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Research on the Status Quo and Improvement Mechanism of Cross-Border E-Commerce Logistics Services in China

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Abstract: This article aims to examine the present state of cross-border e-commerce logistics services growth in China and to enhance the system for addressing the current state of affairs' deficiencies. In this study, the development status quo of cross-border e-commerce logistics services in China is briefly analyzed, along with the current issues and obstacles, by methodically sorting out the status quo of these services. A workable improvement process is proposed to encourage the service's sustained growth.

Keywords: cross-border e-commerce in China; logistics services; cross-border logistics; sustainable development; machine made

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1. Introduction

Logistics services are a crucial connection between supply and demand in the rapidly growing Chinese cross-border e-commerce market, and their effectiveness and quality have a direct impact on customer satisfaction and business competitiveness. This study examines the current state of cross-border e-commerce logistics services in China in a methodical manner, identifies the primary issues with service quality, cost control, technical support, and other areas, and integrates the industry's development trend to suggest optimization strategies based on mechanisms for improvement.

The study discovered that the current cross-border e-commerce logistics services still have numerous issues with distribution timeliness, information transparency, after-sales support, etc. These issues need to be fixed by improving supply chain cooperation, boosting logistics intelligence, and fortifying the development of cross-border logistics standardization. This paper examines the benefits of improving logistics services for increasing customer satisfaction and enterprise competitiveness from the standpoint of fusing theory and practice. It also suggests creating a multi-party collaborative logistics service ecosystem to support the long-term growth of China's cross-border e-commerce sector. The research findings have significant practical implications as they not only offer useful advice for logistics companies but also serve as a theoretical resource for pertinent policymakers.

2. Current Situation of Cross-Border E-Commerce Logistics Services in China

2.1. Concept of Cross-Border E-Commerce Logistics Services

A new supply chain model based on the digital trade system, cross-border e-commerce logistics services rely on intelligent technology clusters like blockchain, artificial intelligence, and the Internet of Things to digitally reconstruct the network of cross-border commodity circulation. The service system creates an end-to-end solution covering multilateral trade zones by combining global warehouse resources and an intelligent customs clearance system. It focuses on resolving customs clearance obstacles, logistics tracking blind spots, and cross-border payment barriers that exist in international trade, and it ensures the complete value transmission of goods from suppliers in the country of origin to terminal international buyers. In order to guarantee that goods can cross national borders smoothly and effectively, this type of service covers a number of intricate links, including customs declaration, inspection and quarantine, customs clearance, etc., in addition to the fundamental tasks of traditional transportation, warehousing, and distribution [1].

Cross-border e-commerce logistics services' globalization features make them a crucial link between various nations and areas. In order to satisfy the increasing demands of customers for cross-border shopping, it offers cross-border e-commerce businesses whole-chain integrated logistics solutions by combining global logistics resources.

2.2. Development History of Cross-Border E-Commerce Logistics Services in China

There are three primary phases to the growth of cross-border e-commerce logistics services in China. With the emergence of cross-border e-commerce platforms in China throughout the early 21st century until 2007, conventional freight forwarders started to grow their associated logistics businesses. Due to its clear cost advantage and suitability for low-value items, mail packages were the primary logistics option employed by cross-border e-commerce vendors at the time. During this time, logistics services were comparatively straightforward and primarily addressed the most fundamental requirements for cross-border transportation.

The emergence of numerous Chinese cross-border e-commerce businesses and the growth in the volume and diversity of export goods since the start of the fast development period (2007–2016) have both contributed to the advancement of logistics services. Although postal packages continue to be the most common, China Post has introduced commercial special line items like E-mail to partially satisfy market demand as cross-border e-commerce merchants have raised their expectations for logistical timeliness and experience. The logistics channel has been further enhanced by the several international postal services that have joined the Chinese market through the agent model.

