

# E-commerce 2.0: Outcome-based personalized shopping with *generative AI*



# Crafting a 24/7 problem-solver

E-commerce is about to undergo its biggest revolution since its debut over 40 years ago when it brought convenience and a new level of fun to the way people shopped and interacted with a brand.






Generative AI is an impactful technology that will reshape e-commerce in unprecedented ways thanks to its ability to help people genuinely solve problems. Although the end goal – connecting people to products and services to meet their needs – will be the same, the speed and manner with which this is done

(thanks to more automation) will be a watershed moment for the industry, forever changing how businesses attract, interact, and transact with their customers.

# What exactly is generative AI?

Generative AI, a subset of AI, focuses on autonomous content generation through natural language processing and machine learning. What makes it unique is its accessibility and democratization, allowing someone even without extensive expertise to easily create, refine, or discover content, whether an employee or a customer.

Here are some example applications of generative AI:

	Selected generative AI applications	Indicative examples
 <b>Text</b>	Generating new text/reports, summarizing and translating into multiple languages	OpenAI's GPT-4, Google PaLM 2, Scribe, Claude
 <b>Images and video generation</b>	Generating new images/videos, analyzing existing images/video (e.g., video games, VR, animation)	Adobe Firefly, Stability AI, Midjourney, Nvidia, Dall-E2, Synthesia, Nvidia, Runway ML
 <b>Audio</b>	Generating music and remixing, speech synthesis, sound effects, voice conversion, audio enhancement	Synthesia, Amazon Polly, Sonix.ai
 <b>Chatbots</b>	Generate human-like contextually relevant text responses in real-time to expand and improve customer service and advice	OpenAI's ChatGPT, Amazon Lex, Google Gemini
 <b>Search</b>	Enhanced search functions, adding language capabilities to search (e.g., "RAG," retrieval augmented generation)	Google Gemini, Landing AI, Azure, Facebook Llama 2, Perplexity AI

## Generative AI can help make exceptional experiences the norm as it tailors each journey based on what it learns about the customer.

Unlike conventional AI, which mostly analyzes and classifies data to make simple predictions, generative AI fosters unparalleled machine creativity and innovation by using vast datasets to generate original outputs, at lightning-fast speeds in a contextual and personal way.

What this means is that customers will be able to enter natural language prompts into chat and

other user interfaces and receive comprehensive, personalized content that matches their unique shopping queries and habits. Generative AI will also empower various marketing professionals, such as visual merchandisers, content managers, and SEO/SEM specialists, to deliver better and faster search, discovery, and buying and service experiences to customers at dramatically lower operational costs.

# Today's customer experience vs. tomorrow's with generative AI's outcome-driven capabilities

Many customers are still required to use the time-consuming method of entering search engine keywords to uncover the information, products, and services they seek.

Take the typical example of a parent feverishly scouring the internet for "hockey skates," "hockey stick," "hockey helmet," and more after learning that their 10-year-old has suddenly expressed interest in joining an ice hockey club.

This exhausting approach of searching for the right size, brand, seller, and market price of equipment often involves weaving through

multiple websites. Frustration sets in fast as the parent discovers certain gear cannot be delivered in time for their hockey hopeful's first drill.

The problem today is that Web 2.0 search models rely on structured, simplistic representations of relationships between concepts, making it difficult to incorporate complex, unstructured data that may be crucial in refining a search.



Let's say we're looking for "a left-handed junior-sized carbon fiber 46-inch hockey stick" – and we need it delivered within two days. The customer has had to learn how the sellers categorize and structure their product offerings. And the traditional web search model may not accurately interpret and return relevant results because of the complexity of the search and the variety of attributes involved.

## Generative AI technologies allow us to turn unstructured data into information that can be processed in ways closer to how humans understand concepts.

Thanks to the rapid advancement of natural language processing and pre-trained AI models, today's ubiquitous search engine will be replaced with a user-friendly chat interface. These chat interfaces will serve as personalized advisors, addressing individual needs and challenges.

Instead of relying on keywords, customers can simply ask, "what do I need to prepare and equip my 10-year-old to start playing hockey?" The AI model would synthesize customer reviews and provide a list of the necessary equipment and links to the websites that carry the products at competitive prices – in addition to information

about youth hockey programs and top tips from scores of communities of hockey moms and dads.

In another scenario, envision an online supermarket experience that goes beyond just checking off a grocery list. What if a generative AI recipe builder could automatically populate a customer's shopping cart based on their entered meals while also utilizing some of the items they already have on hand from previous orders? Or what if the customer could use a smartphone camera to scan the items in their fridge into an app? Then using computer vision technology, the app can classify each item and feed the information into a recommender algorithm.



