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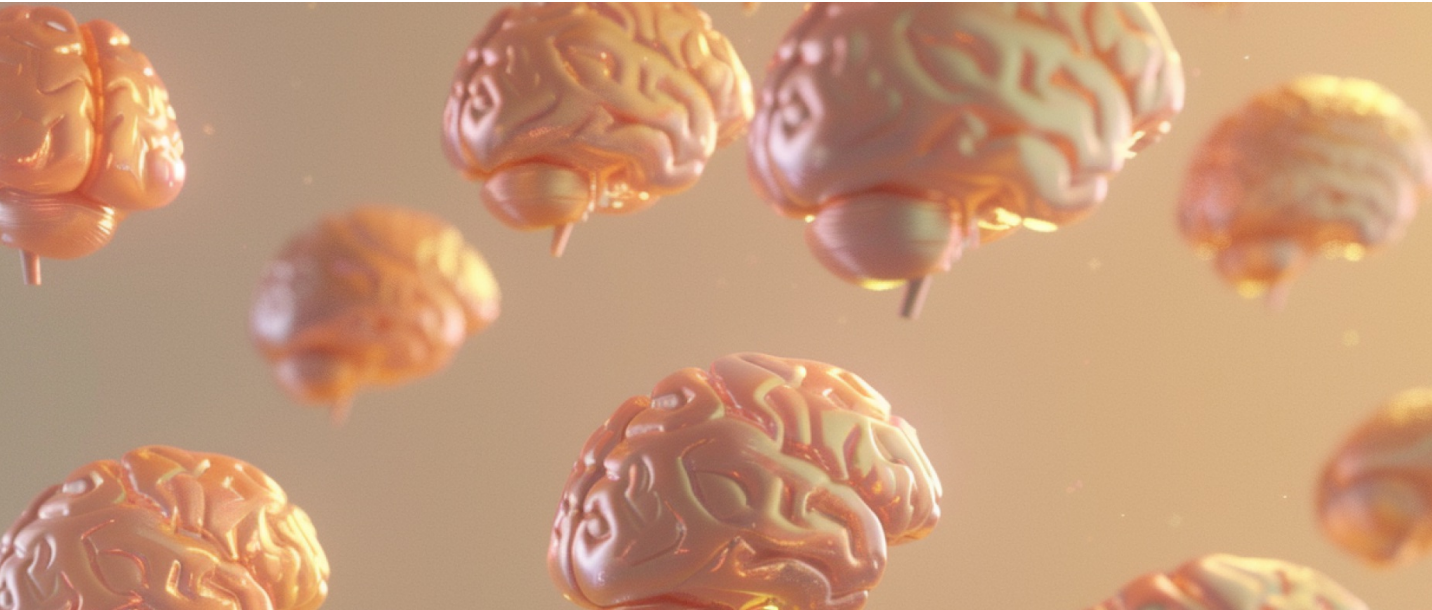


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AI Use Cases: Examples of How Industries Use AI

Learn how AI technologies are adding value and transforming business operations across major industries.

by **Shopify Staff**
Apr 8, 2024



Artificial intelligence (AI) technology can support a diverse set of business functions—from executing common administrative tasks to monitoring industry-specific compliance requirements. Explore AI use cases that show how AI tools can add business value across major industries.

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What is artificial intelligence (AI)?

Artificial intelligence (AI) is a computer technology that mimics human intelligence to support features like natural language processing (NLP), pattern recognition, and machine vision (a computer's ability to analyze visual information).

AI research consists of multiple subfields, and many popular AI tools rely on multiple types of AI technology. Generative AI tools like ChatGPT, for example, use deep learning and NLP to understand language inputs and generate natural-sounding responses.

Here are five key areas of AI research:

1. Machine learning
2. Deep learning
3. Natural language processing
4. Computer vision
5. Data science

1. Machine learning

Machine learning involves developing AI algorithms that can learn and improve over time. Machine learning algorithms identify patterns in training data sets and use these patterns to inform machine learning models.

Machine learning applications can support business processes like task automation and predictive analytics.