China's cross-border supply chain system has progressively developed intelligent collaboration and a multi-modal service ecology since the acceleration of industrial digital transformation in 2016. The Global Mail Union's (UPU) "Gradient Tariff Reform Plan" has forced logistics businesses to develop creative alternatives as the cost threshold of traditional international mail universal service has gone beyond the critical point. Leading companies in the sector have consistently introduced "customized dedicated line service matrix" systems that cover intelligent warehouse direct delivery, multimodal customs clearance, and dynamic routing optimization systems. These systems, which rely on blockchain traceability technology and intelligent routing algorithms, have increased the efficiency of cross-border package delivery by 42% and established a digital logistics service paradigm with separate intellectual property rights. One significant aspect of this era is the growth of the foreign warehouse model. Local storage and quick distribution of goods have been made possible by the construction of local storage facilities, which have successfully addressed the drawbacks of the conventional logistics method. Furthermore, the extensive use of technologies like big data, artificial intelligence, and the Internet of Things has encouraged the automated and intelligent construction of warehouses abroad, further enhancing the effectiveness of logistics and the caliber of services [2].

2.3. Analysis of the Development Status of Cross-Border E-Commerce Logistics Services in China

2.3.1. Market Environment

Through institutional innovation clusters, China has spearheaded the modernization and transformation of cross-border logistics systems since the global supply chain restructuring wave of 2020. In order to create an institutional guarantee system that covers infrastructure iteration, digital customs clearance innovation, and supply chain finance empowerment, the government has progressively established a three-dimensional policy framework that includes plans for optimizing the overseas warehouse network, intelligent customs clearance demonstration projects, and a special fund for the construction of international logistics hubs. According to industry monitoring data, the cross-border commodity circulation field is growing exponentially in the context of the deep integration of the digital economy and real industry. The market segment is growing at an average annual compound growth rate of 28.7%, and the intelligent logistics center system has covered 136 important trade nodes. The size of China's cross-border logistics sector is expected to rise annually between 2019 and 2023. The market size is expected to reach 3.88 trillion yuan in 2023, an increase of 19.75% [3]. Automation, intelligence, digitization, and informatization have emerged as the key developments in the cross-border logistics sector. The efficiency and transparency of logistics have been enhanced by the use of technologies like the Internet of Things, big data, and cloud computing; automated warehouses, drone distribution, and other technologies have altered the way that logistics is traditionally operated.

2.3.2. Logistics Service Model

The current logistics service model in China can be broadly classified into four categories. The first is the traditional express package logistics, which is the most popular mode in China's cross-border e-commerce logistics. It has the benefits of quick speed and a large service network, but it also has the drawback of being expensive. The second is dedicated logistics, which offers comparatively cheap costs, quick transit times, and other benefits for certain nations or areas, but has a more constrained service offering. The third is international express, which has the benefits of efficiency and dependability but is more expensive. It is offered by globally recognized express firms like DHL, FedEx and others. The fourth is an overseas warehouse, where the company will initially ship the items in bulk before delivering them straight to the customer upon their request. This approach may significantly lower logistics expenses and increase distribution effectiveness, but it necessitates that businesses possess robust supply chain and inventory management skills [4].

3. Problems and Challenges Faced by Cross-Border E-Commerce Logistics Services in China

3.1. Infrastructure and Logistics System

3.1.1. Infrastructure Is Inadequate

The transit requirements of specific items cannot be met by the comparatively outdated infrastructure needed for cross-border e-commerce logistics in China, including storage facilities and transportation instruments. Furthermore, there is inadequate infrastructure management and low utilization efficiency, which have an impact on the effectiveness of logistics and the size of the company. For instance, certain rural and interior locations lack adequate logistical infrastructure, which leaves the logistics network with insufficient coverage and makes it challenging to satisfy the demand for cross-border e-commerce worldwide [5].

3.1.2. The Logistics System Is Not Sound

Cross-border logistics include customs, taxes, quarantines, and other processes in several nations and areas, leading to numerous transportation linkages and lengthy cycles, which raises the costs and risks associated with consumer buying. The unreliable logistics system is made worse by issues like inefficient customs processing and convoluted tax laws. For instance, logistics companies now face more operational challenges and expenses due to the frequent changes in customs regulations in certain nations.

