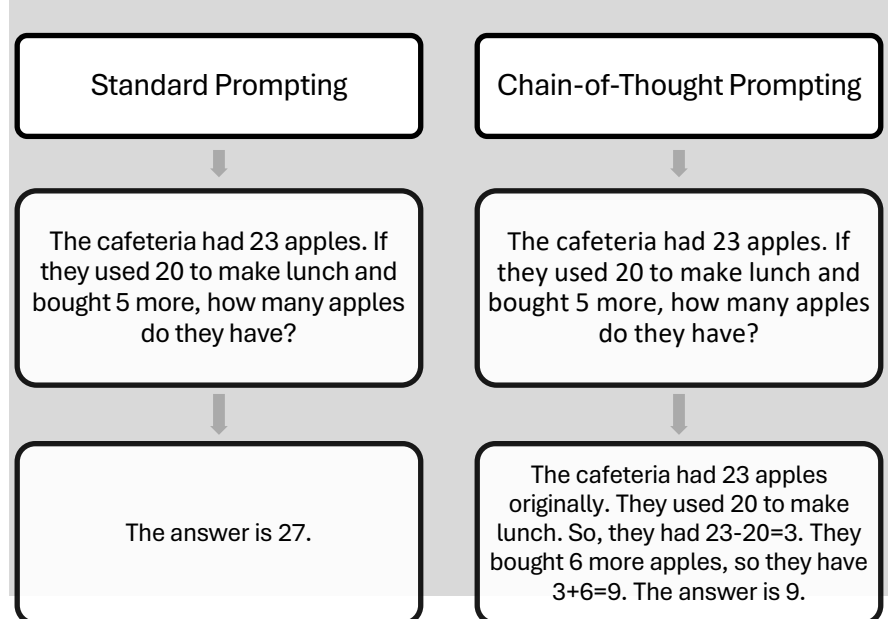
Chain of thought (CoT) reasoning

Chain of thought prompting is an approach in AI that simulates human-like reasoning processes by delineating complex tasks into a sequence of logical steps towards a final resolution.

Use cases and benefits

- CoT enhances accuracy of responses by breaking down complex problems into simpler sub-tasks, and provide a structured reasoning approach
- It is currently limited to LLMs, leveraging their ability to generate language and simulate reasoning

EXHIBIT 18: CoT prompting example



Robotic foundation models (RFMs)



Foundation models are neural networks “pre-trained” on massive amounts of data without specific use cases in mind. Robotic foundation models are based on a data mix including images, text, sound, and 3D point data.

Use cases and benefits

- RFMs could enable robots to operate in a wide range of networks and have a generalized understanding of tasks like navigation and object manipulation
- It can provide a scalable and flexible base upon which developers can create application-specific robots without modifying the entire stack

“Building foundation models for general humanoid robots is one of the most exciting problems to solve in AI today. The enabling technologies are coming together for leading roboticists around the world to take giant leaps towards artificial general robotics.”

– Jensen Huang, CEO NVIDIA

Self-reflection AI

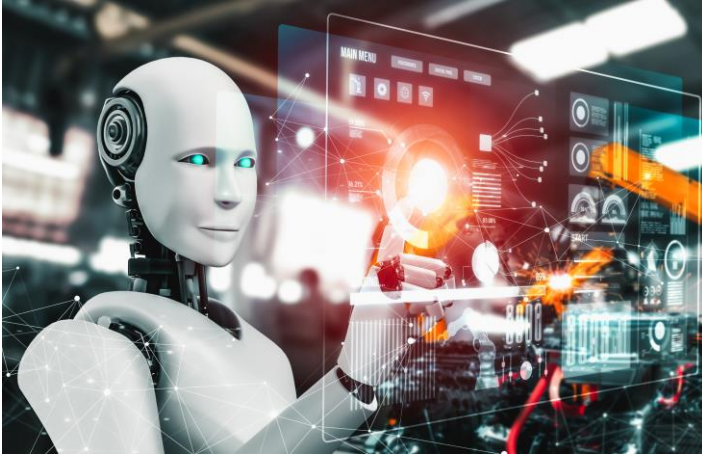
Self-reflection is enabled by feeding the AI agent output back to itself, seeking feedback on the same, and generating another output based on this feedback. This process is conducted repeatedly till an appropriate response is achieved.

Use cases and benefits

- It can assist in refining model response, before the final output is released
- Model accuracy and reliability can be enhanced, with applications across multiple sectors



Autonomous AI agents



Autonomous AI agents are AI systems that can perform tasks independently. They can learn and adapt to their environment and make decisions to meet a specific goal.

