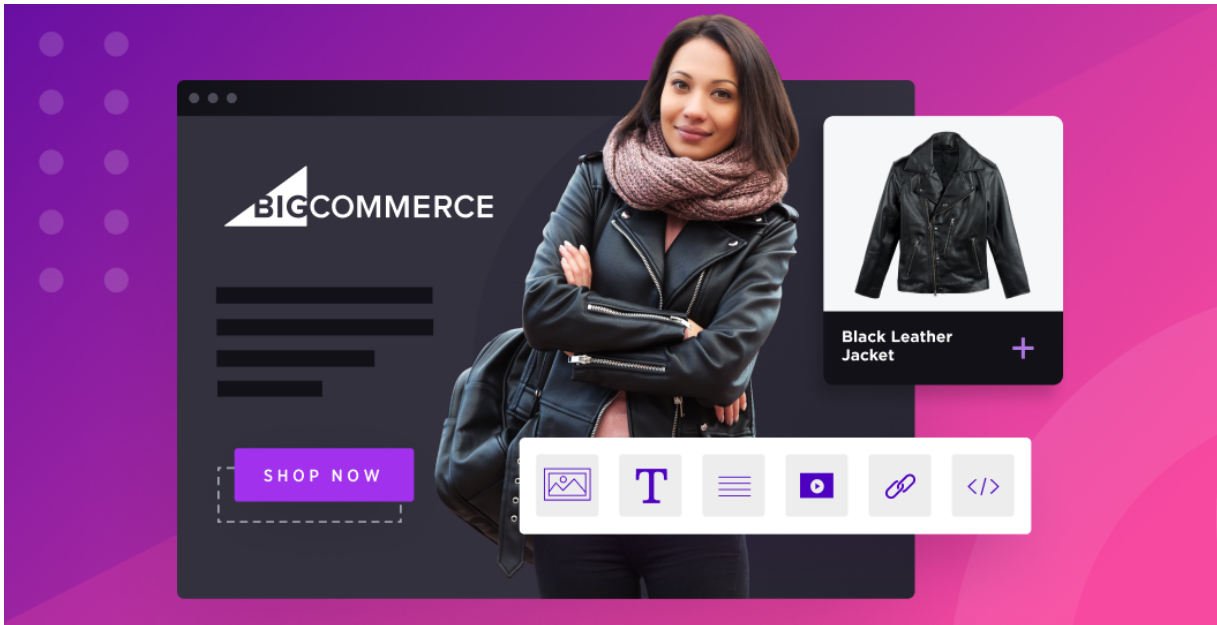


Artificial Intelligence in Ecommerce: How This Rapidly Evolving Tech Will Change the Online Storefront



When someone says “artificial intelligence,” the first thing that comes to mind might be a vision from movies like Steven Spielberg’s 2001 film *A.I. Artificial Intelligence*, sci-fi thriller *Ex Machina*, or 1982 cult classic *Blade Runner*.

But when it comes to the ecommerce sector, it’s less about human-like robotics and more about the learning technologies and algorithms that provide the foundation.

AI can help today’s online retailers deliver an optimized customer experience on and off their ecommerce websites by using collected business and customer data to make better business decisions and more accurately predict the future.

Let's look at some of the ways AI and associated technologies are moving the ecommerce industry forward, from improving customer interactions to [streamlining business processes](#).

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Advances in Technology and Ecommerce

From [digital transformation](#) and [software-as-a-service](#) to virtual reality and artificial intelligence, technology keeps pushing the limits of what ecommerce can do.

With compounding advancements in technology, there's something new competing for online retailers' attention every day. You'll never find yourself at a loss for something new and different to try — the real task is identifying the best opportunities for your ecommerce business.

AI Is Bringing Change to the Ecommerce Industry

Artificial intelligence isn't just a novel technology implemented for its "cool factor." Implementing AI has the potential to impact any number of business functions across your organization.

To understand how it could impact your business, it helps to have an understanding of the components of artificial intelligence.

The definition of AI is broad, and encompasses data mining, natural language processing, and machine learning.

- Data mining refers to the gathering of both current and historical data to inform predictions.
- Natural language processing focuses on human-computer interaction and how computers interpret natural human language.
- Machine learning concerns using a collection of algorithms to apply past experience or provide examples to solve a problem. [Deep learning](#) "involves layering algorithms in an effort to gain greater understanding of the data."

