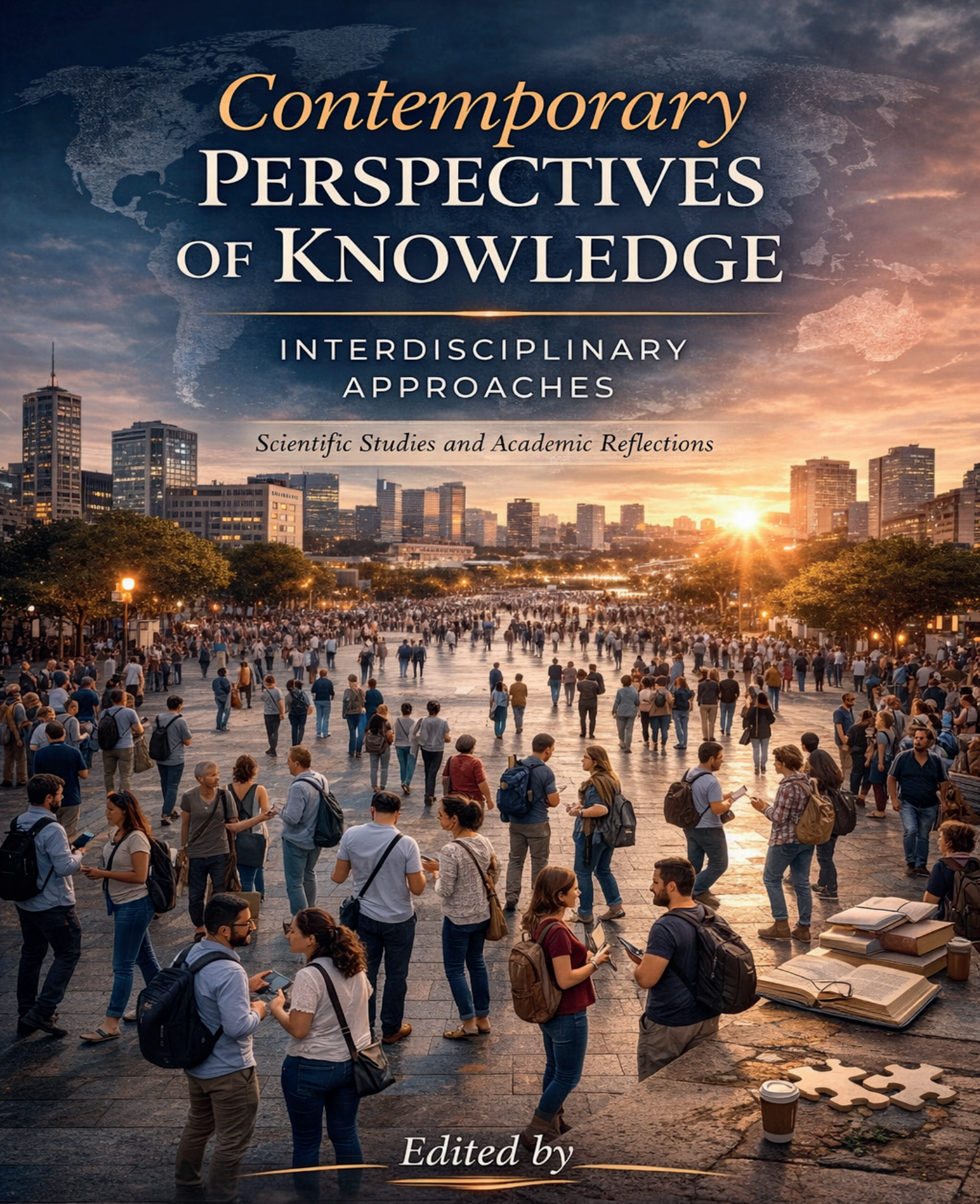
Contemporary PERSPECTIVES OF KNOWLEDGE

INTERDISCIPLINARY APPROACHES

Scientific Studies and Academic Reflections



Edited by

Flávia Moreno Alves de Souza

Periodicojs
EDITORA ACADÊMICA

Graphic Design, Layout and Cover

Academic Publisher Periodicojs

Language

Portuguese and English

International Cataloging-in-Publication Data (CIP)

(Brazilian Book Chamber, SP, Brazil)

C761 Contemporary Perspectives of Knowledge: Interdisciplinary Approaches/ Flávia Moreno Alves de Souza (org) – João Pessoa: Periodicojs publisher, 2026.

