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VARIETY OF CHINA'S MANAGEMENT MODELS IN TRADE SECTORS: INTEGRATING ECONOMIC GROWTH AND ENVIRONMENTAL

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Abstract

China, as the world's primary manufacturing center, encounters increasing pressures to concurrently strengthen economic competitiveness, improve supply chain resilience, and comply with stringent environmental sustainability requirements. While current literature offers specialized and effective models for optimizing either economic strategies (e.g., Port-Industry-City integration via the Coupling Coordination Degree Model [CCDM]) or environmental performance (e.g., Super-DEA model for green transformation efficiency), a significant research gap persists: the lack of a comprehensive, quantitative, and spatially explicit management framework that effectively integrates and balances the inherent trade-offs between regional economic development and environmental sustainability. To address a significant research gap, namely the lack of a comprehensive, quantitative, and spatially explicit management framework that effectively integrates and balances the inherent trade-offs between regional economic development and environmental sustainability in a major global manufacturing center like China. This study utilizes a Systematic Literature Review (SLR), conducted in accordance with the PRISMA 2020 guidelines, to synthesize existing evidence and classify the strategic frameworks presently shaping China's trade management. The analysis delineates four primary strategic models: 1) The Green Transformation Efficiency Strategy, which employs metrics such as Super-DEA to assess operational and environmental efficiency; 2) The Industrial Chain Resilience Strategy, which establishes frameworks for risk identification, resilience development, and cost recovery in response to external shocks; 3) The Green Trade Barrier Mitigation Strategy, utilizing game-theoretic models to determine optimal recycling and remanufacturing decisions within mechanisms such as CBAM; and 4) The Port and Inter-Industry Integration Strategy, leveraging CCDM to enhance trade flow optimization through Port-Industry-City integration. The findings delineate the present strategic landscape, affirming that China's management system functions via segmented, specialized frameworks. This research emphasizes the critical need to develop a comprehensive, multi-dimensional strategic management framework that explicitly considers the economic-environmental trade-offs, which is essential for preserving China's stable standing in global trade amid escalating geopolitical and climate challenges.

Keywords: principle of legal certainty, judicial decision, civil dispute, district court

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1 Introduction

China's influence in international trade has grown significantly over the past decade, prompting academicians and policymakers to explore innovative strategic frameworks that can sustain the country's economic development amidst the evolving complexities of global dynamics (Du & Lu, 2018). As the world's leading manufacturing center and a key participant in international supply chains, China confronts concurrent pressures to bolster its economic competitiveness, improve supply chain robustness, and adhere to global environmental standards (Yong, 2021). Consequently, the formulation of robust trade management strategies has emerged as a vital national priority, especially as the nation contends with geopolitical tensions, climate change challenges, and sustainability-related trade obstacles (Ali et al., 2025). Existing research emphasizes that China has adopted a diverse array of frameworks spanning from port-industry-city integration strategies to internationalization models yet these approaches frequently concentrate on isolated aspects rather than adopting a comprehensive, multi-faceted perspective (Tian et al., 2018). This underscores a significant research necessity to comprehend how these diverse frameworks collectively influence China's trade management landscape.

Recent empirical studies have demonstrated a significant transition towards more advanced, data-informed, and resilience-focused approaches. For instance, trade shocks resulting from fluctuations in US–China relations have prompted academicians to examine how industrial supply chains can adapt through enhanced risk assessment, supply chain coordination, and the development of resilience models (S. Zhang et al., 2025). These studies indicate that China is progressing toward highly adaptive systems that incorporate resilience development, dynamic capability alignment, and climate vulnerability evaluations into trade management. Simultaneously, the incorporation integrates scenarios involving technological advancements, policy interventions, and geopolitical shifts to assess system resilience, emphasizing the significance of innovation-driven strategies and proactive policy measures (Sun et al., 2025). Together, these emergent frameworks suggest that China's trade management is no longer solely motivated by economic considerations but is increasingly influenced by environmental (Qiang et al., 2022), institutional (Cai et al., 2010), and technological factors (Huang et al., 2023).

Alongside these internal developments, China's outward-facing strategies, exemplified by initiatives such as the Belt and Road Initiative (BRI), demonstrate a robust effort toward global expansion (Kohli, 2017). Research indicates that international industrial parks, especially in areas such as Egypt, depend on institutional co-evolution frameworks to facilitate sustained economic collaboration and market expansion (Liu & Wang, 2020). This international expansion supports China's "dual circulation" strategy by reinforcing external supply chains and maintaining internal economic stability. Meanwhile, at the domestic level, port-industry-city integration models employing Coupling Coordination Degree Models (CCDM) underscore the significance of aligning infrastructure, industrial growth, and urban planning to enhance the efficiency of trade flows (Wang et al., 2024). Such models exemplify a wider transition in national trade governance toward comprehensive, multilayered strategies capable of supporting both domestic restructuring and international expansion.