Use cases and benefits

- These agents have the ability to operate without human input, predict future events, and respond to unplanned scenarios
- Practical applications range across domain such as home automation (smart lighting systems), healthcare (patient monitoring systems), customer service (chatbots) and manufacturing (robotic arms)

According to Goldman Sachs, the total addressable market for humanoid robots is expected to reach USD 38 billion by 2035.

Humanoids

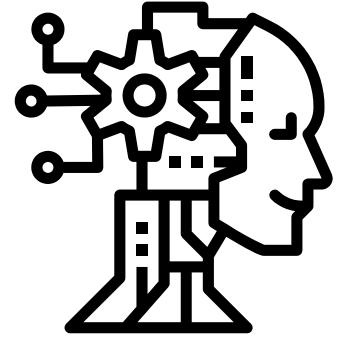
Humanoid robots, also referred to as general-purpose robots, use computer vision and machine learning to perform tasks. They can interpret and respond to complex command scenarios in a human-like manner.

Use cases and benefits

- Full-scale development could take few years, but it could have a lot of applications particularly in the manufacturing and logistics sector. This could be followed by customer service and healthcare domains
- Advancements in mechatronics to create human-like sensorimotor system could be the inflection point for wider commercial applications



AI impact across industries



Automotive



Agriculture & Forestry



Mining & construction



Consumer Goods



Parts Assembly and
manufacturing



Professional services



Transportation & Logistics



Automotive



AI has revolutionized traditional automotive practices by optimizing manufacturing processes, reducing costs, and enhancing supply chain management. Additionally, AI-driven technologies such as advanced driver-assistance systems (ADAS) and autonomous driving are reducing human error and improving road safety. Furthermore, AI is playing a crucial role in the development of electric and connected vehicles, contributing to a more sustainable and interconnected transportation ecosystem.

Industry developments

- Audi deployed an **AI system in its manufacturing plant for quality control** of spot welds in car body construction. Further, it integrated ChatGPT into its infotainment systems for better user experience.
- Renault partnered with Dataiku to create and deploy AI use cases in the supply chain at scale. The group aims to generate EUR 45 million in digital value with 25 projects aimed at developing AI tools.
- Schaeffler partnered with Siemens to deploy 'Siemens Industrial Copilot', an AI assistant on the shop floor. It is able to **leverage Generate AI to create complex automation codes for the machine** using natural spoken words.

AI-driven generative design tools to automate complex design tasks

Leveraging AI in manufacturing for predictive monitoring and quality control

Smart in-car personal assistants providing personalized user experience

AI systems optimize battery usage and energy consumption of electric vehicles

Future Outlook

Since previous 2-3 years, automotive sector has undergone a **rapid shift due to rising customer expectations and increasing competition** in the market. The **product lifecycles have reduced considerably**, and there is an increasing demand for lean operations with sustainable supply chains.

AI is expected to drive efficiency across operations, with multiple use cases in manufacturing and logistics. AI-led autonomous driving and Generative AI are able to foster innovation and enhance current products. Moreover, **automotive players are partnering with tech companies to disrupt the mobility sector** and create next gen business models which could give them a competitive edge in the market.

Case Study

Objective

Daimler group was looking to digitalize its operations in order to enhance efficiency across its global production plants.

Solution

Microsoft deployed MO360 data platform to integrate data streams from different departments and draw insights from areas such as assembly, logistics, and quality management.

