

Generative AI is here: How tools like ChatGPT could change your business

Generative AI and other foundation models are changing the AI game, taking assistive technology to a new level, reducing application development time, and bringing powerful capabilities to nontechnical users.

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In the spirit of this article's topic, we asked ChatGPT—a generative AI language model that can create original content in response to a user prompt—how it would set the context. Our prompt to the system:

Write the opening paragraph for an article about how transformative generative AI will be for business, in the style of McKinsey & Company.

ChatGPT's response:

The rise of generative AI has the potential to be a major game-changer for businesses. This technology, which allows for the creation of original content by learning from existing data, has the power to revolutionize industries and transform the way companies operate. By enabling the automation of many tasks that were previously done by humans, generative AI has the potential to increase efficiency and productivity, reduce costs, and open up new opportunities for growth. As such, businesses that are able to effectively leverage the technology are likely to gain a significant competitive advantage.

Not perfect but overwhelmingly impressive.

For us and many executives we've spoken to recently, entering one prompt into ChatGPT, developed by OpenAI, was all it took to see the power of generative AI. In the first five days of its release, more than a million users logged into the platform to experience it for themselves. OpenAI's servers can barely keep up with demand, regularly flashing a message that users need to return later when server capacity frees up.

Products like ChatGPT and GitHub Copilot, as well as the underlying AI models that power such systems (Stable Diffusion, DALL·E 2, GPT-3, to name a few), are taking technology into realms once thought to be reserved for humans. With generative AI, computers can now arguably exhibit creativity. They can produce original content in response to queries, drawing from data they've ingested and interactions with users. They can develop blogs,

sketch package designs, write computer code, or even theorize on the reason for a production error.

This latest class of generative AI systems has emerged from foundation models—large-scale, deep learning models trained on massive, broad, unstructured data sets (such as text and images) that cover many topics. Developers can adapt the models for a wide range of use cases, with little fine-tuning required for each task. For example, GPT-3.5, the foundation model underlying ChatGPT, has also been used to translate text, and scientists used an earlier version of GPT to create novel protein sequences. In this way, the power of these capabilities is accessible to all, including developers who lack specialized machine learning skills and, in some cases, people with no technical background. Using foundation models can also reduce the time for developing new AI applications to a level rarely possible before.

Generative AI promises to make 2023 one of the most exciting years yet for AI. But as with every new technology, business leaders must proceed with eyes wide open, because the technology today presents many ethical and practical challenges.

Pushing further into human realms

More than a decade ago, we wrote an article in which we sorted economic activity into three buckets—production, transactions, and interactions—and examined the extent to which technology had made inroads into each. Machines and factory technologies transformed production by augmenting and automating human labor during the Industrial Revolution more than 100 years ago, and AI has further amped up efficiencies on the manufacturing floor. Transactions have undergone many technological iterations over approximately the same time frame, including most recently digitization and, frequently, automation.

Until recently, interaction labor, such as customer service, has experienced the least mature technological interventions. Generative AI is set to change that by undertaking interaction labor in a

way that approximates human behavior closely and, in some cases, imperceptibly. That's not to say these tools are intended to work without human input and intervention. In many cases, they are most powerful in combination with humans, augmenting their capabilities and enabling them to get work done faster and better.

Generative AI is also pushing technology into a realm thought to be unique to the human mind: creativity. The technology leverages its inputs (the data it has ingested and a user prompt) and experiences (interactions with users that help it “learn” new information and what’s correct/incorrect) to generate entirely new content. While dinner table debates will rage for the foreseeable future on whether this truly equates to creativity, most would likely agree that these tools stand to unleash more creativity into the world by prompting humans with starter ideas.

Business uses abound

These models are in the early days of scaling, but we've started seeing the first batch of applications across functions, including the following (exhibit):

- *Marketing and sales*—crafting personalized marketing, social media, and technical sales content (including text, images, and video); creating assistants aligned to specific businesses, such as retail
- *Operations*—generating task lists for efficient execution of a given activity
- *IT/engineering*—writing, documenting, and reviewing code
- *Risk and legal*—answering complex questions, pulling from vast amounts of legal documentation, and drafting and reviewing annual reports
- *R&D*—accelerating drug discovery through better understanding of diseases and discovery of chemical structures

Excitement is warranted, but caution is required

The awe-inspiring results of generative AI might make it seem like a ready-set-go technology, but that's not the case. Its nascency requires executives to proceed with an abundance of caution. Technologists are still working out the kinks, and plenty of practical and ethical issues remain open. Here are just a few:

