



**Original Article**

**ARTIFICIAL INTELLIGENCE AND E-COMMERCE**

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**Manuscript ID:** IJAAR-130355

**ISSN:** 2347-7075

**Impact Factor – 8.141**

**Volume - 13**

**Issue - 3**

**January – February 2026**

**Pp. 304 - 306**

**Submitted:** 15 Jan.2026

**Revised:** 20 Jan. 2026

**Accepted:** 30 Jan. 2026

**Published:** 10 Feb. 2026

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Quick Response Code:



**Website:** <https://ijaar.co.in/>



**DOI:** 10.5281/zenodo.18538505

**DOI Link:**

<https://doi.org/10.5281/zenodo.18538505>



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**Abstract:**

*AI in E-commerce refers to the integration of artificial intelligence technologies and techniques in the field of online commerce. This includes the use of machine learning algorithms, natural language processing, and computer vision to enhance various aspects of the e-commerce experience. AI in E-commerce aims to improve customer engagement, personalization, recommendation systems, fraud detection, inventory management, and supply chain optimization. By leveraging AI, businesses can provide more tailored and efficient services, leading to increased customer satisfaction and overall growth in the e-commerce industry. The paper focuses on the description of the essence of e-commerce and artificial intelligence and their benefits. The aim is also to evaluate the importance of artificial intelligence and its use in the context of e-commerce.*

**Keywords:** *Artificial intelligence, Machine learning, E-commerce*

**Introduction:**

The modern information age brings along new possibilities, software, and technological innovations usable in marketing and shopping. New technologies force companies to be more creative. Technologies help increase the efficiency, quality, and cost-effectiveness of services provided by businesses. Contemporary creativity is based primarily on the development of the so-called information and communication technologies, which have a major impact on the development of the business environment. The effectiveness of information and communication technologies depends on several factors, such as investment in human capital and an appropriate combination of e-commerce solutions. One sector where the digital transition and importance of e-commerce are particularly pronounced is retail, where digital tools, such as Websites, replace (to a certain extent), or complement physical commerce.

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**How to cite this article:**

*Miss. Sudha Prakash Kamble. (2026). Artificial Intelligence And E- Commerce. International Journal of Advance and Applied Research, 13(3), 304–306. <https://doi.org/10.5281/zenodo.18538505>*



### **Objective of the Study:**

The objective of present study is to know the Role and impact of artificial intelligence in E-Commerce.

### **Research Methodology:**

This research paper is descriptive in nature. This study is mainly based on secondary data. Secondary data required for present study has been collected from various sources like books, journals, articles, research papers and internet.

### **Role of Artificial Intelligence in E-commerce:**

AI plays a crucial role in revolutionizing the e-commerce industry. It offers numerous benefits and enhances various aspects of online commerce. Here are some key roles of AI in e-commerce:

- 1. Personalization:** AI algorithms analyse customer data, including browsing history, purchase behaviour, and preferences, to provide personalized product recommendations and tailored shopping experiences. This helps businesses increase customer engagement and conversion rates.
- 2. Customer Service:** AI-powered chatbots and virtual assistants enable businesses to provide 24/7 customer support. These AI assistants can answer customer queries. Digital Ecosystem & Harnessing Artificial Intelligence assist with product selection, and handle basic transactions, improving customer satisfaction and reducing response times.
- 3. Fraud Detection:** AI algorithms can detect patterns and anomalies in real-time, helping to identify and prevent fraudulent activities such as payment fraud and account hacking. This enhances security and builds trust among customers.
- 4. Inventory Management:** AI algorithms can analyse historical sales data, market trends, and other factors to optimize inventory levels, ensuring that products are available when and

where they are needed. This reduces stockouts and overstocking, leading to cost savings and improved customer satisfaction.

- 5. Supply Chain Optimization:** AI can optimize the supply chain by analysing data from various sources, including suppliers, warehouses, and transportation systems. This helps businesses streamline operations, reduce costs, and improve delivery efficiency. Overall, AI in e-commerce empowers businesses to deliver personalized experiences, improve operational efficiency, and enhance customer satisfaction, ultimately driving growth in the online retail industry.

### **Benefits of AI in the E-Commerce Industry:**

The advent of Artificial Intelligence (AI) and Machine Learning (ML) has changed the face of online shopping for good by making it more personalized search and responsive than ever before. Aimed at improving customer experience, by 2027, 80% of retail CEOs want their companies to use AI-powered intelligent automation. Here 's a list of benefits that an intelligent e-commerce platform provides:

- 1. Personalized Marketing:** With Artificial intelligence, e-commerce businesses can create personalized marketing strategies based on the needs and wants of their customer. They can collect data from social media, shopping history, and browsing habits to understand better what customers need and want. The AI will use this information to make predictions about customer behaviour. It will also make AI-based recommendations about how much they're willing to pay for a product or service.
- 2. Improve Customer Retention:** Whether it's a local shop or a multinational corporation, nearly every business relies on customer retention to keep its business running. This is especially true in the e-commerce industry, which has created enormous opportunities for growth and development around the globe. However,



despite how important it is to retain customers, many businesses still struggle with this part of the process. And if they're not working already, they will be soon enough because some significant changes are coming that will impact companies in the online marketplace. The rise of artificial intelligence and chatbots can change things dramatically for businesses that haven't perfected customer retention strategies yet.

- 3. Seamless Automation:** E-commerce companies are now using artificial intelligence to improve their business. Many of them are opting for AI automation, which is quickly replacing humans in many industries. AI vendors have created services that help e-commerce companies automate their operations to focus on growth and sales optimization. The main advantage of AI automation is the ability to scale up the business while keeping costs low.

#### **Efficient Sales Process:**

Artificial intelligence is helping e-commerce companies to improve their sales. It's also used to find the right market for a product, recommend products. Digital Ecosystem & Harnessing Artificial Intelligence high demand, and forecast how many copies of each product need to be produced. In addition, AI can understand customer behaviour by analysing search history and browsing patterns. This allows companies to provide better-targeted marketing strategies and offers as well as AI-based recommendations. The result is that customers can be directed towards items that best match their interests and needs based on who they are as people rather than what they buy.

#### **Areas of AI Impact in E-Commerce:**

- **Hyper-Personalization:** AI analyses customer behaviour, browsing history, and purchase patterns to offer tailored product recommendations and dynamic, personalized marketing campaigns.

- **Customer Experience & Support:** AI-powered chatbots and virtual assistants provide 24/7 customer service, handling inquiries, returns, and order tracking, which boosts efficiency and user satisfaction.
- **Operational Efficiency:** AI optimizes inventory management by predicting demand, reducing storage costs, and improving logistical efficiency.
- **Visual & Voice Search:** Customers can search for products using images or voice commands, making product discovery more intuitive and faster.
- **Fraud Detection:** AI algorithms identify unusual transaction patterns in real-time, significantly reducing cyber threats and fraud.
- **Dynamic Pricing:** AI tools adjust prices in real-time based on competitor pricing, demand, and user demand, improving competitiveness.
- **Future Trends:** Conversational commerce and AI assistants are shifting the focus from keyword-based search.

#### **Conclusion:**

It is concluded that all AI have good impact on E-Commerce. The integration of Artificial Intelligence into the e-commerce sector represents more than just a technological upgrade; it is a fundamental shift in how commerce operates in the digital age. By moving beyond static websites to dynamic, predictive, and highly personalized ecosystems, AI has bridged the gap between consumer expectations and business capabilities.

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