Based on the customer's fridge contents, the algorithm can suggest new recipes and add the missing ingredients to the basket for them. The customer could even receive step-by-step personalized instructions on how to make the meals, delivered through video, text, or a chatbot for a more guided and enjoyable experience.

Carrefour is already exploring how it can improve the online grocery experience. Its online shoppers in France can now use a chatbot to choose products based on their budget and food constraints. The chatbot can also suggest anti-waste solutions for reusing ingredients and compose baskets based on specific recipes.<sup>1</sup>

<sup>1</sup> <https://www.capgemini.com/insights/research-library/what-matters-to-todays-consumer-2024/>



The radical shift to undiscovered levels of interaction

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The keyword search function that big tech companies have so tirelessly been refining over the years is underwhelming and inefficient.

This is especially true in a world where data is growing fast and the instant, complete, and precise results users want are on the rise. (Capgemini research has revealed that 52% of customers prefer generative AI tools to traditional search engines for product recommendations.<sup>1</sup>)

Delivering hyper-personalized content, powered by generative AI, will help businesses establish a new frontier of customer engagement. According to a recent Capgemini survey, customers would like to see generative AI inserted into different stages of the shopping experience.

<sup>1</sup> <https://www.capgemini.com/insights/research-library/what-matters-to-todays-consumer-2024/>

## Generative AI preferences by age among consumers, who are aware and have used it for shopping



Source: Capgemini Research Institute. Consumer demand survey, October-November 2023, N = 2.299 consumers who are aware of the use of generative AI in shopping experiences and have used it already.

## Here are some practical ways leading e-commerce brands are already using the technology:

### Personalized shopping experiences

Since generative AI can analyze user history and extensive datasets of their behavior and feedback, it can fill device screens with exactly what customers want to see. German online retailer Zalando has announced the launch of a new fashion assistant powered by ChatGPT. The objective is to train the AI model on consumer preferences, including favored brands and availability of products in their sizes, to deliver a more personalized product selection.<sup>1</sup> This level of personalization can boost user engagement as customers see products that specifically pique their interests and needs, and are available to ship.

<sup>1</sup> <https://www.cappgemini.com/insights/research-library/what-matters-to-todays-consumer-2024/>

### Dynamic promotion generation

Thanks to the analysis of real-time data on user behavior, inventory levels, and sales targets, generative AI is helping brands create promotions on the fly. For example, that parent browsing for hockey equipment for their 10-year-old may suddenly get prompted for a 2-for-1 offer that also considers the 7-year-old in the family – provided the brand has this level of customer insight. UK-based retailer Tesco is using data from various channels to personalize promotions and deliver targeted advertising.

### Content generation

Generative AI can help create a wide, rich range of content to make problem-solving for customers fast and enjoyable. For example, in addition to showing images and videos that promote products in different scenarios or environments, it can generate blog articles that tackle topical issues within the featured domain. The beauty of the technology is that it can instantly recognize and foresee what customers might need, then help create the relevant content automatically in an aesthetically pleasing way. CarMax, a US-based retailer, is using generative AI to create content for its used car pages. Since customers are keen to read other buyers' opinions before making a purchase, its generative AI tool aggregates reviews and provides two-sentence summaries for any of its 5,000+ listed cars, saving significant time for customers.

### Operational efficiency

Running digital commerce channels often requires a great deal of human intervention in everything from product setup, enrichment, merchandising, pricing, and promotions. Generative AI can take over many of these tasks to create, build out, then enhance the product catalog using internal and external data sources. For example, generative AI can automate A/B testing to act on consumer behaviors more quickly and efficiently. It can also analyze sales and traffic patterns to measure the impact of pricing and promotions while generating and testing new combinations to optimize outcomes. All of this reduces the manual time and effort previously spent by marketers to focus more on high-value activities such as interacting with customers and partners.





The radical shift to undiscovered levels of interaction

## Commerce platforms will be a valuable source of generative AI capabilities.

For example, Salesforce's Generative Page Designer is a groundbreaking drag-and-drop tool for managing commerce sites. Now marketers don't have to rely as much on developers to introduce new features, components, and content to their site. They can make site enhancements themselves and use the built-in

conversational interface, Einstein Copilot, to ask questions, such as how to lower their abandoned cart rate. In response, the tool can provide recommendations, including offering discounts to customers and even writing and sending them personalized targeted emails and messages.