- *Like humans, generative AI can be wrong.* ChatGPT, for example, sometimes “hallucinates,” meaning it confidently generates entirely inaccurate information in response to a user question and has no built-in mechanism to signal this to the user or challenge the result. For example, we have observed instances when the tool was asked to create a short bio and it generated several incorrect facts for the person, such as listing the wrong educational institution.
- *Filters are not yet effective enough to catch inappropriate content.* Users of an image-generating application that can create avatars from a person's photo received avatar options from the system that portrayed them nude, even though they had input appropriate photos of themselves.
- *Systemic biases still need to be addressed.* These systems draw from massive amounts of data that might include unwanted biases.
- *Individual company norms and values aren't reflected.* Companies will need to adapt the technology to incorporate their culture and values, an exercise that requires technical expertise and computing power beyond what some companies may have ready access to.
- *Intellectual-property questions are up for debate.* When a generative AI model brings forward a new product design or idea based on a user prompt, who can lay claim to it? What happens when it plagiarizes a source based on its training data?

Exhibit

There are many possible generative AI use cases across the business that could create early impact.

Example use cases¹ (not exhaustive)

Marketing and sales	Operations	IT/engineering	Risk and legal	HR	Utility/employee optimization
Write marketing and sales copy including text, images, and videos (eg, to create social media content or technical sales content)	Create or improve customer support chatbots to resolve questions about products, including generating relevant cross-sell leads	Write code and documentation to accelerate and scale developments (eg, convert simple JavaScript expressions into Python)	Draft and review legal documents, including contracts and patent applications	Assist in creating interview questions for candidate assessment (eg, targeted to function, company philosophy, and industry)	Optimize communication of employees (eg, automate email responses and text translation or change tone or wording of text)
Create product user guides of industry-dependent offerings (eg, medicines or consumer products)	Identify production errors, anomalies, and defects from images to provide rationale for issues	Automatically generate or auto-complete data tables while providing contextual information	Summarize and highlight changes in large bodies of regulatory documents	Provide self-serve HR functions (eg, automate first-line interactions such as employee onboarding or automate Q&A or strategic advice on employment conditions, law, regulations, etc)	Create business presentations based on text prompts, including visualizations from text
Analyze customer feedback by summarizing and extracting important themes from online text and images	Streamline customer service by automating processes and increasing agent productivity	Generate synthetic data to improve training accuracy of machine learning models with limited unstructured input	Answer questions from large amounts of legal documents, including public and private company information		Synthesize a summary (eg, from text, slide decks, or online video meetings)
Improve sales force by, for example, flagging risks, recommending next interactions such as additional product offerings, or identifying optimal customer interaction that leads to growth and retention	Identify clauses of interest, such as penalties or value owed through leveraging comparative document analysis				Enable search and question answering on companies' private knowledge data (eg, intranet and learning content)
Create or improve sales support chatbots to help potential clients understand, including technical product understanding, and choose products					Automated accounting by sorting and extracting documents using automated email openers, high-speed scanners, machine learning, and intelligent document recognition

¹Given that generative AI is in the early stages of maturity, organizations will want to consider use cases and their implications carefully and determine the appropriate level of human oversight.

Initial steps for executives

In companies considering generative AI, executives will want to quickly identify the parts of their business where the technology could have the most immediate impact and implement a mechanism to monitor it, given that it is expected to evolve quickly. A no-regrets move is to assemble a cross-functional team, including data science practitioners, legal experts, and functional business leaders, to think through basic questions, such as these:

- Where might the technology aid or disrupt our industry and/or our business's value chain?
- What are our policies and posture? For example, are we watchfully waiting to see how the technology evolves, investing in pilots, or looking to build a new business? Should the posture vary across areas of the business?
- Given the limitations of the models, what are our criteria for selecting use cases to target?

- How do we pursue building an effective ecosystem of partners, communities, and platforms?
- What legal and community standards should these models adhere to so we can maintain trust with our stakeholders?

Meanwhile, it's essential to encourage thoughtful innovation across the organization, standing up guardrails along with sandboxed environments for experimentation, many of which are readily available via the cloud, with more likely on the horizon.

The innovations that generative AI could ignite for businesses of all sizes and levels of technological proficiency are truly exciting. However, executives will want to remain acutely aware of the risks that exist at this early stage of the technology's development.

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