2. Deep learning

Deep learning is a type of machine learning that relies on artificial neural networks—AI systems that organize and process data using a structure similar to the human brain. Deep learning models can extract more information from data than other types of machine learning models, producing better results with less human assistance. They can also self-train using unstructured data, which helps them process the massive data sets required for generative AI applications.

3. Natural language processing

Natural language processing (NLP) allows computer systems to process human language and produce outputs that convincingly mimic human-created content.

4. Computer vision

Computer vision helps machines analyze visual data, letting AI tools extract information from images and generate new visual content.

5. Data science

Data science isn't a subfield within AI—it's a separate field of study that uses mathematics, AI, and computer engineering to generate business insights from quantitative and qualitative data.

AI technologies are particularly valuable for big data analytics, which is the process of managing vast data sets. AI systems can help data scientists analyze massive amounts of information and isolate relevant data points from large sets.

AI use cases across industries

- Logistics and supply chain management
- Sales
- Ecommerce
- Healthcare
- Finance
- Human resources
- Education
- Media and entertainment
- Manufacturing
- Transportation

Some AI use cases—like improving customer service or automating data entry tasks—broadly apply across industries. Others apply more narrowly to specific fields. Here's an overview of major global industries already using AI technology to improve efficiency and boost profits:

Logistics and supply chain management

AI solutions can support multiple logistics processes, helping you reduce costs and increase efficiency. These processes include:

- **Inventory management.** AI-powered inventory management systems can monitor inventory levels using data collected from your ecommerce website and use historical sales data to optimize inventory levels.
- **Fulfillment.** Use AI to automate time-consuming order fulfillment tasks, optimize delivery routes, and reduce shipping costs.
- **Supply chain optimization.** AI tools also provide better visibility into each link in your supply chain, helping you identify inefficiencies and reduce operational costs.

Sales

Use AI tools to predict demand, increase efficiency, and better meet customer needs. Here are three popular use cases:

- **Sales forecasting.** Predictive analytics tools use historical data to anticipate sales volumes, letting you plan and adjust your strategy accordingly.
- **Lead management.** AI tools can automatically generate leads and process lead data, reducing labor for human workers and helping your sales reps make better outreach decisions.
- **Automating routine tasks.** AI systems can automate data entry and other repetitive tasks, like updating contact information and summarizing key points from sales calls. Offloading administrative tasks to AI-powered virtual assistants can free up your reps for higher-value sales activities.

Ecommerce

Use AI tools to improve customer service and marketing efforts. Consider these five use cases for AI in ecommerce:

- **Content creation.** You can use AI tools to generate images, videos, and written content to quickly create marketing materials.
- **Personalization.** Personalization tools analyze customer data and automatically optimize the content, timing, and delivery method of marketing messages based on customer insights.
- **Campaign optimization.** AI tools can help you analyze and optimize marketing campaigns to increase customer engagement and conversions.
- **Customer service.** AI-powered customer service tools can autonomously handle customer interactions, letting you provide 24/7 customer service and escalate more difficult cases to human agents.
- **Sentiment analysis.** Use AI tools to measure and improve customer satisfaction. For example, AI tools can analyze customer reviews, report on sentiment breakdown, and offer suggestions for improvement.

Healthcare

AI has multiple applications in the healthcare industry. Drug discovery and diagnostics are two particularly exciting use cases:

- **Drug discovery.** AI tools can use medical intelligence to predict the effects of chemical compounds on biological systems, letting medical researchers focus on drug combinations with a higher likelihood of producing beneficial outcomes.
- **Diagnostics.** AI tools can analyze a patient's lab results and other medical data to diagnose existing medical conditions and identify disease predispositions, helping healthcare providers develop personalized treatment plans and appropriate testing protocols.

Finance

Financial institutions can use AI-powered solutions to prevent fraud, support compliance, and improve performance. These solutions can assist with:

- **Fraud detection.** AI tools can identify patterns that suggest fraudulent activity and flag specific behaviors or accounts for further investigation.
- **Regulatory compliance.** AI tools can review business processes and documents, identify actions or language choices that

present compliance risks, and suggest improvements.