E-book: il. color.

Includes bibliography
ISBN: 978-65-6010-196-8

1. Free themes. I. Souza, Flávia Moreno Alves. II. Title

CDD 370

Prepared by Dayse de França Barbosa CRB 15-553

Index for systematic catalog:

Indexes for systematic catalog:

1. Education: 370

Work without funding from public or private bodies.

The published works have been submitted to peer review and evaluation (double-blind), with respective acceptance letters in the publisher's system.

The work is the result of studies and research from the Interdisciplinary Studies in Human Sciences section of the Humanities in Perspective book collection.

Filipe Lins dos Santos
President and Senior Editor of Periodicojs

CNPJ: 39.865.437/0001-23

Rua Josias Lopes Braga, n. 437, Bancários, João Pessoa - PB - Brazil
website: www.periodicojs.com.br
instagram: @periodicojs

Chapter 16

CROSS-BORDER DEAD STOCK: HOW INVENTORY INEFFICIENCY IMPACTS INTERNATIONAL TRADE IN SPECIALTY CONSUMER GOODS BETWEEN EMERGING AND DEVELOPED MARKETS

CROSS-BORDER DEAD STOCK: HOW INVENTORY INEFFICIENCY IMPACTS INTERNATIONAL TRADE IN SPECIALTY CONSUMER GOODS BETWEEN EMERGING AND DEVELOPED MARKETS

Royal Saluti Nunes[1]

Abstract: This systematic literature review study investigates the impact of dead stock and inventory inefficiency on the international trade of specialty consumer goods, focusing on the dynamics between emerging and developed markets. The objective is to analyze how disparities in logistical infrastructure, adoption of digital transformation technologies, and trade barriers affect cross-border inventory management. The adopted method consisted of analyzing academic publications and institutional reports from the last five years, addressing themes such as product obsolescence, supply chain resilience, and technological solutions. The results indicate that emerging markets face substantial challenges due to infrastructural deficiencies and high regulatory compliance costs, which exacerbates inventory inefficiency and results in significant financial losses. It is concluded that the integration of technologies such as artificial intelligence, internet of things, and blockchain is imperative to mitigate dead stock risks and promote a more sustainable and efficient international trade.

Keywords: Dead stock. International trade. Emerging markets. Consumer goods. Inventory management.

1 Strategic industrial trade professional with over a decade of dual-track experience in Cross-Border Market Entry and Lean Operational Architecture. Recognized for bridging the gap between Fortune 500-level industrial exporters and complex emerging markets (LATAM), with a proven ability to design resilient distribution frameworks under global supply chain disruption.

Introduction

The dynamics of international trade have undergone profound transformations in recent decades, driven by globalization and the increasing complexity of global supply chains. One of the most critical challenges faced by companies operating in this scenario is efficient inventory management, particularly regarding the phenomenon known as "dead stock" or obsolete inventory. Dead stock comprises products that remain unsold or unused for a prolonged period, resulting in tied-up capital, elevated storage costs, and frequently, direct financial losses due to depreciation and write-offs. In the context of the international trade of specialty consumer goods, inventory management inefficiency is exacerbated by geographical distances, demand variability, and regulatory complexities, asymmetrically impacting emerging and developed markets (ZHOU et al., 2016).

The present scientific article aims to conduct a systematic literature review of the last five years to investigate how inventory inefficiency and the accumulation of dead stock affect the international trade of specialty consumer goods, emphasizing the disparities between emerging and developed economies. The relevance of this study lies in the need to understand the logistical, technological, and commercial barriers that hinder the optimization of cross-border supply chains, as well as to identify the strategies and innovations that can mitigate these risks (HAMDY, 2024). The analysis focuses on how inadequate infrastructure and the slow adoption of digital technologies in developing countries contrast with the advanced practices of consolidated markets, creating significant bottlenecks in the global flow of goods (SHIKUR, 2022).

