


# Chapter 8


## E-Commerce Logistics Unleashed: Automation, Artificial Intelligence Challenges, and Triumphs

**Shakerod Munuhwa**

 <https://orcid.org/0000-0002-0952-6514>

*Glasgow Caledonian University, UK*

**Munyaradzi Chibaro**

 <https://orcid.org/0000-0002-4139-5139>

*University of Botswana, Botswana*

### **ABSTRACT**

*The chapter explores the broad implications of automation and artificial intelligence (AI) on e-commerce logistics. It discusses how these technologies are altering supply chains through automated warehousing, order processing, and artificial intelligence-driven demand forecasting and personalization. Despite their transformational potential, the chapter highlights issues such as data security, integration, workforce adaptation, and ethical considerations. It also includes real-world case studies demonstrating the successes of businesses that have embraced automation and artificial intelligence, as well as glimpses into the future of e-commerce logistics, stressing emerging technology and projected trends. Finally, the chapter serves as a comprehensive guide for businesses wishing to harness the potential of automation and artificial intelligence in the ever-changing world of e-commerce logistics.*

### **SIGNIFICANCE AND RELEVANCE OF THE CHAPTER**

The chapter discusses the important need for businesses to adapt and excel in the digital world of e-commerce during an era of fast technological upheaval. It also stresses the significant impact of automation and artificial intelligence (AI) on logistics and supply chain management, highlighting the role of these technologies in revolutionising operations and enhancing efficiency. This is especially critical for businesses attempting to remain competitive in a fast-changing industry (Henriksson et al., 2020). Furthermore, the chapter highlights the crucial need of providing good customer experiences through

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AI-driven customisation, which is a big generator of customer pleasure and loyalty, ultimately translating into increased revenue streams.

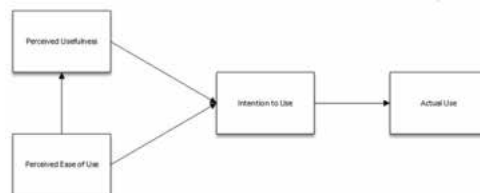
However, it also delves into the underlying issues and hazards associated with the use of automation and AI, providing critical insights for businesses to avoid major blunders. The chapter gives genuine instances of successful implementations by addressing real-world issues, making it an excellent resource for organisations looking to deploy these disruptive technologies. Additionally, the chapter's forward-thinking approach, which provides insights into developing technology and future trends, equips organisations with the information they need to stay ahead of the curve and respond to evolving consumer expectations (Daugherty & Wilson, 2022). Finally, it addresses the critical ethical and legal challenges presented by automation and AI implementation, promoting responsible and compliance operations. The following section examines the theoretical foundation that underpins the research.

## THEORETICAL FRAMEWORK

### Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), first presented by Davis in 1989, is a well-established theoretical framework commonly used to grasp and predict user acceptance and adoption of technology (Marangunić & Granić, 2015). It investigates the elements that influence humans' propensity to acquire and use technology. According to Aburbeian et al. (2022), TAM's basic features include Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioural Intention (BI), and Actual Use (AU), as depicted in Figure 1.

Figure 1. Technology acceptance model (TAM)



Source: Adapted from Lee et al. (2003)

Perceived Usefulness (PU) is the degree to which a person believes that employing a given technology would improve their job performance or make their chores more efficient (Lee et al., 2003). Perceived Ease of Use (PEOU) measures how consumers perceive the ease or difficulty of utilising technology. It is related to their impression of the system's complexity and the effort necessary to learn and run it. Behavioural Intention (BI) refers to a user's intention or readiness to use technology. Acharya and Mekker (2022) further explained that a positive attitude towards the perceived usefulness and ease of use of technology leads to a greater propensity to employ it. Actual Use (AU) assesses the actual utilisation of technology, which is frequently related to the user's behaviour after adopting the technology.

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