

HOW ARTIFICIAL INTELLIGENCE CAN DRIVE SUSTAINABILITY IN E-COMMERCE

Li Shiang Chen, University of the West, U.S.A.
Peng Chan, California State University-Fullerton, U.S.A.
Kwa Tran, Global Management Group, U.S.A./Japan

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ABSTRACT

In today's digital age, Artificial Intelligence (AI) is becoming commonplace in the business world and plays a crucial role in driving sustainable e-commerce practices. With the rapid development of e-commerce, AI technology has shaped the entire business ecosystem, thus prompting enterprises to pay more attention to the core value of sustainability. In this article, we will explore AI's application in e-commerce and its challenges. Through the integration of AI technologies, enterprises can achieve more efficient operations, resource optimization, and environmentally friendly business models, thereby driving e-commerce towards a more sustainable future. Using case studies, this paper also discusses the problems and practical applications of applying AI to the e-commerce industry for sustainable development.

Keywords: Artificial intelligence; Sustainability; E-commerce

1. INTRODUCTION

Artificial Intelligence (AI) has been a hot topic of discussion in recent years and has been widely used in different industries, such as healthcare, education, finance, manufacturing, and e-commerce. The e-commerce industry has exploded in recent years due to the impact of the pandemic and the gradual shift in consumption patterns from physical to online, and AI has played a major role in the rapid development of the e-commerce industry. In the e-commerce industry, AI can help companies carry out data collection and analysis work more efficiently, and the logistics and warehousing part also has a significant impact. In addition to personalized recommendations and customer service, Gartner reported that by 2020, AI will replace 80% of customer service work (Wang, et al, 2023). Moreover, according to eMarketer's report in 2023, AI will significantly impact the global e-commerce market, worth more than \$5.920 trillion (Perkins, 2023). Another study reported that more than 84% of e-commerce companies are actively using AI in their business in 2022, and the rest that still need to start using it are also considering it a significant task (Makarenko, 2023).

Therefore, the application of AI in the e-commerce industry, which is of great value, is bound to become a new trend. However, most current research on AI for e-commerce focuses on sentiment analysis, trust, personalization, and optimization, with the primary goal of using AI to help the e-commerce industry better attract and retain customers. Although the main research directions are very relevant to the current context, many topics still need to be explored, such as privacy, ethics, and sustainability (Bawack, et al, 2022). Therefore, in this study, the topic of how AI can bring about sustainable e-commerce practices will be analyzed and explored in more depth.

The e-commerce industry covers a wide range of businesses. As long as a transaction is made online, it is a type of e-commerce. Therefore, to explore the role of AI in the sustainable development of e-commerce more directly, the Retail E-Commerce market will be the leading research target in this paper. Retail E-Commerce is the top research target because of its considerable growth. According to a recent report, the global Retail E-Commerce market will reach \$5,384.72 billion in 2022 and will grow at a CAGR of 11.2% from 2023 to 2030 (Grand View Research, 2023). In addition, the report states that the Retail E-Commerce market in the U.S. is expected to grow at a CAGR of 10.5% from 2023 to 2030 (see Figure 1). Not only is AI utilized by retailers across the industry, but consumers are also experiencing increased interactions with AI-driven devices and retail platforms (see Figure 2).