

Demystifying AI

Breaking Down Types of AI And How They Benefit Your Business

AI isn't for a chosen few— it can be used by anyone. And it's moving so fast that organizations can't really take a wait-and-see approach. If you're a business leader, it's a concept you can't ignore. But what really is AI and where do businesses start? Here's a visual guide to help you understand the types of AI, how they work and why AI-driven activities should be approached responsibly and with caution. Then, when your organization is ready to start using AI more broadly, you won't be waiting for someone to turn the lights on.

WHAT IT IS	Machine Learning Models	Traditional AI (Narrow AI)	Generative AI
	Both traditional and generative AI grew out of a practice called machine learning. Machine learning gives computers the ability to learn without explicitly being programmed. While traditional computer algorithms are coded by a human to tell a machine exactly how to do a particular job, ML algorithms generate refine themselves based on new data they've been fed— thanks to the underlying deep learning and neural network techniques.	General AI broadly refers to the concept of computer systems and robotics that possess human-like intelligence and autonomy. Most current AI systems are examples of “narrow AI,” in that they're designed for very specific tasks under the direction of data scientists and analytic experts. Artificial intelligence is essentially pattern matching at scale. It can perform image recognition, understand the natural language and writing patterns of humans, make connections between distinct types of data, identify abnormalities in patterns, strategize, predict and more. AI's large language models (LLMs) have been used for years by data scientists and analysts.	Generative AI is an emerging type of AI that can create something new including text, imagery, audio or synthetic data. ChatGPT kicked off a new AI era in 2022. For the public it was the first introduction to directly interacting with an LLM. Thanks to the free web browser interface, the general population could now chat with an LLM, marking a seismic shift in the relationship between humans and AI.
HOW IT WORKS	Machine Learning Models	Traditional AI (Narrow AI)	Generative AI
	Data scientists feed algorithms with large datasets. The algorithms analyze the datasets to find certain patterns or outputs, depending on the objective. Once the process is over, the output of the algorithm is the machine learning model. Machine learning systems require enormous volumes of data to be trained. LMM models are built into AI and generative AI tools. They aren't for sale, per se, but rather available for use as open source or included as part of a data and AI platform.	AI works by using machine learning algorithms, which are trained on a large amount of data to identify patterns and make predictions. These algorithms are designed to perform specific tasks, such as identifying objects in images or translating languages. Narrow AI is not capable of generalizing beyond the tasks for which it is programmed, meaning that it cannot perform tasks that it has not been specifically trained to do.	Generative AI kicks off based on a prompt from the user for information, hence the name generative. Generative AI uses various machine learning techniques, such as large language models (LLMs), to generate content from patterns learned from training data. These outputs can be text, images, music or anything else that can be represented digitally.
EXAMPLES / USE CASES	Machine Learning Models	Traditional AI (Narrow AI)	Generative AI
	The use cases for creating a large language model are many and varied: - LLMs can convert text across different languages seamlessly, helping global enterprises bridge linguistic barriers. - LLMs are used in sentiment analysis to discern whether text conveys positive, negative, or neutral sentiment. It can be invaluable to businesses in gauging public sentiment towards products, services or brands. - Search Engine Optimization (SEO) is vital in boosting online visibility. LLMs offer suggestions for keywords, generate SEO-friendly content, optimize web-pages, and provide search term recommendations.	Traditional AI excels in task-specific applications. It is the engine behind most of the current AI applications that are optimizing efficiencies across industries: - Sales and marketing teams use AI for personalized offers, campaign optimization, sales forecasting, sentiment analysis, and prediction of customer churn. - Companies in a wide range of industries use chatbots and cognitive search to answer questions, gauge customer intent, and provide virtual assistance. - Healthcare services are using AI to help accurately diagnose and treat medical conditions. - Manufacturers are using AI for quality control and predictive maintenance.	When prompted for assistance and fed supporting materials, generative AI can: - Produce product and application designs by defining a specification and allowing AI to find concepts or configurations. - Automate code generation by translating high-level requirements into functional code snippets. - Summarize and generate articles, stories and content. - Respond to employee and customer questions with information from internal document repositories and/or unstructured web data.

BUSINESS BENEFITS

Efficiency: A compelling benefit of generative AI is efficiency and increased productivity because enterprises can automate specific tasks and focus their time, energy and resources on more important strategic goals. This can result in lower labor costs, greater operational output and new insights into how well certain business processes are— or are not— performing.

Informed Decision Making: AI algorithms analyze large volumes of data, extract patterns, and provide valuable insights for informed decision-making. Models use historical data as well as unstructured data to make predictions and forecasts, aiding industries in planning and resource optimization.