Benefits

30%

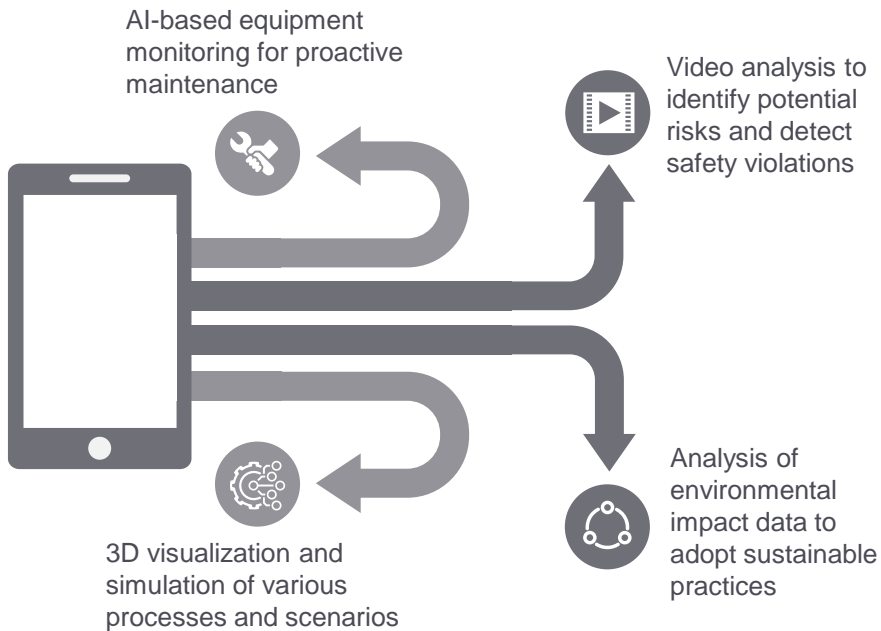
Reduction in daily shop floor meetings

20%

Expected increase in production efficiency by 2025

Mining & Construction

AI is transforming the mining and construction industries by enhancing efficiency, safety, and sustainability. In mining, AI applications include predictive maintenance, ore grade estimation, and autonomous drilling, which collectively reduce operational costs and environmental impact. The construction sector benefits from AI through improved project planning, risk management, and resource allocation.



Industry developments

- Sandvik established an **Artificial Intelligence and Automation Center for Enablement (CFE)** to invest in the development and implementation of AI-based systems. This has yielded solutions such as remote monitoring, interactive systems, and smart sensing machines.
- Rhomberg Group leveraged Viso **computer vision systems to integrate multiple data formats from construction sites**, resulting in enhanced efficiency and worksite safety
- Fortescue Metals Group deployed one of the largest autonomous haulage fleet, delivering a **30 percent increase in productivity**



“Incorporating AI into our product development process continues our tradition of harnessing technology and innovation as demonstrated by our extensive patent portfolio.” – *Otto Breitschwerdt, Chief Technology Officer and Senior Vice President, Caterpillar*

Future Outlook

Mining and construction sectors have been grappling with various challenges related to environmental impact, workers safety, depleting resources, and reducing efficiency. Adoption of AI-based applications is resulting in better project management, risk assessment, and resource utilization, leading to cost savings, improved safety protocols, and optimized resource extraction.

Prominent solution providers have already integrated AI into their solutions portfolio and are keeping a track of ongoing developments to further enhance these solutions. For instance, leveraging GenAI to assist human advisors with pre-generated assessment reports and scenario-based recommendations.

Parts Assembly and manufacturing

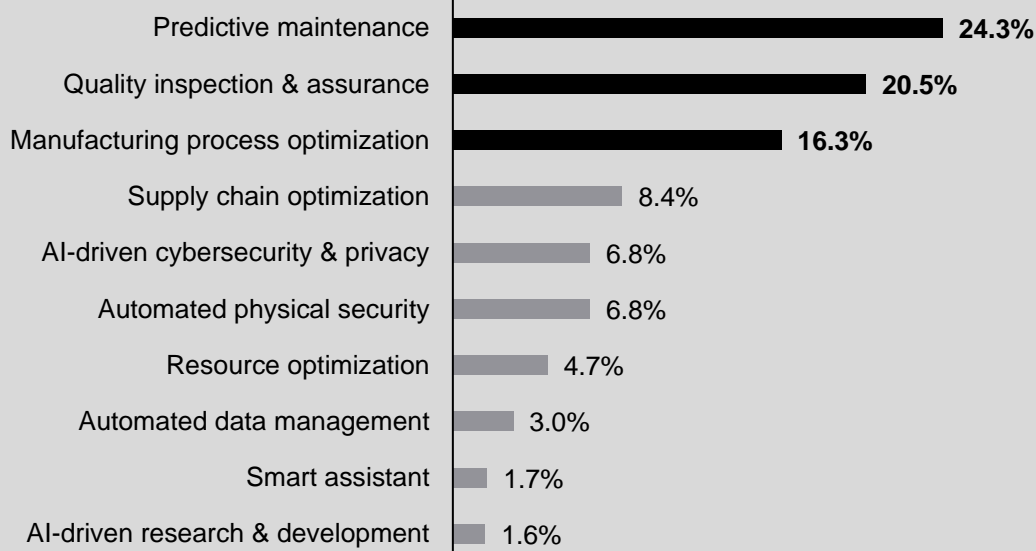
AI integration into parts assembly and manufacturing is driving significant advancements in productivity, cost-efficiency, and product quality. AI-driven automation systems, such as robotic arms and automated guided vehicles (AGVs), streamline production lines, reducing human error and increasing throughput. Predictive maintenance, powered by AI algorithms, minimize downtime by forecasting equipment failures before they occur.

