Proceedings of ICFTBA 2025 Symposium: Financial Framework's Role in Economics and Management of Human-Centered Development
DOI: 10.54254/2754-1169/2025.GL26950

Research on Business Model Innovation of Cross-border E-commerce

Bowen Xiang

Hong Kong Shue Yan University, Hongkong, China
s735s@outlook.com

Abstract. In recent years, China has been the world's largest cross border commerce on the internet exporter. This model has not only promoted the transformation of the "going global" paradigm of small and medium-sized enterprises from to branding but also reconstructed the traditional global value chain through "disintermediation". Innovation at every stage of business success has profoundly changed global trade rules. This paper systematically examines the evolution of China's cross border commerce on the internet business model over the past 30 years, taking regulatory policies, supply chain changes, and technological innovation as key dimensions. The study employs a systematic literature review to categorize Chinese and English literature and policy texts from 1994 to 2024, and constructs a "policy-technology-market" (PTM) theoretical framework. The study finds that: Regulatory policies have shaped China's unique innovation path through the "pilot-diffusion" mechanism, and the compliance transformation has increased the profit margin of leading enterprises by 8%-12%; The application of Artificial Intelligence (AI) and blockchain technology has shown a "leverage effect", and enterprises with a technology investment of more than 5% have enjoyed continuous innovation dividends. This study aims to summarize the development pattern of the overall ecosystem of cross border commerce on the internet, study the innovative context of its business model, explore the mutual shaping between it and consumers, and believe that its development has its internal logic.

Keywords: Cross border commerce on the internet, model innovation, analytical mechanism

1. Introduction

The initial form of China's cross border commerce on the internet can be traced back to the 1990s, which can be summarized as the "period of rapid electronification of foreign trade information." This period was also the initial germination and rapid development of China's Internet. The Internet revolution that began in the 1990s brought achievements to almost every aspect, including business, and the surface business model of cross-border Internet trade is also fully synchronized with the development of Internet technology

In the 1990s, it centered around Business-to-Business (B2B) information matching (Alibaba International Station), relying on static web pages. The 2000s saw the transition to a closed-loop transaction model, with breakthroughs in electronic payment technology, the implementation of export tax rebate policies, and transaction volume becoming a key metric. The 2020s saw the advent

© 2026 The Authors. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).

DOI: 10.54254/2754-1169/2025.GL26950

of smart localization, the in-depth application of Artificial Intelligence (AI) and blockchain technologies, and the implementation of regional agreements such as the RCEP. Ultimately leading to the formation of a modern cross border commerce on the internet system driven by data, featuring flexible supply, and a collaborative ecosystem as shown in Table 1 and Table 2.

Compared to the 2000s, the landscape can be divided into two: the "traditional model" and the "modern model." The former is represented by Alibaba and Taobao, while the latter is exemplified by TikTok. These models represent the B2B information collection and distribution model and the new, enriched model of live streaming combined with AI. The latter is subverting cross border commerce on the internet concepts based on the former, such as "online shopping."

Simultaneously, policy styles are evolving to keep pace with the times. However, the overall trend is from a "distributed" to an "integrated" approach.

Table 1. Model evolution from the 1990s to the present

Dimensions	1990s-2000	2001-2012	2013-2019	2020- present
Core Mode	B2B information matching	Business-to-Consumer (B2C) transaction closed loop	Social e-commerce + bonded warehouse	Live e-commerce + AIGC
Technical features	static web pages	Electronic Payment	Big data product selection	Blockchain + AI
Policy breakthrough	none	Export tax rebate pilot program	cross border commerce on the internet comprehensive pilot zone	RCEP enters into force
Representative companies	Alibaba International Station	Dunhuang Net	SHEIN/ Little Red Book	TikTok Shop/Temu
Key Metrics	Information display volume	Online transaction volume	Order response speed	User stay time

The modern model exhibits three key characteristics: first, data-driven, leveraging AI algorithms to achieve precise product selection and on-demand production, reducing design cycles from 30 days to 7; second, ecosystem collaboration, building a flexible network of over 2,000 suppliers, and tripling inventory turnover; and third, proactive innovation, with businesses deeply involved in policy design and a multi-hub layout to mitigate risk. This transformation is essentially a digital economy reshaping traditional trade, driven by the rise of Generation Z consumption, the increasing penetration of digital technology (reaching 73%), and the deepening of regional trade agreements. China's cross border commerce on the internet industry is shifting from a "cost advantage" to a new stage of development characterized by "digital empowerment."

It's not just about technological iteration. Early on, the platform economy focused on reducing transaction costs. With the widespread adoption of the internet, the long-tail theory has replaced the "80/20 rule." Companies like SHEIN, driven by data, have made it possible to commercialize niche needs.

Currently, the diminishing marginal costs of digital technology are dominant. AI and cloud computing are enabling leading companies to form natural monopolies, while blockchain is reshaping global trade rules by reducing trust costs.