The generative AI in e-commerce market size is expected to be worth around USD 2.1 billion by 2032 from USD 529.5 million in 2022, growing at a CAGR of 14.9% during the forecast period from 2023 to 2032.<sup>2</sup>

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<sup>2</sup> <https://marketresearch.biz/report/generative-ai-in-e-commerce-market/>

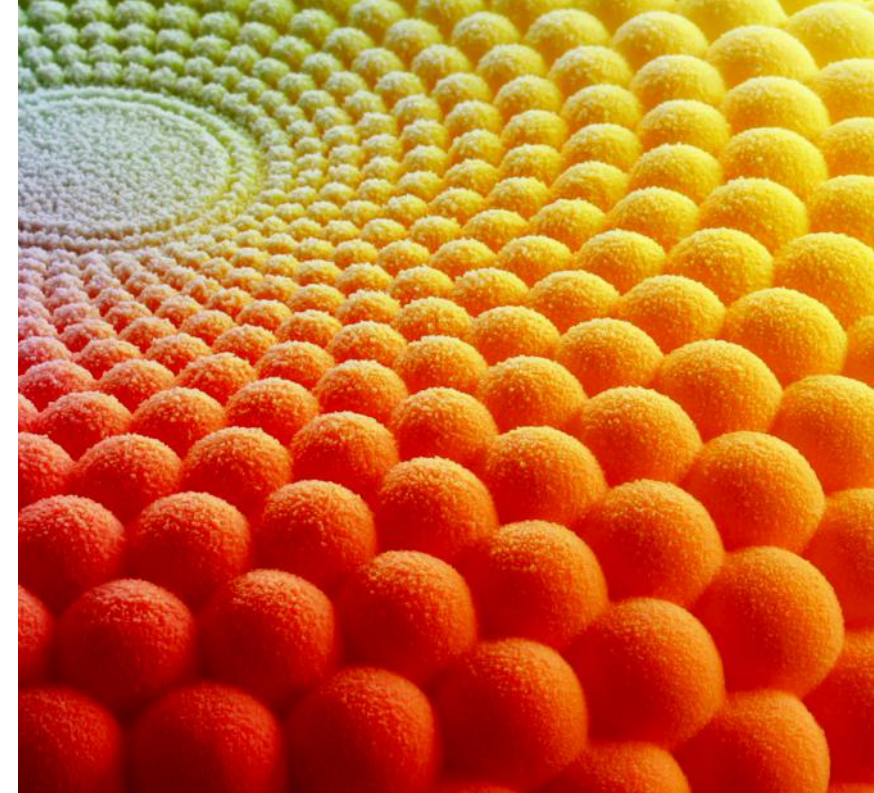


# Strategic AI: a catalyst for competitive advantage

Although it's clear that the adoption of generative AI in the realm of e-commerce presents a significant breakthrough opportunity, many companies are posing crucial questions: how can we make this technology more approachable and digestible for our organization?

We already have an established website and specific commerce operations, methods, and technologies we've been incorporating for years, and the prospect of completely overhauling the way we interact with customers will be a daunting challenge that we're unprepared for. How do we transform to keep thriving when keyword search becomes extinct?

The landscape of online shopping is rapidly evolving. This is in part thanks to customer expectations continuing to rise as brands keep pushing the needle of personalization. No one can afford to fall behind, so organizations must be willing to keep adapting and improving how they solve problems for customers – otherwise, their website fading into obscurity will be an imminent threat.



Although it's impractical to expect an overnight revamp of key processes and their underlying architectures, organizations should at least focus on attempting to integrate certain aspects of generative AI – in palatable increments. Then they can see what works, what doesn't, and which solutions, when adequately refined, can lead to a gradual, harmonious transition to new soon-to-be e-commerce standards.

# The power of custom vector databases

The use of custom vector databases to extend large language models (LLMs) has recently become a popular and inexpensive way to increase an LLM's value without additional model training. By embedding product attributes, brand information, and other relevant data into the database, LLMs can better understand the context behind queries to provide truly helpful responses. In addition to chat Q&A, these databases can also be used to improve the accuracy of FAQ pages, product knowledge bases, and other types of brand-specific content.



An experienced partner can connect an organization with industry-leading technology providers like Salesforce, SAP, and Microsoft.

