


# Chapter 5


## Orchestrating Artificial Intelligence into E-commerce Application

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### ABSTRACT

*In the competitive landscape of e-commerce, providing a seamless and user-friendly shopping experience is critical to retaining customers and driving sales. Many existing applications struggle with issues such as complicated navigation, unexpected costs, delayed deliveries, and data security concerns, leading to high cart abandonment rates. To address these challenges, the proposed system introduces a robust and intuitive application designed to enhance user engagement by offering easy navigation, transparency in costs, reliable services, and strong data protection. This innovative approach aims to improve customer satisfaction and reduce barriers to completing purchases, ensuring a smooth and efficient online shopping experience.*

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## 1. INTRODUCTION

Developments of artificial intelligence (also called AI) are increasing significantly in the last few decades. Early AI systems made suggestions through expert systems and systems based on knowledge. Imagine slipping on a new pair of sunglasses from the comfort of your couch, seeing precisely how they frame your face through your smartphone's camera. Or, picture asking a chatbot, 'What can I make for dinner with chicken and tomatoes?' and receiving instant, personalized recipe suggestions with a one-click option to add all the necessary ingredients to your shopping cart. This isn't a glimpse into a distant future; it is the current, dynamic reality of e-commerce, driven by the transformative power of Artificial Intelligence (AI). Recent advances in big data, supercomputers, and machine learning have made AI more human-like in its ability to learn, solve problems, and create deeply personalized user experiences (Duan & Dwivedi, 2019). Recent advances in big data, supercomputers, and machine learning have made artificial intelligence (AI) more human-like in terms of its ability to learn, solve problems, manipulate objects, and navigate physical spaces (Duan & Dwivedi, 2019). It is anticipated that investments in AI applications would rise rapidly. By 2030, almost 70% of organizations are expected to employ AI. According to Dwivedi et al. (2019), business transformations are anticipated to be fueled by AI technology. Approximately 75% of executives anticipate that "AI will significantly transform their companies within 3 years" (Davenport 2018). Health Care (Gupta, 2017), learning (Nye, 2015), manufacturing (Ying & Jia, 2018), the retail industry (Paolanti, 2018), and supply chain management (Mahroof, 2019; Kalpana, 2024) are just a few of the industries that have investigated AI applications. Global government assistance has also increased the use of AI. For instance, China made investments of over \$12 billion in 2017 and is projected to make as much as \$20 billion in 2020. By 2030, artificial intelligence (AI) is expected to account for at least 20% of China's GDP (Dwivedi et al., 2019).

The size of the global AI in e-commerce market was estimated to be USD 5.81 billions of dollars in 2022 and is expected to grow at a compound annual growth rate (CAGR) of 14.60% from 2023 to 2032, reaching approximately USD 22.60 billion as shown in Figure 1. The use of AI technology by the e-commerce sector is a critical step in the direction of business expansion. In this digital age, using artificial intelligence to e-commerce is a growing trend. Because of artificial intelligence. It creates marvels beyond the realm of human measurement. Artificial intelligence (AI) applications are proliferating throughout numerous industries, aiming to accomplish jobs that are occasionally difficult for human laborers.

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