Additionally, AI optimizes supply chain management through real-time data analysis, ensuring timely delivery of materials and reducing inventory costs. Quality control is significantly improved with AI-powered vision systems that detect defects with high accuracy. Furthermore, AI facilitates mass customization by enabling adaptive manufacturing processes that can quickly switch between different product configurations.

Few industry applications are:

- Bosch is using AI in manufacturing operations for production scheduling, monitoring and control. It is also **piloting with Generative AI for creating synthetic data to refine AI models**, supporting with inspection and quality checks.
- Schneider Electric, partnered with Cognex, to **deploy machine vision systems and devices which were able to detect solder defects, such as cracks or voids**, leading to better quality and reduction in maintenance costs.
- Atlas Copco partnered with Avaus to **deploy GenAI-based solutions**. The applications included a virtual assistant to consolidate technical information from multiple sources and assist employees, and creating user guides using speech-to-text technology through technical experts

EXHIBIT 19: Top 10 Industrial AI use cases



Source: IoT Analytics

Future Outlook

AI adoption in manufacturing is growing at a significant pace with the convergence of multiple technologies such as AI, IoT and 5G. With increasing computing power at Edge and robust infrastructure, more companies will be able to rely upon AI for real-time monitoring and predictive analytics, thereby mitigating potential disruptions in the supply chain and production processes.

Transportation & Logistics



AI is being widely adopted by multiple stakeholders in the transportation and logistics sector to streamline operations, enhance safety, and elevate customer experience.

Demand for faster delivery time, and transparency, requires integrated operations with real-time monitoring and route planning. AI-enabled warehouse with smart robots, analytics-based route planning and automated customer service agents provide a holistic transformation across the enterprise.

EXHIBIT 20: Top GenAI models for transportation and logistics (T&L) applications

GenAI model	Application in T&L
Variational Autoencoder (VAE)	<ul style="list-style-type: none"> Intelligent quality control Distribution center/warehouse traffic simulation and prediction
Generative Adversarial Networks (GANs)	<ul style="list-style-type: none"> Document generation, search and synthesis Route optimization Fraud detection
Recurrent Neural Networks (RNNs)	<ul style="list-style-type: none"> CRM-Better CX, improved sales Delivery tracking
Long Short-Term Memory (LSTM) networks	<ul style="list-style-type: none"> Dynamic pricing/ quoting Better lead generation and conversion Smart contract management and negotiation Informed procurement decisions

Source: Cognizant

Industry developments

- Maersk and iB Cargo deployed Dexory's robotics and AI technology in their Romanian distribution center to capture warehouse data and images in real-time and **forecast occupancy and stock movement for better management**
- CMA CGM is planning to use Google AI to **optimize vessel routes, container handling, and inventory management to ensure efficient and timely delivery of goods while minimizing costs and carbon footprints**
- Walmart deployed **autonomous forklifts** by Fox Robotics across four distribution centers in US. **Using AI-powered machine vision**, these bots can unload pallets from trucks and place them at their designated place

Future Outlook

In the aftermath of ecommerce rush, the need for streamlined operations and optimized processes becomes even more crucial as consumers' expectations evolve and businesses look to navigate seasonal peaks and troughs. This is where AI could be both a necessity as well as a game changer. **Automated warehouses, predictive planning, and environmental impact monitoring** are few critical domains where AI could help in creating competitive advantage.

