ARTIFICIAL INTELLIGENCE-DRIVEN DECISION SYSTEMS IN THE TRANSFORMATION OF DISTRIBUTION PROCESSES: REDEFINING SUSTAINABILITY AND LOGISTICS PERFORMANCE WITHIN MULTI-CHANNEL MARKETING STRATEGIES

Murat BAŞAL, Emine ÖZTÜRK KOÇALİ
Istanbul Gelisim University, Istanbul Gelisim Vocational School, Logistics Program, mbasal@gelisim.edu.tr
Istanbul Gelisim University, Istanbul Gelisim Vocational School, Logistics Program, emozturk@gelisim.edu.tr

ABSTRACT:
Artificial intelligence-based decision support systems are powered by technologies such as machine learning, and natural language processing in logistics and distribution processes, enabling autonomous complex decisions. Digitalization in logistics is shaped by the smartening of distribution centers, unmanned delivery technologies, multi-channel integration and sustainable transportation. Multi-channel marketing is a strategic approach that aims to provide consumers with a consistent experience across different touchpoints such as applications, social media and callcenters. Sustainability is not only considered environmentally; it is also integrated with economic efficiency, social responsibility and corporate ethics. In this context, sustainable distribution includes applications such as carbon emission reduction, green transportation, reverse logistics, and energy efficiency. Logistics performance is evaluated with multi-dimensional criteria such as speed, cost and customer satisfaction. In this study, it is analyzed how artificial intelligence-supported decision systems, combined with multi-channel marketing strategies, transform distribution processes and contribute to sustainability. While digitalization and changing customer expectations reveal the inadequacy of traditional distribution structures, artificial intelligence technologies allow logistics performance to be redefined. In a multiple case study conducted in three selected businesses from the retail and e-commerce sectors in Türkiye, the effects of artificial intelligence algorithms used in decision-making processes on efficiency and environmental sustainability were evaluated. The findings obtained with the mixed method revealed that artificial intelligence optimizes not only operational success but also green logistics, cost reduction and customer satisfaction. The study emphasizes that the integration of data-driven distribution management with strategic marketing provides competitive advantage.

KEYWORDS
Artificial Intelligence-Driven Logistics, Omnichannel Distribution Strategies, Sustainable Supply Chain Management, Data-Driven Decision Systems, Logistics Performance Optimization