3.1.3. The Level of Information Technology Is Low

Customers are unable to promptly comprehend the status of goods transportation and customs clearance progress, which exacerbates their sense of anxiety and uncertainty. This is due to the low information level of cross-border e-commerce logistics and the impossibility of tracking the instant status of goods in real time. Logistics businesses lack sophisticated information management systems, and it is challenging to implement real-time monitoring and administration of the whole logistics process, which has an impact on service quality and logistical efficiency [6].

3.2. Laws and Policies

3.2.1. The Legal System Is Not Perfect

Businesses have several difficulties in their operational process since cross-border e-commerce includes the legal authority of numerous nations and areas, and pertinent rules and regulations have not yet developed a comprehensive system. For instance, various nations have varied laws protecting intellectual property and consumer rights and interests, which raises the risks and expenses of compliance for businesses. Additionally, there exist oversight gaps, and some illicit traders may use these to carry out illicit activities including selling counterfeit goods and violating intellectual property rights, harming the interests of both customers and legitimate businesses [7].

3.2.2. Changes in International Trade Policy

The operational costs and logistical effectiveness of cross-border e-commerce businesses have been impacted by the expansion of global trade protectionism and the frequent changes to international trade policy, such as the escalation of tariff barriers brought on by Sino-US trade frictions. It is more difficult to join the market in some nations because of their stringent inspection, quarantine, and certification procedures for imported goods. Furthermore, currency settling is a significant concern. The running expenses and complexity of businesses are raised by the disparities in tax laws among nations. Particularly, some emerging nations have opaque tax laws, which makes it difficult for Chinese businesses to grow and ensure payment security.

3.2.3. Insufficient Policy Support and Regulatory Innovation

Despite the fact that the relevant authorities have released a number of regulations to encourage the growth of international e-commerce, there is still a lack of regulatory innovation and policy support in the actual implementation process. For instance, certain areas have not completely implemented customs clearance facilitation measures, which has led to low customs clearing efficiency and impacted logistical timeliness. The regular operations of businesses and the order of the market are also impacted by the unclear tax policy of cross-border e-commerce logistics and the gaps in tax collection and management [8]. Furthermore, the cross-border e-commerce logistics financial support policy has to be further strengthened. Issues with financing, high financing costs, and other issues still persist and limit the large-scale growth of businesses.

3.3. Talent and Operations

3.3.1. Talent Shortage

Logistics companies now face a skills shortage, despite the fact that cross-border e-commerce logistics requires multidisciplinary expertise with an international perspective and familiarity with the local market and culture. As cross-border trade undergoes a digital transition, professional teams' capacity building must be upgraded structurally. Businesses must set up a composite talent training system that covers the aspects of digital operation, cross-border compliance management, and multilingual services in order to construct a brand growth route as the trend toward quality in the global consumer market continues to grow.

The three main modules of data operation ability, intelligent supply chain optimization, and cross-cultural business communication need to be strengthened, according to industry research, in order for the new talent ability matrix to transcend the conventional e-commerce skill limitations. Among these, the fundamental prerequisite for admittance is the capacity to collaborate in two languages. Approximately 78% of technical positions require English CET-4 or higher certification, core business positions require the ability to operate cross-border platforms in English, and key technical positions require additional business negotiation skills in particular languages, according to recruitment data from top companies [9].

3.3.2. Operational Inefficiency

The expansion of the sector is hampered by issues with new logistics models, like foreign warehouses, such as poor management effectiveness and a lack of cooperation with cross-border e-commerce in the operational process. Cross-border e-commerce is becoming more and more competitive, businesses are under more operational pressure, traditional methods of operation and promotion are having an increasingly negative impact, and new forms like multi-network, multi-channel, new media, and content operation are having a significant impact, which increases the demands on operators. Greater standards for talent are set by refined operations, and raising the caliber of talent will unavoidably result in greater pay levels.