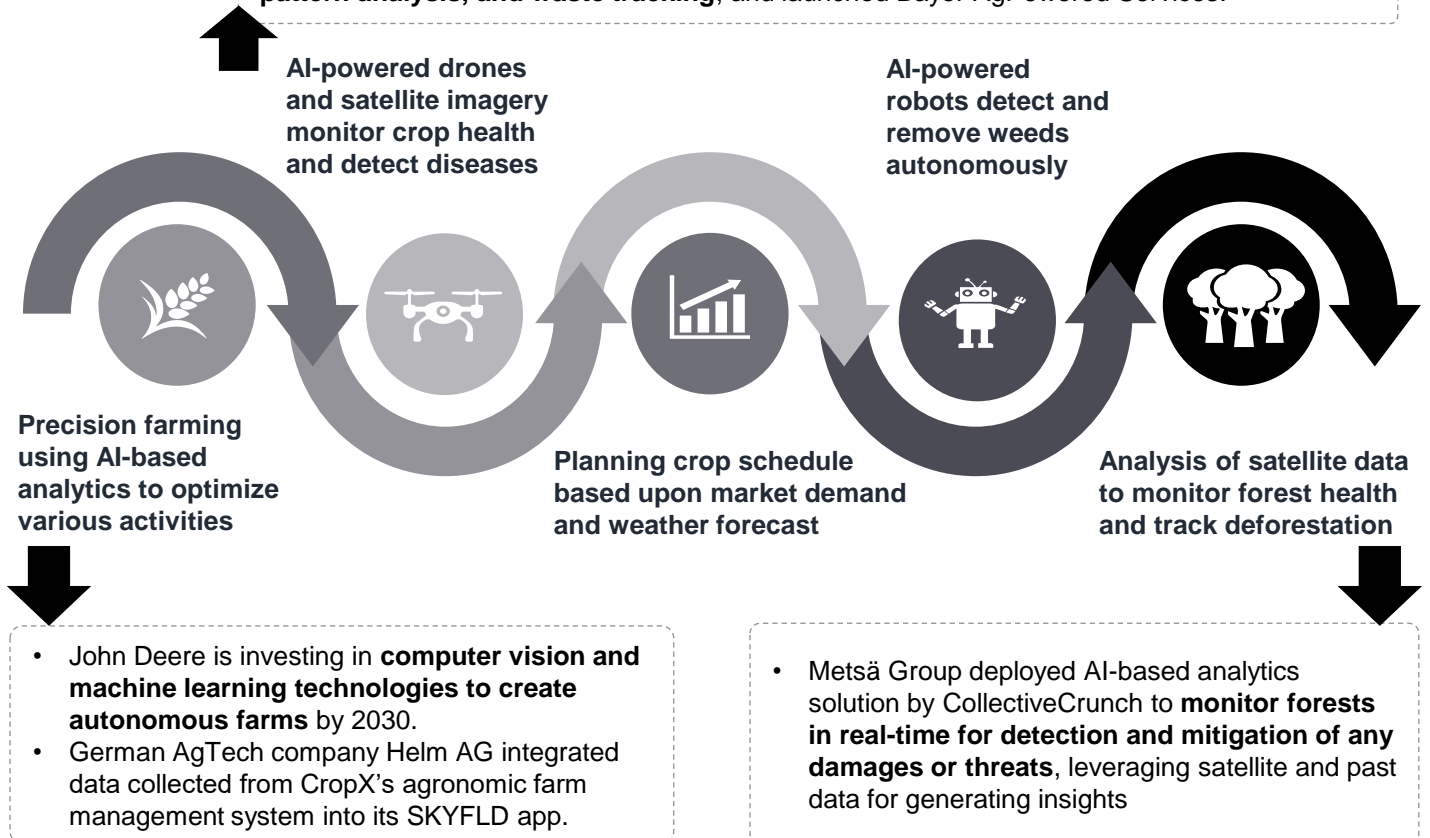
Agriculture & Forestry



Recent years have witnessed widespread adoption of AI across both agriculture and forestry, helping to optimize irrigation and pest control, forecast weather patterns and crop diseases, and monitor forest health.

With *increasing climate change and weather uncertainties*, the market for AI in agriculture is expected to reach **USD15.4 billion by 2032** growing at **CAGR of 24 percent from 2023-32**.

Microsoft partnered with Bayer to integrate **AI solutions for optimizing soil health, weather pattern analysis, and waste tracking**, and launched Bayer AgPowered Services.



Future Outlook

Amid rising uncertainties such as climate change, decreasing soil productivity, and unpredictable weather patterns, traditional methods of agriculture are no longer optimal. Major equipment players are recognizing this trend and focusing on integrating AI-driven solutions in farming for enhancing productivity and efficiency. In forestry as well, with rising instances of forest fires and other natural calamities, entities need better monitoring and forecasting so that damage can be avoided.

This sector has not been the prime target for AI-deployments, and **there is a huge opportunity for traditional players to partner with growing agritech companies and expand their offerings**.