Despite the growing corpus of research on China's trade management methods, current studies primarily exhibit fragmentation in both scope and analytical focus. Most previous research analyzes economic development, supply chain resilience, environmental sustainability, and international expansion as distinct areas, leading to a fragmented comprehension of trade governance. Although specialized models such as CCDM for port-industry-city integration and Super-DEA for green transformation efficiency have proven beneficial in their specific areas, they seldom include the interdependencies and trade-offs among various strategic objectives. This disjointed methodology hinders both theoretical progress and actual policy formulation, since it restricts the capacity to assess how several strategic frameworks together influence China's trade performance. The lack of a thorough, quantitative, and spatially explicit framework that combines economic and environmental factors obstructs attempts to reconcile growth goals with sustainability requirements. Considering China's increasing global impact and vulnerability to

geopolitical and climate-related threats, it is imperative to overcome this gap to establish a more cohesive and resilient trade management system.

Therefore, this study aims to thoroughly identify, classify, and synthesize the strategic frameworks that influence China's trade management system, addressing the highlighted research gap. The study seeks to provide a comprehensive analytical framework by synthesizing insights from various literature strands, elucidating the interactions among economic ambitions, environmental mandates, resilience strategies, and global integration efforts within China's trade governance framework. This study examines trade management concepts applied within the context of China's domestic and international trade landscape. Indeed, the findings are limited by the availability and scope of current literature and do not offer a causal assessment of framework efficacy. Notwithstanding these constraints, the study provides substantial intellectual and practical contributions. From a theoretical standpoint, it tackles fragmentation in the trade management literature by synthesizing many strategic models into a unified analytical framework. The study offers insights for policymakers and trade institutions aiming to harmonize economic growth strategies with environmental compliance and resilience goals. The study elucidates the interdependencies across critical facets of trade management, thereby facilitating more informed and sustainable trade governance.

Furthermore, this study employs an integrative research approach that conceptualizes China's trade management system as a multifaceted construct comprising four interrelated components: economic development, environmental sustainability, supply chain resilience, and international expansion. These components are regarded not as independent variables but as interdependent characteristics influenced by institutional frameworks, technological progress, and policy alignment. Effective trade management is thus perceived as the result of dynamic interactions across different aspects rather than the optimization of a singular purpose. The framework offers a systematic foundation for integrating existing strategic models, including green transformation efficiency strategies, industrial chain resilience frameworks, green trade barrier mitigation mechanisms, and port-industry-city integration models, and for analyzing their cumulative effects on trade governance. This integrated perspective facilitates a systematic comprehension of how coordinated trade initiatives might improve sustainability, resilience, and competitiveness within China's developing trade framework.

2 Method

This research employed a systematic literature review (SLR) methodology aligned with the PRISMA 2020 framework to ensure transparency, rigor, and reproducibility throughout the review process. The implementation of a two-stage screening process comprising an initial review of titles and abstracts followed by a comprehensive full-text evaluation facilitated the meticulous selection of high-quality, thematically pertinent studies while reducing selection bias through independent assessment. This systematic approach enabled the study to integrate recent empirical evidence cohesively and to recognize prevailing research trends, methodological strategies, and conceptual voids within the selected body of literature. Furthermore, the implementation of well-defined eligibility criteria and a focused search strategy utilizing the Scopus database enhanced the validity and reliability of the results. By restricting inclusion to peer-reviewed, English-language primary studies published from 2021 to 2025, the review guaranteed both academic rigor and current applicability. Overall, this methodological framework establishes a solid foundation for systematic analysis and facilitates the generation of evidence-based insights, providing a dependable basis for scholarly discourse and future research orientations within the studied field.

3 Results and Discussions

This section presents the findings from the 11 peer-reviewed studies that employed primary data and met the inclusion criteria of this review. The analysis is organized around principal themes derived from the data, demonstrating how digital technologies influence operational procedures and enhance the visitor experience in

hotels across China. The limited number of studies results from the stringent inclusion criteria (peer-reviewed, primary data, 2021-2025, Scopus indexed, China). This enhances methodological rigor while diminishing the total count of eligible research. Table 1 provides a summary of the selected investigations.