- **Data security.** You can use AI to analyze your cyber-attack vulnerability and suggest improvements to your cybersecurity systems.
- **Data analysis.** Intelligent systems can analyze personal finance information and market data and provide personalized financial planning advice based on individual goals.

Human resources

AI tools can help you increase efficiency and make more informed talent management decisions in areas such as:

- **Recruiting and hiring.** Use AI systems to create and optimize job postings and streamline the hiring process by automatically flagging top candidates.
- **Training and development.** AI tools can analyze performance data and provide intelligent feedback recommendations. You can also use them to identify developmental needs and build personalized training modules tailored to specific growth objectives.

Education

Promising education sector applications include personalization, automation, and data analytics. Here's an overview:

- **Personalization.** AI tools can evaluate student performance and build personalized learning modules based on student strengths, areas for improvement, learning preferences, and interests.
- **Automated grading.** Grading algorithms can automate the time-consuming task of scoring assessments, providing timely feedback and freeing educators to focus on student development.
- **Analytics.** Analyzing data across larger student groups can surface trends that may be difficult to identify in individual interactions.

Media and entertainment

You can use AI to provide intelligent recommendations and produce high-quality content. Consider the following applications:

- **Recommendation engines.** Personalized recommendation engines can surface content based on customer information including demographic data, interests, and browsing behaviors.
- **Automated editing.** AI editing tools can streamline video editing using facial recognition to identify key roles, divide raw camera footage, reduce background noise, and even replace objects or backgrounds.

Manufacturing

AI can anticipate maintenance needs and automate quality control. Here's what that looks like:

- **Quality control.** Computer vision tools can automate quality control processes, preventing defective products from going to market and immediately notifying you of issues that require your attention.
- **Predictive maintenance.** AI applications can use predictive analytics to anticipate maintenance needs, helping manufacturing companies avoid equipment failures and costly delays.

Transportation

AI technologies can make transportation more efficient, sustainable, and safe. Here's how:

- **Traffic management.** AI algorithms can optimize traffic flow by analyzing historical traffic patterns and real-time traffic data route recommendations accordingly. They can also modify traffic signal patterns to reduce congestion.
- **Improved safety.** AI enhancements to personal vehicles like adaptive cruise control and blind spot warnings can reduce collision rates.
- **Sustainability.** AI prototyping and performance modeling can help you design more efficient vehicles while self-driving car technologies can increase the fuel efficiency of personal vehicles.

AI use cases FAQ

What is the most common use for AI?

The most common AI use case varies according to industry and individual preference, but research support and routine task automation are popular applications across industries.

How do you identify an AI use case?

Here's how to identify an AI use case:

1. Identify an inefficiency, pain point, or knowledge gap.
2. Define the current state of the relevant process.
3. Define the ideal state of the relevant process.
4. Identify the knowledge, functions, or infrastructure required to reach the ideal state.
5. Select an AI tool that provides relevant resources and support.

What are the advantages of using AI?

Here are three key business advantages of AI implementation:

- Reduced operational costs
- Better performance visibility
- Improved consumer and market intelligence

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Last updated Apr 8, 2024

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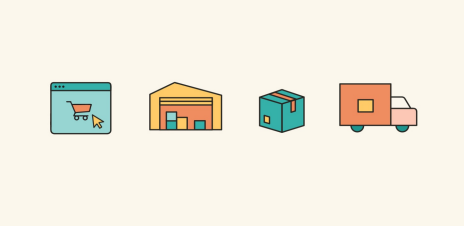
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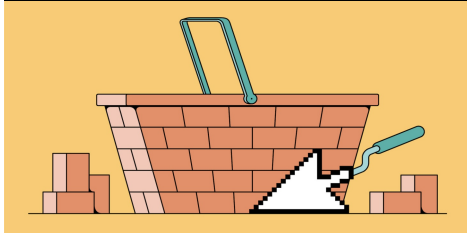
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