Today cloud-based software vendors are at the forefront of generative AI development. For example, Salesforce's Einstein Studio features a "bring-your-own model" approach that allows businesses to train their AI models using customer data within Salesforce Data Cloud.<sup>3</sup>

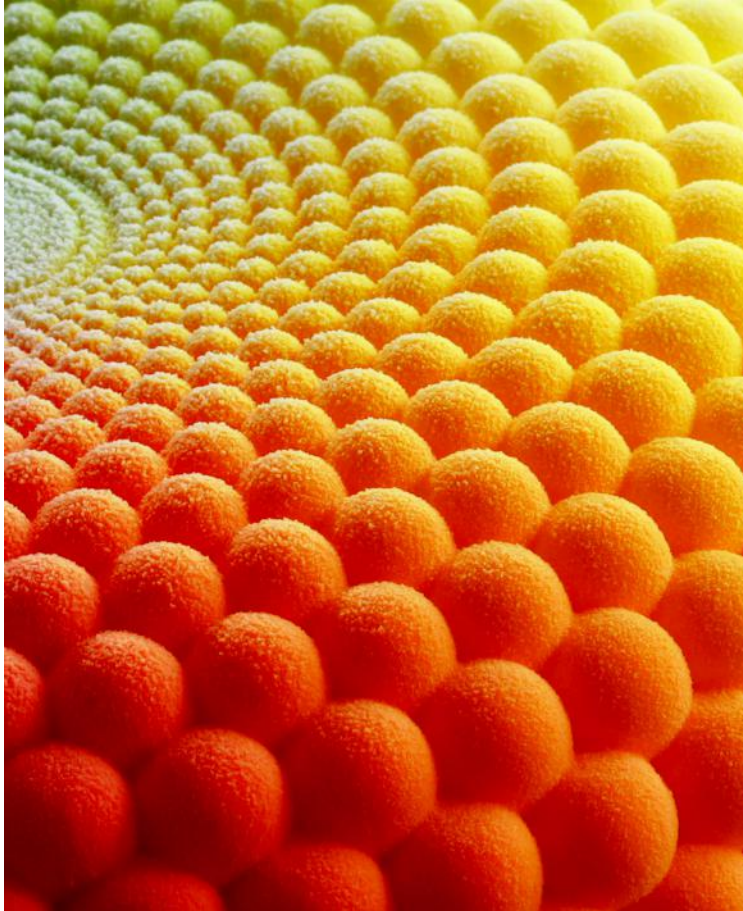
And Microsoft recently announced new generative AI capabilities spanning the user journey, from enabling personalized shopping

experiences, empowering store associates, and unlocking and unifying retail data to helping brands more effectively reach their audiences. New copilot features on Azure OpenAI Service allow retailers to build improved experiences and optimize store operations.<sup>4</sup>

Capgemini can help select and then integrate these options alongside many turnkey solutions to release AI capabilities quickly.

<sup>3</sup> <https://www.salesforce.com/news/stories/einstein-studio-ai-news/>

<sup>4</sup> <https://news.microsoft.com/2024/01/11/microsoft-unveils-new-generative-ai-and-data-solutions-across-the-shopper-journey-offering-copilot-experiences-through-microsoft-cloud-for-retail/>

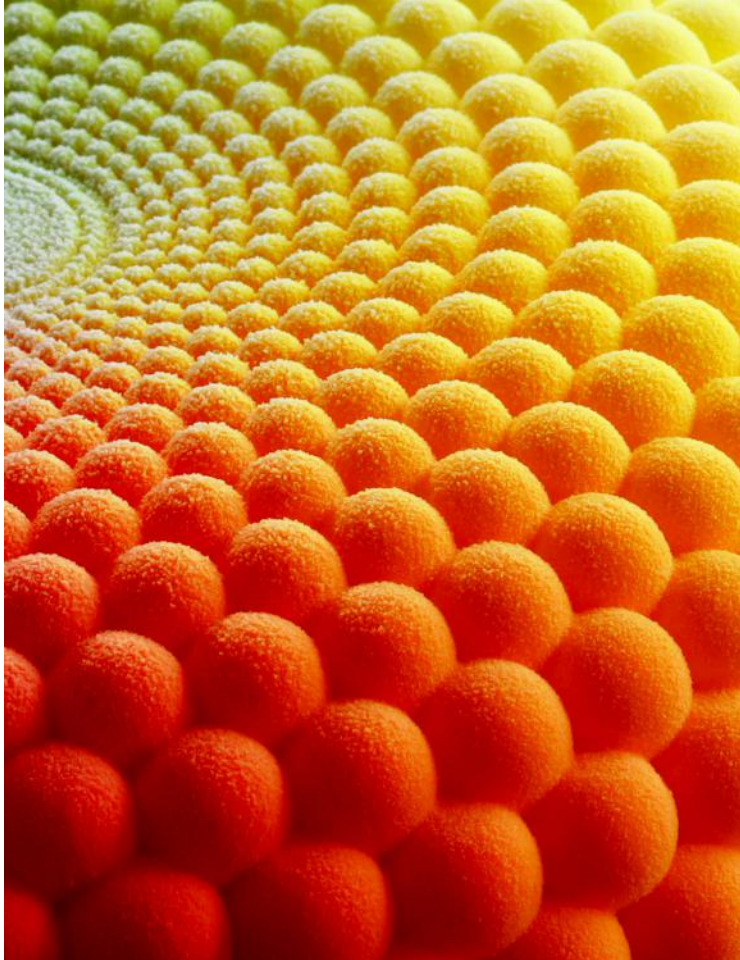


# When to use (and when not to use) generative AI

When considering the use of generative AI, it's crucial to understand the difference between probabilistic and deterministic outcomes.