DOI: 10.54254/2754-1169/2025.GL26950

Table 2. The evolution of innovation, comparing the traditional model (2000s) and the modern model (2020s)

Osterwalder Module	Traditional model (before 2000)	Modern Mode (2020s)	The essence of innovation
Value Proposition	Price advantage	Instant gratification + cultural identity	From transaction to experience
Customer Relationships	One-way transactions	Community co-creation	UGC content feeds back into the supply chain
core resources	Factory production capacity	Data assets + algorithm patents	Digitalization of production factors
Cost structure	Heavy inventory	Make to Market (C2M)	Marginal cost approaches zero

2. Literature review

2.1. Overall development trend of cross-border e-commerce ecosystem

There is hardly a single paper that fails to point out the current massive scale of China's cross border commerce on the internet and affirms its enormous future development prospects. Wang's research uses data and empirical analysis, and other computational methods to confirm that cross border commerce on the internet has a significant role in promoting the growth of international trade [1]. In China, cross-border commerce on internet platforms provides a level playing field for small and medium-sized enterprises (MSMEs) and individuals to participate in international trade [2]. It can be seen that analysis from the perspective of enterprises is also necessary. Wang2's research focuses on the coordination role of industrial clusters because he believes that most variables are unquantifiable [3].

As for transaction costs, due to the lack of official statistics on cross border commerce on the internet of goods, empirical work in this area has so far been limited to a few cases with privileged access to proprietary datasets [4].

However, some papers point out that numerous challenges, some of which are pressing, will arise during this development process. Research on cross border commerce on the internet almost always focuses on analyzing these challenges. Based on the various journals published by previous researchers, these issues can be roughly categorized into three categories: security, convenience, and policy. All these issues share a common characteristic: a cycle of "problem emergence—exploration—solution—variation and recurrence" over time.

Researchers also like to conduct research from a specific behavioral perspective or other smaller parts. Furthermore, there has been a gradual increase in research on cross-border business transactions between Internet suppliers and consumers. Professor Chen used online shopping as an example to analyze the online shopping context that determines consumers' purchasing intentions and identified four clues that promote such consumer's intending behavior, name-based online promotion clues, marketing clues, personalized recommendation clues on apps, and social comment clues on any media. All above can have more branches [5].

2.2. Specific models of commodity trading and supply chain

Supply chain innovation is inseparable from technological innovation. Blockchain and decentralized management are new technological trends, connecting to Web3 and the metaverse to empower each

DOI: 10.54254/2754-1169/2025.GL26950

other. However, some issues remain unresolved in the integration of blockchain technology and supply chain management. Researchers such as Mr. Liu believe that achieving product information traceability in a decentralized blockchain system requires new system design, which requires knowledge in the field of supply chain management [6].

Previous studies have tended to focus on development models and have consistently proposed that macro models such as B2B and Business-to-Consumer (B2C) shape each other with cross border commerce on the internet models. Liu pointed out the special circumstances of B2B and B2C in China, and also pointed out six types of store formats in China; Su et al. used the relationship composed of nodes and connections (flows) as a guide, and used policy terms as data, arguing that the government is more inclined to regulate from the perspective of international transactions and regulatory policies [7].

Supply chain is something that cross border commerce on the internet is often studied by some scholars. One of the reasons is that it reshapes the entire supply ecosystem. Wang uses a multi-case study method to believe that the role of integration is more important [8]. He considers it from the perspective of customer service, and uses this to cut into the change of the supply chain. He proposes that cross-border enterprises have assumed the role of "integrators" of the supply chain. At the same time, he believes that the changes of the supply chain brought by cross border commerce on the internet are conducive to national policies, green policies, and carbon emission requirements [9]. Zhang constructs a multi-period difference model and empirically analyzes the impact on the resilience of corporate supply chains. It is found that it significantly enhances the resilience of the supply chain [10]. It can be said that cross border commerce on the internet has significantly rewritten the business and supply logic in its unique way.

Wang believes that traditional international trade consists of three stages: finding goods or products, signing contracts, and delivering goods or products [1]. However, today, the time and space path of its delivery has been greatly reduced, including information costs, negotiation costs, transportation costs, tariff costs, and intermediary costs [1]. He also affirmed the positive role of policy guidance.

2.3. Regulatory and transaction-restrictive policies and their research

Interestingly, mathematical models are often used to demonstrate regulatory policies for cross border commerce on the internet, which is very commendable. Regulation has always been considered an area that is not easy to analyze using quantitative methods, but many scholars have still provided some trends. Su's paper uses the K-Means clustering method and weighted matrix method to summarize and analyze policy terms, pointing out that China will adopt long-term and stable planning and affirming the leading role of the government [7].

cross border commerce on the internet not only plays a significant role in regulatory policies, but also in transactions. Yin et al. believe that it reduces transaction costs and increases efficiency in at least three stages: the contact stage, the contract stage, and the control stage [11]. Liang et al. used the Global Trade Analysis Model (GTAP) and the Computable General Equilibrium Model (CGE) to confirm the role of cross border commerce on the internet in promoting trade convenience [12].