Over the past couple of years, AI technology has matured and become a powerful tool to boost sales and optimize operations. Even many small ecommerce businesses are using technology with some kind of AI capability.

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Benefits of Using Artificial Intelligence in Ecommerce Companies

Amazon has long recognized the benefits of artificial intelligence and related technologies. The behemoth ecommerce company uses machine learning to improve product selection and user experience and to optimize logistics.

A recent publication from McKinsey & Company and the Retail Industry Leaders Association named [seven imperatives for rethinking retail](#) in 2021, and every single one could in some way be supported by some type of AI-informed technology.

1. More targeted marketing and advertising.

Personalization is a top priority, according to surveyed retailers, but only [15% say they've fully implemented personalization](#) across channels. Stand out from the crowd with a more personalized message and have one-to-one conversations with your customers.

Advances in AI and machine learning have enabled deep personalization techniques to customize content by user. By analyzing big data from purchase histories and other customer interactions, you can zero in on what your customers really want and deliver the message that will most resonate.

2. Increased customer retention.

Delivering targeted marketing and advertising messages personalized for their customers can increase retention. [McKinsey omnichannel personalization research](#) indicated there's a 10-15% uplift potential in revenue and retention from omnichannel personalization strategies.

The report reads: "A critical element of personalization is building better data and insights on customers, an asset that also generates additional value across the value chain. ... Our research suggests the ROI for personalization will quickly outpace that of traditional mass marketing."

3. Seamless automation.

The goal of automation is to accomplish a task with as little human intervention as possible. That can mean anything from scheduling emails in a CRM or [marketing tool](#), using [Zapier](#) to automate tasks or leveraging advanced technology to help with hiring.

In the context of future [ecommerce trends](#), however, some of the most commonly talked about today are robotics and machine learning.

AI can play a big role in helping you automate the repetitive tasks that keep your online store functioning. With AI, you can automate things like product recommendations, loyalty discounts,

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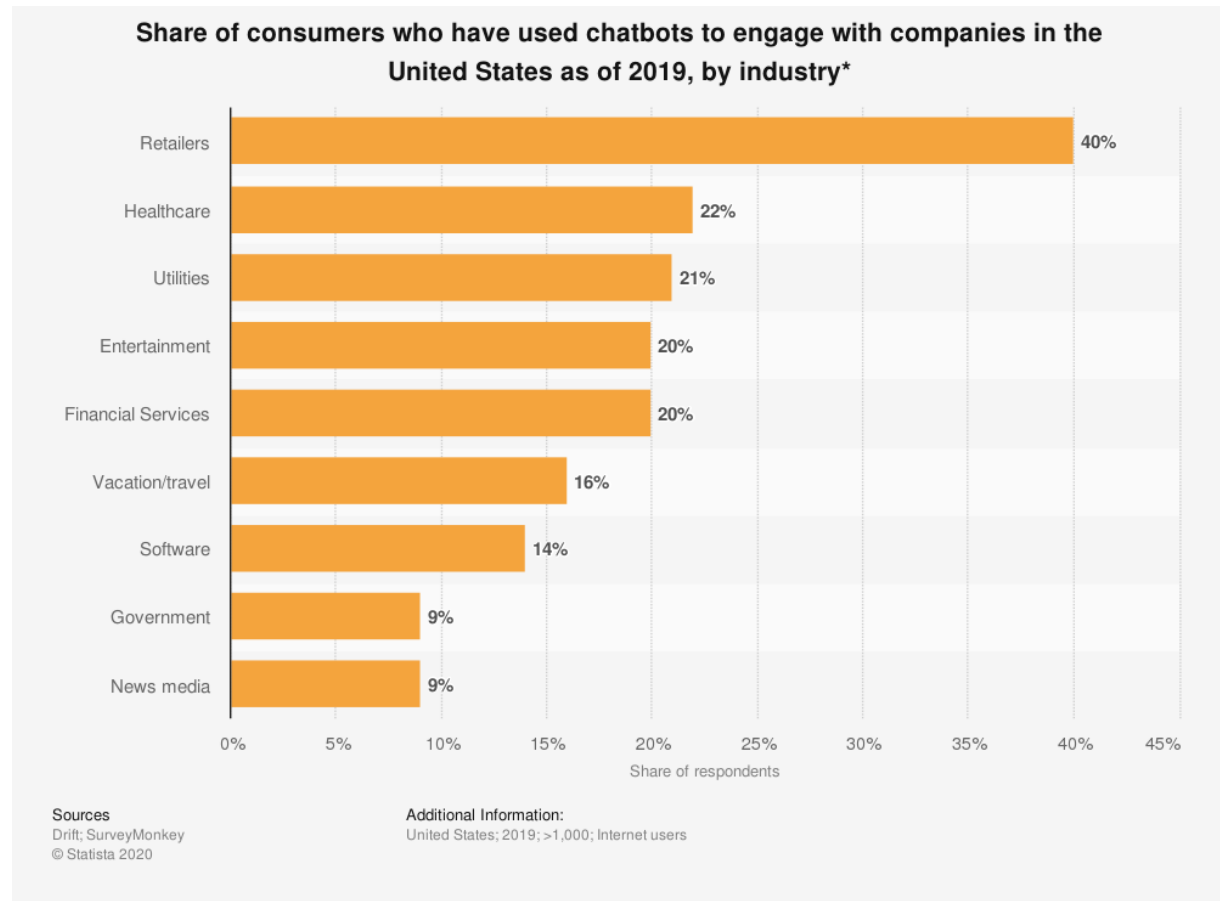
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low-level support, and more.

