



Scientific Volume Analysis of Business Themes Based on the Cross-border E-commerce Architecture

Yina-Zheng, Chung-Lien Pan*

Yue-Tai Industrial Science and Technology College, Dongguan University of Technology,
Guancheng, Dongguan, Guangdong, China

*peter5612@gmail.com

Abstract. As a key method for the deep integration of the digital economy and international trade, cross-border e-commerce and the construction and development of its commercial system have become a critical research topic in the e-commerce field. This paper selects 150 papers related to cross-border e-commerce and business from the Web of Science Core Collection as research samples. Using two tools, VOSviewer and Bibliometrix, this paper conducted a quantitative analysis of these papers. Through the aforementioned quantitative analysis and visual presentation, this paper identified several highly cited and influential papers in this field. At the same time, the current research hotspots mainly focus on three core areas, namely the innovation of cross-border e-commerce business models, digital transformation, and the development of logistics systems. This paper has clarified the current research strengths and future directions in this field, providing theoretical references and guidance for future scholars studying the commercial aspects of cross-border e-commerce.

Keywords: Cross-border e-commerce; Business; Scientometrics analysis

1 Introduction

Driven by the inherent advantages of digitalization, networking, low cost, and high efficiency, cross-border e-commerce has emerged as a new engine for international trade growth and a core strategic tool for countries to foster new foreign trade drivers and build digital trade systems. Emerging studies confirm that next-generation technologies like generative AI and IoT have become the core drivers of cross-border e-commerce business innovation, as verified by research on generative AI for SME green innovation [7] and IoT-machine learning frameworks for supply chain efficiency [8]. Alongside technological empowerment, the enabling role of cross-border e-commerce digital platforms has also attracted increasing academic attention. Research shows these platforms support SMEs' digital transformation and business model innovation [5]; logistics service quality and price fairness significantly drive cross-border consumers' repurchase intentions [3]; and platforms boost enterprise performance via data element activation and digital transformation [9].

Collectively, these studies show that cross-border e-commerce research is undergoing rapid iterative evolution. It is thus imperative to systematically collate this fast-growing knowledge base using rigorous econometric methods to fill prominent gaps in the existing literature and identify frontier directions for future research.

2 Data and Methods

To obtain relevant literature for this study, this article conducted an advanced search in the Web of Science (WoS) database. The search formulas were: TS=(" Cross-border e-commerce ") and TS=(" Business "). This study, conducted through January 11, 2026, resulted in the collection of 150 related documents. We used VOSviewer and Bibliometrix software for visual analysis of the literature data. The total citation frequency of the literature was 2,507, with an average of 16.71 citations per paper and an H-index of 23.

3 Research Findings

3.1 Three-Field Plot

Figure 1 presents a three-field association plot of the knowledge network in cross-border e-commerce research. The left panel lists the field's most influential classic works (Giuffrida, 2017; Liu, 2022; Chen, 2021; Kim, 2017), which serve as the theoretical and empirical cornerstones of follow-up research. The middle panel highlights core authors, including Wang, Li, Zhang, and Chen, whose research bridges classic literature and frontier hotspots. The right panel identifies core research hotspots via keywords such as "cross-border e-commerce", "digital transformation", and "logistics", pointing to core focuses including business model innovation, logistics optimization, and trust mechanism construction.

The plot also clarifies the field's knowledge evolution path. Studies on SMEs' cross-border platform engagement and usage intention [1,6] extend the classic "enterprise management-platform ecosystem" research thread; studies on platform empowerment and digital capability heterogeneity [2,5] build on digital transformation research.

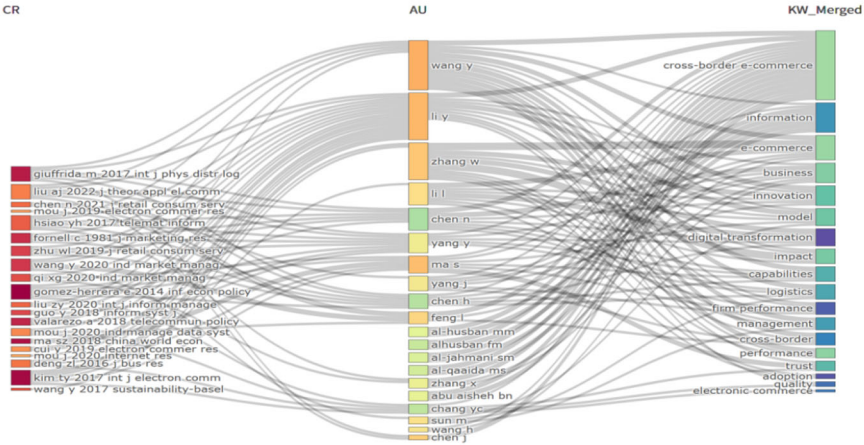


Fig. 1. Three Field Plot

3.2 Keyword Cooccurrence Network Map

Figure 2 shows the keyword co-occurrence network of cross-border e-commerce research from bibliometric analysis, split into four core clusters, each representing a distinct commercial research direction.

The first green Core Business and Operations Cluster focuses on cross-border e-commerce’s business models, operational logics, and economic impacts, covering business model innovation, logistics optimization, trust mechanisms, risk management, and consumer behavior research on how logistics service quality affects user stickiness [3]. The second blue Technology Empowerment and Performance Enhancement Cluster centers on technology-driven performance improvement, with core themes of digital transformation, IT application, and corporate strategy.

The red Organizational Innovation and Enterprise Management Cluster addresses enterprise innovation and management in cross-border e-commerce, emphasizing SME transformation, organizational capacity building, and knowledge management in the industry ecosystem. The final blue Supply Chain and Platform Ecosystem Cluster covers platform governance and supply chain optimization research. Notably, studies on B2B platform quality attributes have identified transaction security and information transparency as key dimensions, providing foundational evidence for related research [4].