Of course, there are still problems in the supervision of cross border commerce on the internet. Scholars such as Xue believe that the problem faced by both importers and exporters is the single window, and information exchange, mutual recognition of supervision, and mutual assistance in law enforcement are still difficult to achieve. Any mathematical model attempts to quantify it, but it is ultimately still affected by specific circumstances, and this is also under the condition that the data is still valid for a long time (5-10 years).

DOI: 10.54254/2754-1169/2025.GL26950

3. Conclusion

This article analyzes the 30-year development of cross-border internet commerce in China and systematically examines the impact of regulatory policies, supply chain changes, and technological innovation on business model innovation. The study finds that the evolution of cross-border internet commerce is essentially the result of the reconstruction and application of a series of economic principles in the digital age.Regarding transaction costs, the platform economy has significantly reduced information asymmetry in international trade through digital means, significantly improving the efficiency of global supply and demand matching. Regarding production methods, flexible supply chains have achieved a transition from economies of scale to economies of scope, and the small-order, quick-response model has created more agile market responsiveness. Regarding the institutional environment, China's unique regulatory sandbox policy provides a unique experimental space for corporate innovation, fostering a virtuous interaction between institutional and commercial innovation.

Based on this research, this article offers the following recommendations: First, enterprises should establish a dynamic capabilities framework, integrating policy responsiveness, technology application, and supply chain optimization into core dimensions of strategic management. Second, the government should continue to improve policies for cross border commerce on the internet pilot zones, particularly by providing institutional support for emerging areas such as cross-border data flows and green trade. Finally, small and medium-sized enterprises should leverage SaaS tools and industrial internet platforms to acquire digital transformation capabilities through an asset-light approach.

References

[1] Wang, Y., Wang, Y. & Lee, S. H. (2017) The Effect of cross border commerce on the internet on China's International Trade: An Empirical Study Based on Transaction Cost Analysis. Sustainability, 9, 20-28.
[2] Liu, A., Osewe, M., Shi, Y., Zhen, X. & Wu, Y. (2022) cross border commerce on the internet Development and Challenges in China: A Systematic Literature Review. Journal of Theoretical and Applied Electronic Commerce Research, 17, 69-88.
[3] Wang, C., Liu, T., Wang, J., Li, D., Wen, D., Ziomkovskaya, P. & Zhao, Y. (2022) cross border commerce on the internet Trade and Industrial Clusters: Evidence From China. Sustainability, 14, 35-76.
[4] Gomez-Herrera, E., Martens, B. & Turlea, G. (2024) The Drivers and Impediments for cross border commerce on the internet in the EU. Information Economics and Policy, 28, 83-96.
[5] Chen, Y., Li, M., Song, J., Ma, X., Jiang, Y., Wu, S. & Chen, G. L. (2022) A Study of cross border commerce on the internet Research Trends: Based on Knowledge Mapping and Literature Analysis. Frontiers in Psychology, 13, 109-216.
[6] Liu, Z. & Li, Z. (2020) A Blockchain-Based Framework of cross border commerce on the internet Supply Chain. International Journal of Information Management, 52, 10-59.
[7] Su, W., Wang, Y., Qian, L., Zeng, S., Baležentis, T. & Streimikiene, D. (2019) Creating a Sustainable Policy Framework for cross border commerce on the internet in China. Sustainability, 11, 9-43.
[8] Wang, Y., Jia, F., Schoenherr, T., Gong, Y. & Chen, L. (2023) cross border commerce on the internet Firms as Supply Chain Integrators: The Management of Three Flows. Industrial Marketing Management, 89, 72-88.
[9] He, Y., Wang, Z., Liu, S. & Du, X. (2024) Construction and Implementation of cross border commerce on the internet Supply Chain System Under the Background of Green and Low-Carbon. Journal of Internet and Digital Economics, 4, 1-11.
[10] Zhang, P. (2025) cross border commerce on the internet, Foreign Shareholding, and Supply Chain Resilience. International Review of Financial Analysis, 101, 103-109.
[11] Yin, Z. H. & Choi, C. H. (2023) The Effects of China's cross border commerce on the internet on Its Exports: A Comparative Analysis of Goods and Services Trade. Electronic Commerce Research, 23(1), 443-474.

DOI: 10.54254/2754-1169/2025.GL26950

[12] Liang, Y., Guo, L., Li, J., Zhang, S. & Fei, X. (2021) The Impact of Trade Facilitation on cross border commerce on the internet Transactions: Analysis Based on the Marine and Land Cross-Border Logistical Practices Between China and Countries Along the "Belt and Road". Water, 13, 35-67.