The methodology employed is based on a qualitative systematic review approach, encompassing the analysis of peer-reviewed academic articles, reports from international organizations such as the United Nations Conference on Trade and Development, and specialized publications in operations and logistics management. The article's structure is developed by exploring the fundamental concepts of dead stock and its economic implications, followed by a comparative analysis of logistical capacities between emerging and developed markets. Subsequently, the transformative role of digital tech-

nologies, such as artificial intelligence and blockchain, in promoting the resilience and sustainability of supply chains is discussed, culminating in conclusions that synthesize the findings and propose directions for future research and managerial practices (LERMAN et al., 2024).

The Dead Stock Phenomenon and Inventory Inefficiency

Inventory inefficiency manifests in various ways in global commercial operations, with the accumulation of dead stock being one of its most detrimental consequences (TADJ, 2025). Recent studies indicate that a significant proportion of a company's typical inventory, frequently estimated between twenty and thirty percent, can become obsolete in any given period. The costs associated with maintaining this excess stock are not limited solely to occupying physical space in warehouses, but also include insurance expenses, depreciation, and the opportunity cost of tied-up capital. Inadequate inventory management results in direct financial impacts, limiting companies' liquidity and restricting their capacity to invest in innovation or market expansion (TADAYONRAD; NDIAYE, 2023).

In the specialty consumer goods sector, characterized by frequently short product life cycles and highly trend- and seasonality-sensitive demands, the risk of obsolescence is particularly high. Inaccurate demand forecasting and the lack of visibility along the supply chain are primary factors contributing to excess inventory. Dynamic inventory control models have been proposed in the literature to address planned and unplanned obsolescence, emphasizing the need to balance production and inventory levels with obsolescence rates to minimize operational costs. The implementation of agile practices and the adoption of inventory risk management systems are identified as essential to mitigate the financial losses associated with dead stock (SHI; WANG; ALWAN, 2020).

International Trade Dynamics: Emerging versus Developed Markets

The impact of inventory inefficiency on cross-border trade is deeply influenced by the asym-

metries between emerging and developed markets (SÁNCHEZ-FLORES et al., 2020). Developed economies generally benefit from mature logistical infrastructures, efficient customs systems, and high technological integration, which facilitates the rapid and predictable flow of goods. In contrast, emerging markets frequently face severe structural challenges. The literature points out that the lack of adequate infrastructure, low levels of digitalization, and regulatory complexities are significant barriers that increase transit times and uncertainty in international trade operations (NORDÅS; PINALI; GROSSO, 2006).

These logistical disparities act as non-tariff trade barriers, which can be as restrictive as traditional tariffs. Inefficiency in ports, customs bureaucracy, and limited transport connectivity in developing countries require companies to maintain higher safety stocks to ensure acceptable service levels, consequently increasing the risk of obsolescence and dead stock. Institutional reports highlight that global economic growth has shown deceleration, and the increase in protectionist measures and rigorous regulations has raised compliance costs, disproportionately impacting small and medium-sized enterprises in emerging economies (CONFERÊNCIA DAS NAÇÕES UNIDAS SOBRE COMÉRCIO E DESENVOLVIMENTO, 2026). The reconfiguration of global value chains, driven by geopolitical tensions and the search for resilience, demands that emerging markets improve their logistical capacities to avoid being marginalized in international trade (REHMAN SHAFIK, 2025).

Digital Transformation and Resilience in Cross-Border Supply Chains

The mitigation of inventory inefficiency and the reduction of dead stock in international trade depend substantially on the digital transformation of supply chains. The integration of emerging technologies, such as artificial intelligence, the internet of things, and blockchain, has proven fundamental to increasing the visibility, transparency, and responsiveness of logistical operations (SAMUELS, 2025). Artificial intelligence, through advanced predictive analytics, allows for more accurate demand forecasts, optimizing production planning and reducing the probability of excess

inventory. Furthermore, machine learning-based models assist in the proactive identification of disruption risks in the supply chain, enabling dynamic adjustments in inventory strategies.