In situations where flexibility and choice are important, such as product recommendations or open-ended questions, probabilistic outcomes are more appropriate. However, if accuracy and precision are critical, such as when product availability or order confirmation come into play, the outcomes will be deterministic, so there's

no need to use generative AI. Rather, a different model would be more suitable for the task – one that can understand and complete the intermediary steps involved to fill the gap where generative AI falls short. (Generative AI does not calculate or process; it produces outputs based on existing content.)



## Organizations must carefully consider the use case and the type of outcome required before deciding whether generative AI or another technology is the best fit.

It's also important to know that, as powerful as generative AI is, it's rarely used in isolation. The solution will most often involve the use of LLMs alongside other non-generative model types, which could cover security and reliability aspects. This concept of collating models refers to model chaining, where different models are combined and sequenced to achieve desired results.

No organization's generative AI transformation will be without hurdles. As businesses explore how they can enable better customer experiences, they will run into several challenges that include bias, inaccuracy, data privacy, and compliance risks. By knowing these challenges

upfront, e-commerce businesses can better prepare their AI solutions to not only deliver more personalized experiences but also uphold ethical and legal compliance standards. This will create a resilient foundation that will make future AI integrations much easier, which is critical. In this fast-moving social media-driven industry, something like an incorrect labeling of a product can be called out in a TikTok video. If it goes viral, it can cause reputational damage to a brand.

# The charm of powerful product pages

Although automated product description pages (PDPs) are only one part of the e-commerce transformation we envision, they are a crucial steppingstone toward the goal of delivering next-level personalization.

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To transcend their role of being mere repositories of information, ordinary PDPs can be turned into compelling product stories that solve individual problems and curate exceptional experiences through the engaging narratives they tell.

With Google PaLM 2 LLM model serving as the foundation, Capgemini set out to do just that. We developed Magic PDP, a proof-of-concept solution that empowers marketers to quickly generate product pages for either their own websites or the marketplaces they

work with. After key attributes, such as product name, description, target market, language, country sold, and retailer name, are filled in, the generator can go to work and build ready-made pages in a matter of seconds.

As we continue to improve the model and tailor it to different industries, organizations will be able to ensure their products gain significantly more exposure and relevance in the market, at a faster pace, leading to heightened customer

engagement and, ultimately, more sales and brand recognition.

As important as these product pages are, though, they are not the end goal. Efficient personalized solutions, ready to be explored and integrated into customers' everyday lives, are what we're after. We want customers to buy outcomes to solve problems, whether they include outfits, equipment, events, or a mix of different products and services.

# Making tomorrow's opportunities today's possibilities

Many companies are learning how generative AI can liberate their employees from routine tasks and improve the quality of customer engagement.

By exploring the technology's automation potential early on, these companies will be ahead of competitors and closer to providing better customer personalization that prioritizes problem-solving over mere product and service delivery. This will open the door to more intuitive, conversation-driven interactions as well as new model opportunities.

As generative AI advances, however, even chat interfaces used for search and discovery will no longer be necessary. With the tremendous amount of data collected, the technology will know the customer so well that it will be able to predict their individual needs and wants without search. This level of personalization will fundamentally change the way customers make purchases, as the system becomes an extension of their own decision-making processes.

That's the future of AI-enabled e-commerce, and it's only a matter of time before broad adoption of the technology transforms the industry for good. The question is who will stay on the sidelines, cautiously observing the changes, and who will enter the game now, investing in a lucrative opportunity to revolutionize e-commerce beyond recognition?





Whether you're just starting out or in the middle of implementing generative AI, we can help you overcome the associated risks and discover the multitude of possibilities the technology can unveil as it amplifies human potential.

Capgemini boasts a global collective of 30,000+ data and AI consultants and

engineers, along with frog, our leading creative consultancy. With our exceptional industry experts and strong ecosystem of partners all along the generative AI value chain, we deliver projects at scale, bringing to life our clients' most relevant use cases for substantial business impact every time.

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## About Capgemini

Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2023 global revenues of €22.5 billion.

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