Table 1. The Overall Summary of the Eleven Articles

Strategic Theme	Authors	Methodology	Key Findings
Industrial Chain Resilience and Risk Management	Zhang, S. et al. (2025); Li, Q. et al. (2025)	Risk identification–resilience evolution–cost recovery framework; bi-regional and multi-regional input–output (MRIO) analysis; complex network analysis; TOPSIS-Entropy	China should prioritize long-term manufacturing investment and climate-adaptive planning to enhance industrial chain resilience against external demand shocks and climate vulnerabilities, with targeted cross-regional risk mitigation strategies.
Green Trade Barrier Mitigation and Low-Carbon Decision-Making	Wang, Y. et al. (2025); Zhu, X. et al. (2025); Li, Y. et al. (2021)	Stackelberg game models; numerical simulation; emergy-based multi-criteria analysis	Firms should adopt remanufacturing, recycling, and production structure optimization strategies under carbon constraints (e.g., CBAM, cap-and-trade), as integrated low-carbon and recycling systems reduce environmental impacts while maintaining economic viability.
Port–Industry–City Integration and Domestic Trade Efficiency	Yu, T. et al. (2025)	Coupling Coordination Degree Model (CCDM); comprehensive evaluation index system; prefecture-level case studies	Port–Industry–City (PIC) integration has improved following port reforms, highlighting the importance of coordinated infrastructure, industrial development, and urban planning to optimize regional trade flows.
International Expansion and Belt and Road Initiative (BRI)	Xing, Y. et al. (2025); Lee & Song (2023); Qian et al. (2022)	Institutional co-evolution framework; multi-dimensional BRI analysis; MRIO and WEF-nexus models	Sustainable global expansion under the BRI depends on institutional co-evolution, adaptive supply chain restructuring, and green resource management, particularly in water-energy-food systems and post-COVID global logistics.
Internationalization Strategy and Geopolitical Risk Mitigation	Qi, J. et al. (2025); Fan, D. et al. (2024)	Configurational analysis of dynamic capabilities; natural experiment; resource dependence and	Successful internationalization and market coverage rely on aligning dynamic capabilities with entry strategies, while innovation capability and

The analysis of the research outcomes indicates a progressively advanced, model-oriented strategy for China's trade management, emphasizing the integration of economic growth with environmental efficiency. The main strategic emphasis is on enhancing supply chain resilience to economic and environmental challenges, accomplished via a risk identification–resilience evolution–cost recovery framework (L. Zhang & Zhang, 2025). This resilience is further strengthened against geopolitical risks, as Chinese suppliers discovered that enhanced innovation capabilities facilitated the preservation of transactional relationships during the U.S.–China trade war (Fan et al., 2024). Furthermore, internal risk mitigation related to climate change is tackled through the incorporation of Multi-Region Input-Output (MRIO) analysis, which recommends that provinces formulate tailored climate change management plans and execute techniques such as demand-driven inventory (Li, Q. et al., 2025).

The second essential element entails proactive adjustment to rigorous international green trade restrictions such as the CBAM. This necessitates sophisticated, profit-optimizing judgments under carbon limitations, utilizing game-theoretic models to ascertain ideal recycling and remanufacturing techniques (Wang, Ji, & Lin, 2025) and to assess outsourcing versus in-house production choices (Zhu et al., 2025). The transition fosters sustainable models, evidenced by the discovery that the integrated crop-livestock system (ICLS)—a recycling framework—can mitigate adverse environmental effects (Li, Y. et al., 2021). Ultimately, strategic Global Expansion through the Belt and Road Initiative (BRI) is shifting towards an emphasis on environmentally sustainable resource management (Qian et al., 2022), with its international industrial parks directed by frameworks of institutional co-evolution (Xing et al., 2025). Simultaneously, domestic trade efficiency is enhanced via the Port and Inter-Industry Integration Strategy, employing the Coupling Coordination Degree Model (CCDM) to facilitate Port-Industry-City (PIC) integration (Yu et al., 2025). Market coverage for enterprises pursuing internationalization ultimately depends on the effective alignment of Dynamic Capabilities with the selected internationalization approach (Qi et al., 2025; Lee & Song, 2023).