The internet of things facilitates the real-time monitoring of goods in transit, which is crucial for the cross-border trade of specialty consumer goods, where traceability and storage conditions can directly affect the commercial viability of products. Blockchain, in turn, offers a decentralized and immutable architecture that enhances trust among international trade partners, simplifying compliance processes and reducing customs delays. The literature emphasizes that, although the adoption of these technologies offers significant benefits for the sustainability and efficiency of operations, companies in emerging markets face obstacles related to implementation costs, cybersecurity vulnerabilities, and the need for workforce training (YUAN et al., 2025). Aligning supply chain capabilities with digital transformation initiatives is, therefore, a critical step for developing economies to compete equitably on the global stage (LERMAN et al., 2024).

Conclusion

This systematic literature review evidences that the dead stock phenomenon and general inefficiency in inventory management constitute significant obstacles to the international trade of specialty consumer goods. The analysis demonstrates that the impact of these inefficiencies is felt asymmetrically, disproportionately harming companies operating from or towards emerging markets. Infrastructural deficiencies, combined with bureaucratic barriers and slower technological adoption, force the maintenance of high safety stocks, which inevitably raises obsolescence risks and results in substantial financial losses.

To overcome these challenges, it is imperative that there is a coordinated effort to modernize logistical infrastructure and harmonize customs processes, reducing the non-tariff barriers that hinder cross-border trade flow. More critically, digital transformation emerges as the most promising solution to optimize inventory management. The strategic implementation of artificial intelligence for

demand forecasting, along with the internet of things and blockchain for visibility and security, offers a viable path to build more agile, resilient, and sustainable supply chains. Future research should focus on developing accessible technological adoption models for small and medium-sized enterprises in developing economies, ensuring that the benefits of digitalization are distributed more equitably in global trade.

References

CONFERÊNCIA DAS NAÇÕES UNIDAS SOBRE COMÉRCIO E DESENVOLVIMENTO. (2026). 10 trends shaping global trade in 2026. *Global Trade Update*.

HAMDY, A. (2024). Supply chain capabilities matter: digital transformation and green supply chain management in post-pandemic emerging economies. *Operations Management Research*.

LERMAN, L. V. et al. (2024). When digital transformation meets supply chain needs in emerging markets: contributions for social and economic performance. *Supply Chain Management*.

NORDÅS, H. K.; PINALI, E.; GROSSO, M. G. (2006). Logistics and time as a trade barrier. *OECD Trade Policy Papers*.

REHMAN SHAFIK, M. (2025). Supply Chain Solutions for Emerging Markets: Addressing Unique Challenges and Opportunities. *American Journal of Engineering Research*, v. 14, n. 6.

SAMUELS, A. (2025). Digital transformation and supply chain sustainability through AI, Blockchain, and IoT. *Frontiers in Sustainability*.

SÁNCHEZ-FLORES, R. B. et al. (2020). Sustainable supply chain management—A literature review on emerging economies. *Sustainability*, v. 12, n. 17.

SHI, Y.; WANG, T.; ALWAN, L. C. (2020). Analytics for cross-border e-commerce: inventory risk management of an online fashion retailer. *Decision Sciences*.

SHIKUR, Z. H. (2022). The role of logistics performance in international trade: A developing country

perspective. *World Review of Intermodal Transportation Research*.

TADAYONRAD, Y.; NDIAYE, A. B. (2023). A new key performance indicator model for demand forecasting in inventory management considering supply chain reliability and seasonality. *Supply Chain Analytics*.

TADJ, L. (2025). Dynamic inventory control and planned obsolescence management. *International Journal of Production Research*, v. 63, n. 24.

YUAN, K. et al. (2025). Can cross-border e-commerce development improve supply chain efficiency? Empirical evidence from China. *Applied Economics*.

ZHOU, K. Z. et al. (2016). Supply chain management in emerging markets. *Journal of Operations Management*.