Consumer Goods

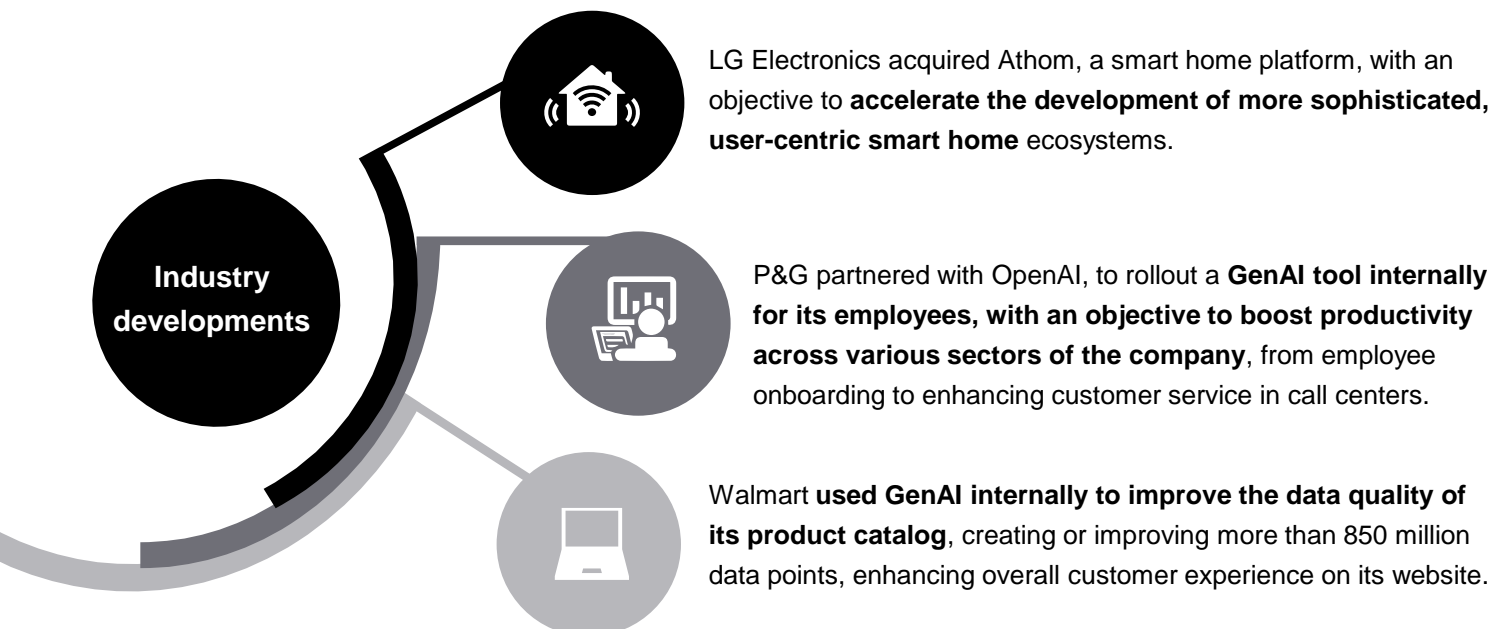
The consumer goods sector is leveraging AI to enhance various aspects such as product development, supply chain management, marketing, and customer experience. Prominent applications include predicting consumer preferences, demand forecasting, inventory optimization, sentiment analysis and personalized marketing.

According to IBM 2024 Consumer Study, **~60 percent of consumers reported to be interested in using AI applications** when they are shopping. Also, **~80 percent of consumers who haven't yet tried AI for shopping would like to use it to research products, look for deals, ask questions, and resolve issues.**

EXHIBIT 21: AI in Retail/Consumer, use cases by value chain

Product development	Supply chain management	Channel/ Retail stores	Sales & marketing	Customer management	Regulatory, security & strategy
<ul style="list-style-type: none"> Design optimization Design forecasting Product prototyping 	<ul style="list-style-type: none"> Intelligent warehousing On-demand production Workflow management 	<ul style="list-style-type: none"> Location optimization Price optimization Market segmentation 	<ul style="list-style-type: none"> Sales planning & forecasting Assortment planning Smart merchandising 	<ul style="list-style-type: none"> Digital fitting rooms and visualization Customer insights analytics Chatbots 	<ul style="list-style-type: none"> Safety risk prediction Fraud detection Vendor credit compliance assessment

Source: GlobalData



Future Outlook

With increasing proliferation of smart applications and devices, consumers are becoming more and more digital savvy. The **new generation needs distinguished experience and wants a unified connect across channels.** To cater to such preferences, consumer goods players would need to integrate AI-driven applications and innovations into their internal operations as well as products.

Additionally, AI will play a crucial role in sustainability efforts by optimizing resource usage, reducing waste, and enabling the development of eco-friendly products.

Professional services



AI is transforming the professional services sector by automating routine tasks, enhancing decision-making, and providing deeper insights. Key applications include document automation, predictive analytics, client interaction through chatbots, and risk management. According to a recent survey, **business, legal & professional services industry was the top user of AI** with 19 percent respondents saying that they regularly use AI for work.