4. Efficient sales process.

Using AI can help you create a more efficient sales process by gathering data about your customers, automate follow-up [abandoned cart inquiries](#), and more. You can help move customers through the funnel by having them engage with chatbots for simple questions.



AI Use Cases in Ecommerce

There are plenty of use cases in [ecommerce](#) for AI, and you're probably familiar with a lot of them — you just might not know that the technology they're built on is actually related to AI. Here are six of the most common:

1. Personalized product recommendations.
2. Pricing optimization.
3. Enhanced customer service.

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4. Customer segmentation.
5. Smart logistics.
6. Sales and demand forecasting.

1. Personalized product recommendations.

It's easier than ever to collect and process customer data about their online shopping experience. Artificial intelligence is being used to offer [personalized product recommendations](#) based on past customer behavior and lookalike customers.

Websites that recommend items you might like based on previous purchases use machine learning to analyze your purchase history. Retailers rely on machine learning to capture data, analyze it, and use it to deliver a personalized experience, implement a marketing campaign, optimize pricing, and generate customer insights.

Over time, machine learning will require less and less involvement from data scientists for everyday types of applications in ecommerce companies.

2. Pricing optimization.

AI-enabled dynamic pricing is a strategy of changing your product price based on supply and demand. With access to the right data, today's tools can predict when and what to discount, dynamically calculating the minimum discount necessary for the sale.

3. Enhanced customer service.

With [virtual assistants](#) and chatbot technology, you can deliver the appearance of higher touch [customer support](#). While these bots aren't completely self-reliant, they can facilitate simple transactions, leaving live support agents able to focus on more complex issues.

Virtual agents also have the advantage of being available 24/7, so low-level questions and issues can be addressed at any time of day, without making your customer wait.

4. Customer segmentation.

Access to more business and customer data and processing power is enabling ecommerce operators to understand their customers and identify new trends better than ever.

In an [insight from Accenture](#), they write, "AI systems can explore highly complex and varied options for customer engagement very quickly, and continuously optimize their performance as

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more data becomes available. This means marketers can set parameters and allow the AI to optimize and learn to achieve precision.”

5. Smart logistics.

According to [a report from Emerging Tech Brew](#), “Machine learning’s predictive powers shine in logistics, helping to forecast transit times, demand levels, and shipment delays.”

Smart logistics or intelligent logistics, is all about using real-time information through sensors, RFID tags, and the like, for inventory management and to better forecast demand. [Machine learning](#) systems become smarter over time to build better predictions for their supply chain and logistics functions.

6. Sales and demand forecasting.

Particularly in a world during and after [COVID-19](#), you’ll want to plan your inventory on both real-time and historical data. Artificial intelligence can help you do just that. A [recent McKinsey report](#) suggests that investment in real-time customer analytics will continue to be important to monitor and react to shifts in consumer demand that can be harnessed for price optimization or targeted marketing.