3.3.3. The Personnel Training Mechanism Is Not Perfect

Cooperation between universities and training institutions, collaboration between universities and cross-border e-commerce development companies, collaboration between universities and logistics companies, and collaboration between enterprises and training institutions are the four primary models of cross-border e-commerce talent training mechanisms. These four models now make up the majority of cross-border e-commerce training in China, however each model has flaws that reduce the effectiveness of talent training. Since cross-border e-commerce training institutions are still in the exploratory stage of their collaboration with universities, they primarily concentrate on theoretical instruction, lack real-world e-commerce project experience, clash with college and university curricula, and are unable to complement one another. As a result, it is challenging to ensure the caliber of developed talents and lack of market competitiveness, which is detrimental to raising student employment rates [10].

3.4. Cost and Quality of Service

3.4.1. High Logistics Cost

Multiple linkages and intricate transportation procedures are part of cross-border e-commerce logistics, which raises the cost of goods and services for both buyers and sellers. Even if the overseas warehouse has become the standard option, there are still issues that need careful consideration, such as how to use the overseas warehouse more effectively to reduce business expenses and how to create an operating system that works for the

company. For instance, some businesses struggle to locate and manage their goods in foreign warehouses, which makes it challenging to successfully cut logistical expenses. Additionally, the fluctuation in logistical expenses raises the operational risks for businesses [11].

3.4.2. The Quality of Service Is Not Stable

Issues like protracted logistical cycles and challenging return and exchange policies have an impact on customers' shopping experiences and lower their propensity to purchase. Improving service quality is always a difficulty, despite the fact that cross-border e-commerce has aided in the digital revolution of service trade. Because some logistics companies lack sophisticated information management systems, it can be challenging to monitor and control the whole logistics process in real time, which has an impact on service quality and logistical efficiency. The unpredictability of service quality has also been made worse by issues like complicated tax laws and inefficient customs processing.

4. China's Cross-Border E-Commerce Logistics Service Improvement Mechanism

4.1. Infrastructure and Logistics System

4.1.1. Stepping up Infrastructure Development

The transportation requirements of particular items cannot be met by the comparatively outdated infrastructure needed for cross-border e-commerce logistics, such as storage facilities and transportation instruments. Together, businesses and the government should spend more in cross-border e-commerce logistics infrastructure, such as building new warehouses, investing in cutting-edge transportation, and improving the capabilities of logistics parks. To satisfy the expanding business demands of cross-border e-commerce, it is especially important to increase the logistics network's coverage in interior and rural locations and boost the effectiveness of logistics facility use. Building and developing foreign warehouses is crucial for increasing logistics efficiency and cutting costs as a significant component of cross-border e-commerce logistics [12]. Local storage and quick distribution of goods may be accomplished by setting up an overseas warehouse in the target market, which will significantly cut down on delivery times and boost customer satisfaction.

4.1.2. Improving the Logistics System

Cross-border logistics include customs, taxes, quarantines, and other processes in several nations and areas, leading to numerous transportation linkages and lengthy cycles, which raises the costs and risks associated with consumer buying. Strengthening collaboration and coordination with customs, taxes, quarantine, and other agencies of different nations is essential to creating an effective, practical, and affordable cross-border logistics system. Additionally, customs clearance processes must be made simpler and more efficient. Encourage the standardization of logistics services, provide a single platform for logistics information, enable real-time exchange and connectivity of logistics data, and enhance the controllability and transparency of logistical processes. One type of effective transport organization method that may fully utilize the benefits of several modes of transportation and achieve the best possible resource allocation is multimodal transport. Strengthening the development of several forms of combined transport, such as public-rail and sea-rail combined transport, may lower costs and increase logistics efficiency [13].

4.1.3. Raise the Level of Informatization

Customers are unable to promptly comprehend the status of goods transportation and customs clearance progress, which exacerbates their sense of anxiety and uncertainty. This is due to the low information level of cross-border e-commerce logistics and the impossibility of tracking the instant status of goods in real time. To accomplish real-time

monitoring, intelligent scheduling, and precise administration of the whole logistics process, logistics companies should aggressively implement cutting-edge information technology, such as the Internet of Things, big data, cloud computing, blockchain, etc. Customers can increase their faith in logistics services by using informational tools to track the progress of customs clearance and the status of goods' transit at any time. Create a digital platform for logistics information, gather, store, analyze, and share logistics data, and assist in logistics decision-making. Strengthen logistics information security management at the same time to safeguard business and customer privacy.

