

A Systematic Literature Review on Optimizing Freight Logistics in Multimodal Transportation: Emerging Trends and Potential Research Directions

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ABSTRACT

The objective of this paper is to examine the development of multimodal transportation system to optimize freight logistics and emphasize its role in global trade and sustainability. The paper identifies key themes, recent advancements, and research gaps through bibliometric and thematic analysis of 178 research articles published over 45 years, in multimodal transportation. The analysis highlights seven major themes including planning, strategy, environmental impacts, and adoption of digital technologies such as artificial intelligence, blockchain, IoT. There is a rise in green logistics trends such as adoption of alternative fuels or electric vehicles which highlights the growing commitment to reduce environmental footprint. The growing interest in integrating technologies have led to considerable improvements in developed countries, enhancing efficiency and transparency. However, there are critical gaps in implementation in developing countries such as SAARC and BRICS (excluding China and Russia) face obstacles due to infrastructure, regulatory barriers, and economic conditions. Through a comprehensive analysis of the existing literature and research agenda, this study intends to direct the future research towards building a sustainable, resilient and efficient multimodal freight logistics by reducing lead times and operational costs.

Keywords: Freight Logistics; Multimodal transportation; Thematic analysis.