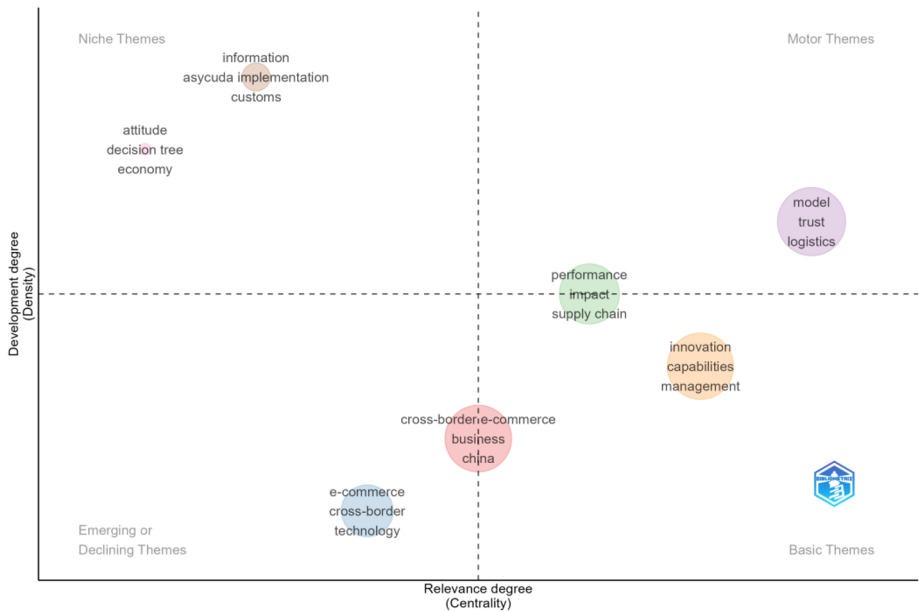


Fig. 3. Thematic Map

4 Conclusion

Based on a systematic bibliometric analysis of business-related core themes in cross-border e-commerce research, this paper draws the following key conclusions.

First, extant cross-border e-commerce business research has formed a mature, closely linked knowledge transfer network. Second, keyword co-occurrence analysis condensed into four core clusters. Third, thematic map analysis clarifies the hierarchical structure and evolutionary trends of research topics: core themes such as business model construction and logistics system optimization drive overall research advancement; foundational topics, including supply chain performance and enterprise management, form the core analytical framework; niche, fast-growing sub-directions represent emerging research focuses.

References

1. Chen, W.-H., Lin, Y.-C., Bag, A., & Chen, C.-L. (2023). Influence Factors of Small and Medium-Sized Enterprises and Micro-Enterprises in the Cross-Border E-Commerce Platforms. In *JOURNAL OF THEORETICAL AND APPLIED ELECTRONIC COMMERCE RESEARCH* (Vol. 18, Issue 1). <https://doi.org/10.3390/jtaer1801002210>.
2. Dallochio, M., Lambri, M., Sironi, E., & Teti, E. (2024). The Role of Digitalization in Cross-Border E-Commerce Performance of Italian SMEs. In *SUSTAINABILITY* (Vol. 16, Issue 2). <https://doi.org/10.3390/su16020508>.

3. Do, Q. H., Kim, T. Y., & Wang, X. (2023). Effects of logistics service quality and price fairness on customer repurchase intention: The moderating role of cross-border e-commerce experiences. In *JOURNAL OF RETAILING AND CONSUMER SERVICES* (Vol. 70). <https://doi.org/10.1016/j.jretconser.2022.1031658>.
4. Ho, S.-C., & Chuang, W.-L. (2023). Identifying and prioritizing the critical quality attributes for business-to-business cross-border electronic commerce platforms. In *ELECTRONIC COMMERCE RESEARCH AND APPLICATIONS* (Vol. 58). <https://doi.org/10.1016/j.el-erap.2023.101239>.
5. Li, L., Du, K., Zhang, W., & Mao, J.-Y. (2024). Empowering digital transformation: The roles of platforms. In *JOURNAL OF INFORMATION TECHNOLOGY* (Vol. 39, Issue 4). <https://doi.org/10.1177/02683962231219520>.
6. Lu, Y.-H., Yeh, C.-C., & Liao, T.-W. (2023). Exploring the key factors affecting the usage intention for cross-border e-commerce platforms based on the DEMATEL and EDAS method. In *ELECTRONIC COMMERCE RESEARCH* (Vol. 23, Issue 4). <https://doi.org/10.1007/s10660-022-09548-611>.
7. Wang, S., & Zhang, H. (2025). Generative artificial intelligence and internationalization green innovation: Roles of supply chain innovations and AI regulation for SMEs. In *TECHNOLOGY IN SOCIETY* (Vol. 82). <https://doi.org/10.1016/j.techsoc.2025.102898>.
8. Wang, W. (2024). A IoT-Based Framework for Cross-Border E-Commerce Supply Chain Using Machine Learning and Optimization. In *IEEE ACCESS* (Vol. 12). <https://doi.org/10.1109/ACCESS.2023.3347452>.
9. Yang, Y., Chen, N., & Chen, H. (2023). The Digital Platform, Enterprise Digital Transformation, and Enterprise Performance of Cross-Border E-Commerce-From the Perspective of Digital Transformation and Data Elements. In *JOURNAL OF THEORETICAL AND APPLIED ELECTRONIC COMMERCE RESEARCH* (Vol. 18, Issue 2). <https://doi.org/10.3390/jtaer180200409>.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