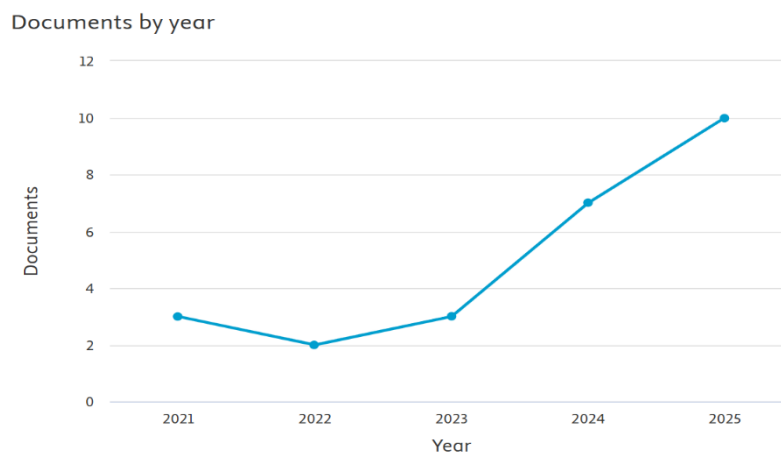


Figure 1 Article Publications from 2021 to 2025

The graph illustrates a significant and generally upward trajectory in scholarly publications related to management models, strategies, and frameworks in China from 2021 to 2025. Below is the table showing the detail explanation about the figure.

Table 2. Figure Description

Period	Number of Documents	Trend	Implication
2021	7	Initial Growth	Shows a substantial baseline interest in strategic management, likely in the immediate post-pandemic context and a heightened focus on the US-China trade tensions.
2024	11	Peak Publication	Represents the highest level of scholarly output during this period. This signifies that the period around 2024 was critical for researchers developing and testing new models to address global economic uncertainty, green transition, and supply chain restructuring.
2025	10	Sustained High Output	Research output remains very high, confirming the ongoing relevance and urgency of studying China's evolving management and trade strategies. The slight decrease from 2024 may be due to incomplete data for the year.

3.1 Implications for Policy

Effective governance of the complex, model-driven trade system necessitates a focus on establishing an integrated, standardized, and resilient framework. Policymakers should mandate integrated strategic planning by establishing a cohesive framework that addresses the existing research gap between economic growth models, such as Port-Industry-City integration, and environmental compliance models, including green transformation efficiency. This integration guarantees that regional economic plans inherently include sustainability mandates. Secondly, policy should establish definitive carbon standards for remanufacturing through the creation of national standards and certification systems for material recycling and carbon accounting. The standardization is essential for export-oriented enterprises utilizing remanufacturing strategies to address emerging green trade barriers, such as CBAM and cap-and-trade regulations. The government should prioritize resilience investment by incentivizing strategic, long-term investments in resilient manufacturing capacity and dynamic risk management frameworks for industrial supply chains. This should encompass specific incentives for private companies to adopt advanced innovation capabilities to more effectively address external geopolitical risks.

3.2 Future Research Direction

Practitioners within the trade ecosystem must promptly implement advanced, model-driven methodologies for decision-making. Enterprises facing carbon constraints should implement game-theoretic decision-making to move beyond traditional cost-benefit analysis. This involves employing game-theoretic modeling to enhance key decisions, including the strategic choice between outsourcing and in-house production, as well as identifying the most carbon-efficient recycling and remanufacturing strategies. Simultaneously, regional and municipal governments should implement Regional Integration Models by actively employing quantitative frameworks such as the Coupling Coordination Degree Model (CCDM). This method enables effective evaluation, management, and optimization of the Port-Industry-City (PIC) integration process, ensuring that infrastructure development directly enhances industrial and trade efficiency. Firms pursuing global expansion, especially through the Belt and Road Initiative (BRI), should align their capabilities with internationalization by emphasizing the strategic compatibility between their dynamic capabilities, such as resource deployment and knowledge acquisition, and their selected internationalization strategy. This alignment is essential for achieving extensive market coverage and ensuring long-term success in complex foreign institutional contexts.

4 Conclusion

The strategic models for China's trade management are specialized, and centered on proactive adaptation. The

comprehensive research affirms that the system functions through three interconnected pillars: Economic Resilience (addressing external shocks and internal climate vulnerabilities), Green Trade Mitigation (enhancing production efficiency within carbon constraints such as CBAM), and Global/Regional Expansion (integrating domestic infrastructure and capitalizing on the BRI). The fundamental approach entails employing advanced quantitative techniques (such as Game Theory, MRIO, and CCDM) to navigate complex, frequently zero-sum trade-offs between profit and environmental impact, expansion, and risk. Nevertheless, the existing literature, although progressing within specialized domains, highlights a fundamental limitation: the lack of a genuinely unified, quantitative, and spatially explicit model that comprehensively integrates and optimizes these trade-offs across all strategic pillars concurrently.

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Ethical Considerations

Not Applicable

Conflict of Interest

The Authors declare there is no conflict of interest.

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