EXHIBIT 22: Few GenAI use cases in professional services

Tax, Audit & Accounting	Legal, Risk & Compliance	People & Talent Management	Advisory & Consulting	Advertising & Marketing
<ul style="list-style-type: none"> Simulation of data & content for accounting & audit reports Supporting statements for audit/acct. rules Managing core industry specialized knowledge 	<ul style="list-style-type: none"> Correlating legal cases with precedents Case strategies identification Improving legal case management workflows 	<ul style="list-style-type: none"> Employee training, L&D Improving hiring strategies Situation-specific conversational chatbots Employee counselling for well-being at work 	<ul style="list-style-type: none"> Recommendations and roadmaps Consulting strategies based on client core strengths M&A transaction simulations Manage specialized knowledge areas for M&A 	<ul style="list-style-type: none"> Segment-based strategies with real-time data Marketing campaign simulations AI chatbots to support intent-based customer journeys

Source: Hexaware

Industry developments

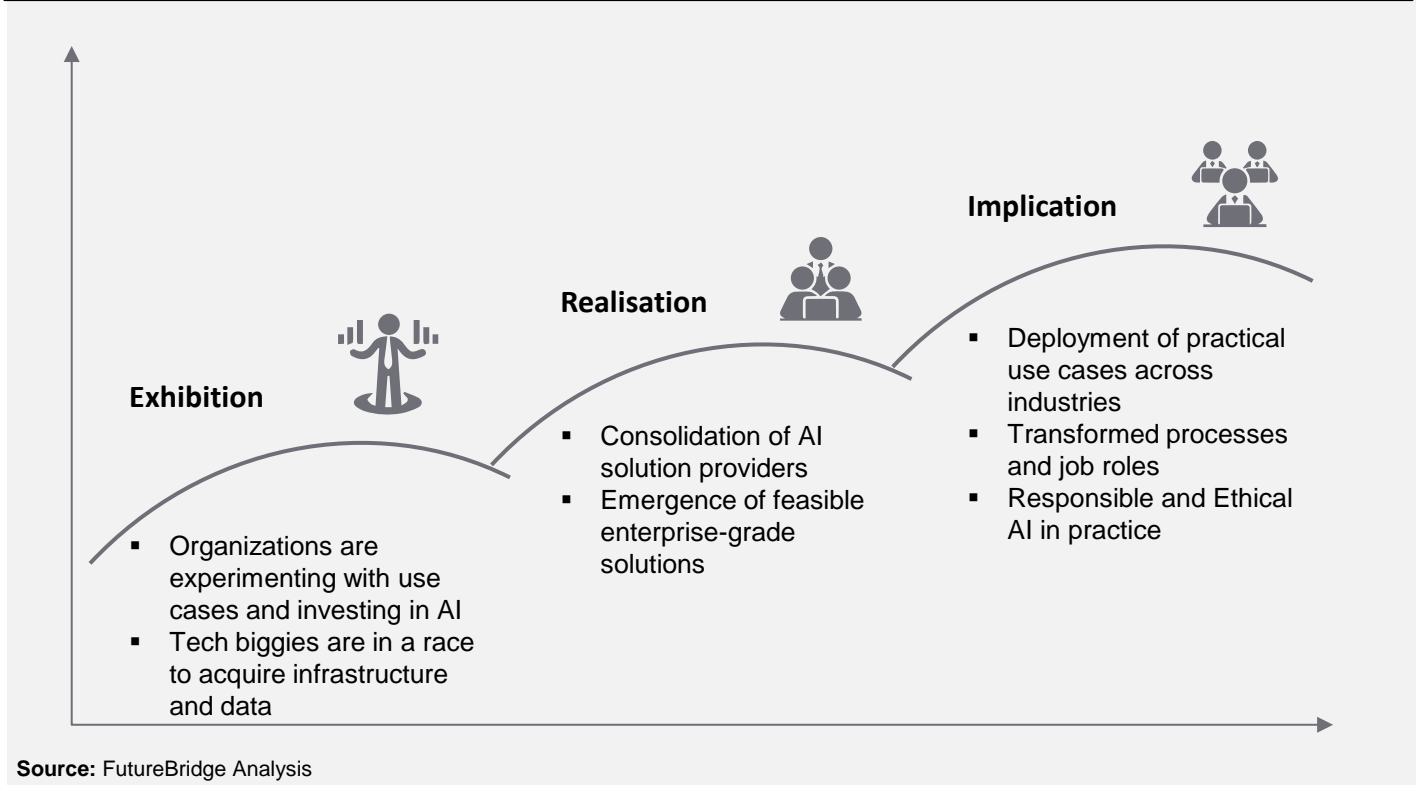
- Clifford Chance leveraged OpenAI to create Clifford Chance Assist, to **enhance employee productivity and experience by automating daily tasks** such as meeting and task management, drafting emails etc.
- Accenture, and Salesforce launched a solution to create **personalized experiences that leverage data and AI to help organizations gain 360-degree view of their customers** and drive tailored experiences across channels.
- Goldman Sachs rolled out GenAI based coding assistant for developers. It is also looking to use **AI to translate documents into other languages, and summarize proprietary research to provide insights to advisers.**