Customer Loyalty and Retention: AI can provide the customer insights (preferences, recommendations, trends) to build targeted marketing campaigns increasing the chances of purchase and increased revenue. Personalization also generates empathy and goodwill when customers feel understood and are satisfied with service, they remain more loyal to the company.

Cybersecurity: AI is starting to take a prominent role in monitoring, preventing, and responding to cyberattacks like database breaches, DDoS attacks, and other threats. Generative AI can be put to work on the security offense as well. With proper training, AI models can reason and provide conversational security recommendations more quickly than traditional security tools.

Research and Development: AI can assist in scientific research, data analysis, accelerating innovation across industries. By automating the process of data collection and analysis, AI can help researchers organize and prepare data for analysis, particularly when dealing with large sets of data in various forms. For example, extraction of insights from these models could advance our understanding of biological processes or pathophysiology of a disease.

POPULAR TOOLS	Machine Learning Models	Traditional AI (Narrow AI)	Generative AI
	- GPT-4: Text (powers the ChatGPT tool) - Convolutional Neural Networks: Image and video recognition - Recurrent Neural Networks: Natural language processing and speech recognition	- Voice assistants: Siri and Alexa - Beauty builder sites: Sephora - Recommendation engines: Netflix and Amazon	- ChatGPT: Text - DALL-E 2: Images and artwork - MidJourney: Images and artwork - Llama 2: Conversational AI - GitHub Copilot: Software code - Hitachi Solutions: Enterprise Chat
CAUTIONS	Machine Learning Models	Traditional AI (Narrow AI)	Generative AI
	The datasets fed into machine learning models need to be high quality, diverse, and scrubbed for potential bias. Else, a model can inadvertently learn and sometimes amplify the biases, potentially cultivating discrimination and prejudice. Organizations adopting AI models built by third parties should be able to understand how and why a model arrived at a particular outcome. In other words, the ‘explainability’ should be transparent in anticipation of future regulations.	AI lacks the ability to understand nuances, ambiguity, or context, which can lead to misinterpretations or subpar decision making in real-world scenarios. Relying solely on narrow AI systems without human oversight can be risky. It is crucial to recognize the limitations of narrow AI and not overestimate its capabilities. Potential also exists for job displacement, as AI automates many of the tasks previously performed by humans.	Generative AI tools have the potential to spread misinformation and harmful content. Bad actors and hackers could use generative AI tools to intensify and scale up the types of harmful acts companies are already protecting against. Organizations shouldn't use customer data or business processes in generative AI tools unless they carefully understand the implications. Companies should have sound guidelines around data usage in public AI tools.

TAKE-AWAYS

- The impact is real.** Generative AI has had an impact like no other technology in the past decade. The increased productivity for developers and knowledge workers using systems like ChatGPT is very real and has caused organizations and industries to rethink their business processes and the value of human resources.
- Traditional AI and generative AI will evolve in tandem.** Traditional AI and Generate AI aren't mutually exclusive, businesses can benefit from both. Generative AI could work alongside traditional AI to provide even more powerful solutions. For instance, generative AI could analyze user behavior data, and generative AI could use this analysis to create personalized content.
- Buy or Build.** Most organizations will buy — not build —AI tools, models, and the security applications used to manage them. New tools are being developed at an accelerated pace, and will no doubt pave the way for future innovation. Consider [Hitachi Solutions' Enterprise Chat](#), a secure and safe solution for using ChatGPT 4 functionality in your business.
- Embedded in a platform solution.** You may already have access to AI tools through the business applications you use. For example, Microsoft is bundling its AI Copilot functionality into all its customer-facing products like [Microsoft 365](#). Thus, you may not even buy generative AI directly but as part of a larger product suite.
- Recognize the limitations of AI.** Human supervision and intervention are necessary to ensure the appropriate interpretation of AI output and to account for contextual nuances. Responsible development and oversight are also crucial to ensure that AI systems are developed ethically and that they do not perpetuate existing biases or discriminate against certain groups of people.
- Experiment with guardrails.** While there are lots of views on where AI and its various forms will advance and how they will transform business, careers and society, the game is very much in its early innings. It is nearly impossible to accurately predict how it will evolve.

Next Steps

The shift to widespread use of AI is starting to take center stage, and companies that start learning how to get there now will be better positioned in the future. Neglecting to explore the possibilities could be risky, given the pace at which data and generative AI solutions are evolving. Hitachi Solutions can get you at get there no matter where you are in your AI journey:

- Need help confirming your AI adoption strategy?
- Need help prioritizing use cases?
- Need support to ensure your AI implementations are secure?

Take the next step with our 2-week AI assessment!