How to Implement Artificial Intelligence Into Ecommerce

It’s always tempting to jump into new, exciting technologies. But you’ll want to have a roadmap before jumping into implementing a new program, to make sure you don’t lose a lot of time and money on false starts.

1. Create a strategy.

You have to start somewhere — and your strategy will lay out the path you need to take from there to your AI goal. Don’t just punt this to a newly hired AI expert or your CIO or CTO.

Really put some thought into what you want to accomplish with AI. Take a practical approach, and don’t forget to start small. You can always build on your successes down the road.

2. Find narrow use cases that are relevant to the overall corporate strategy.

The most successful AI use cases live at the intersection of business objectives, data differentiation, and readily available [artificial intelligence](#) models. All that to say — you should focus on revenue-generating opportunities where you have a data advantage and in a context appropriate for proven AI technology.

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3. Leverage third-party expertise.

Even if you're an armchair AI aficionado, you'll want to accept expert assistance on this one. Bring in a tiger team on a project or part-time basis to dig in and help you build a strategic AI roadmap. Those third parties can be helpful in bringing your MVP (minimum viable product) to life as well.

4. Build a full-scale solution.

Once you're confident in what your team has produced, it's time to build the full scale solution. Don't be surprised if it still takes some iterations before it works like you expect. As you and your team become more comfortable working in the realm of AI, you'll start to see greater benefit from the projects you implement.

Wrapping Up

Tomorrow's AI sounds like it's straight from the movies, but there's plenty of AI technology today that may look less glamorous improving customer experience, increasing conversion rates, and helping to streamline the way the business is run.

If you want to deliver the best possible shopping experience on your [ecommerce website](#), look into the various benefits of artificial intelligence and machine learning. It can help you make better use of your customer and business data to set a plan for your future that will work.

Artificial Intelligence in Ecommerce FAQs

How can AI enhance personalization in ecommerce?

AI enhances personalization for customers in ecommerce by analyzing vast amounts of data to understand individual preferences and behaviors. It uses this information to provide tailored product recommendations, customized marketing messages, and personalized shopping experiences. AI can create dynamic content, such as personalized emails and advertisements, that resonate with specific customer segments. Additionally, AI-powered chatbots can offer personalized assistance and support, while predictive analytics anticipate customer needs and suggest relevant products. This level of personalization helps increase customer engagement, satisfaction, and loyalty.

What are the data privacy concerns with AI in ecommerce?

Data privacy concerns with AI in ecommerce include the collection and storage of large amounts of personal data, which can be vulnerable to breaches and misuse. AI systems may also

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inadvertently collect more data than necessary, raising concerns about overreach and consent. Additionally, there is the risk of bias in data handling and decision-making, which can affect customer trust and brand reputation. Ensuring compliance with data protection regulations, such as GDPR, is essential to mitigate these risks.

How does AI improve customer experience in ecommerce?

AI improves customer experience in ecommerce by personalizing shopping experiences, such as recommending products based on past behavior and preferences. It enhances customer service through chatbots and virtual assistants, providing instant support and answering queries 24/7. AI also streamlines the shopping process with features like visual search and voice commands, making it easier for customers to find what they need.

How can businesses ensure the accuracy of LLMs?

Businesses can ensure the accuracy of AI by regularly testing and validating them against diverse and representative datasets. Continuous monitoring and evaluation help identify and correct any biases or errors. Incorporating feedback loops where the algorithm's performance is reviewed and adjusted based on real-world outcomes is also crucial.

What kind of automations can AI support with my ecommerce business?

AI can play a big role in helping you automate the repetitive tasks that keep your online store functioning. With AI, you can automate things like product recommendations, loyalty discounts, low-level support, and more.

How does AI support better logistics processes?

Smart logistics is all about using real-time information through sensors, RFID tags, and the like, for inventory management and to better forecast demand. Machine learning systems become smarter over time to build better predictions for their supply chain and logistics functions.

What is a chatbot?

A chatbot is an AI solution for customer support or other use cases. Using provided and collected data and algorithms, chatbots provide conversational support without actual real-time human intervention.