Future Outlook

Over the next five years, AI will enhance efficiency, accuracy, and decision-making across various domains such as legal, accounting, consulting, and human resources. Majority of roles would be enabled with a bot-assisted approach, where the basic non-value adding, and repetitive tasks would be executed using AI and automation technologies. Overall, **AI will not only automate routine tasks but also augment human capabilities, allowing professionals to focus on higher-value activities.** This shift will lead to more innovative, efficient, and client-centric services, ultimately transforming the professional services landscape.

Future scenario

EXHIBIT 23: AI waves of transition



During next three to five years, AI landscape could evolve across three transitional waves, starting from *Exhibition* to *Implication*. We are currently in the *Exhibition* wave, witnessing a rush of investments in AI tools and experimenting with GenAI among companies across industries. Large number of startups and coming up with new models and techniques. Major technology players are in for a long-haul putting in huge investments to acquire niche technologies, and partner with computing infrastructure providers to create vast data centers.

There are early signs already, and over the next 1-2 years, we can expect this euphoria to stabilize with a focus on value realization. With increasing cost of training models, getting high-quality data and identifying the correct market fit, AI-led investments might taper due to lack of tangible returns. This could lead to market consolidation, particularly in the resource intensive technologies such as GenAI. Also, these major solution providers would be able to create feasible enterprise-grade solutions with significant potential.

Over the course of time, we could witness the *Implication* wave, where relevant industry-wide deployments could be witnessed. This would stabilize machine-assisted processes across a wide range of job roles, with a digitally skilled workforce which can work more productively. With the enforcement of regulations around AI use, companies would be deploying governing standards and guardrails to ensure ethical and responsible use of AI is in practice.

Overall, the future of AI appears to be very dynamic and interesting. New models and techniques could yield pathbreaking benefits for companies across industries. However, companies need to monitor signals and trends so that they focus on right tools and technologies.

About the Author

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Tanuj Parashar is a marketing enthusiast with graduation in computer science and is passionate about technology sector. He has over eight years of experience in studying emerging technologies' and analyzing its impact on enterprises across industries.

Tanay Choure

Tanay Choure is an engineering graduate and passionate analyst for advanced technologies for more than 12 years. He has been following disruptive technologies very closely and is an expert in their impact on industries and the future scenarios.

References

1. [AI Index report, 2024](#)
2. [AI index report, 2023](#)
3. [Paperswithcode](#)
4. [Crunchbase AI funding report](#)
5. [GenAI in software, Capgemini](#)
6. [Technology Trends at Gartner Data & Analytics Summit 2024](#)

Future of AI: Redefine Possibilities with Us

I hope you found the content in the report helpful and that it answered some of your questions.

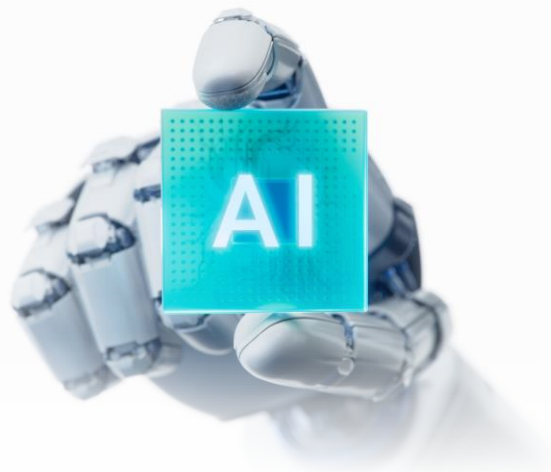
We'd love to hear more about what prompted you to **download it** - was there something specific you were hoping to find?

If there are any areas you'd like to explore further or if you have ongoing priorities in this field, **we'd be happy to chat**.

This is an area our Industrial Automation practice works in closely with clients across the industry, so we're always open to a conversation about what might be useful for you.


Feel free to click below to set up a time that works best. Look forward to connecting!

[Schedule time with us >](#)







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About FutureBridge

FutureBridge is a techno-commercial consulting and advisory company. We track and advise on the future of industries from a 1-to-25-year perspective to keep you ahead of the technology curve, propel your growth, Identify new opportunities, markets and business models, answer your unknowns, and facilitate best-fit solutions and partnerships using our platforms, programs, and access to global ecosystems and players.