4.2. Regulation and Policy

4.2.1. Improve the Legal System

Businesses have several difficulties in their operational process since cross-border e-commerce includes the legal authority of numerous nations and areas, and pertinent rules and regulations have not yet developed a comprehensive system. Create supportive rules and regulations in accordance with the demands and features of the cross-border e-commerce logistics sector to encourage the industry's healthy growth. First and foremost, the rules and regulations pertaining to intellectual property protection need to be improved. Additionally, the definition of infringement responsibility and the standards for identifying intellectual property infringement need to be clarified. In order to define the code of conduct for cross-border e-commerce logistics and to make clear the rights, duties, and responsibilities of cross-border logistics service platforms, special rules are established in e-commerce legislation. Once more, it is necessary to strengthen the supervision and management of import and export goods, standardize customs supervision behaviors, clarify customs declaration and clearance procedures, and improve customs supervision and regulations on cross-border e-commerce logistics [14]. Lastly, create and enhance data security rules for international e-commerce logistics, fortify information security defenses, preserve the logistics chain's secure transit, and guarantee the robust growth of the international e-commerce logistics sector.

4.2.2. We Will Strengthen Policy Coordination on International Trade

The operational costs and logistical effectiveness of cross-border e-commerce businesses have been impacted by the expansion of global trade protectionism and the frequent changes to international trade policy, such as the escalation of tariff barriers brought on by Sino-US trade frictions. It is more difficult to join the market in some nations because of their stringent inspection, quarantine, and certification procedures for imported goods. Furthermore, currency settling is a significant concern. The running expenses and complexity of businesses are raised by the disparities in tax laws among nations. Particularly, some emerging nations have opaque tax laws, which makes it difficult for Chinese businesses to grow and ensure payment security. In order for national laws to become cohesive and interoperable, governments should also actively collaborate and communicate, guided by international organizations, to develop international legal regulations for the cross-border e-commerce logistics sector.

4.2.3. We Will Strengthen Policy Support and Regulatory Innovation

Despite the fact that the relevant authorities have released a number of regulations to encourage the growth of international e-commerce, there is still a lack of regulatory innovation and policy support in the actual implementation process. For instance, certain areas have not completely implemented customs clearance facilitation measures, which has led to low customs clearing efficiency and impacted logistical timeliness. The regular operations of businesses and the order of the market are also impacted by the unclear tax policy of cross-border e-commerce logistics and the gaps in tax collection and administration. Furthermore, the cross-border e-commerce logistics financial support policy has to be further strengthened. Issues with financing, high financing costs, and other issues still

persist and limit the large-scale growth of businesses. In order to mitigate the legal risks that the cross-border e-commerce logistics business faces, it is imperative to enhance the monitoring mechanism across different logistics firms in addition to strengthening the top-level design, which involves improving laws and regulations [15].

4.3. Talent and Operations

4.3.1. Strengthening the Construction of Talented Personnel

Logistics companies now face a skills shortage, despite the fact that cross-border e-commerce logistics requires multidisciplinary expertise with an international perspective and familiarity with the local market and culture. Professional skill levels have become more demanding in the cross-border e-commerce sector. In order to achieve better quality product sales and branding development, businesses must train professional skills in all areas as China's cross-border e-commerce consumer groups and goods continue to evolve. In the future, cross-border e-commerce merchants need be skilled in both languages and possess digital abilities including supply chain management, e-commerce management, and data analysis in addition to platform operating expertise [16]. Employers often want CET-4 or CET-6 English communication skills for hiring as well as the capacity to utilize English for international e-commerce.

4.3.2. Improving Operational Efficiency

The expansion of the sector is hampered by issues with new logistics models, like foreign warehouses, such as poor management effectiveness and a lack of cooperation with cross-border e-commerce in the operational process. Cross-border e-commerce is becoming more and more competitive, businesses are under more operational pressure, traditional methods of operation and promotion are having an increasingly negative impact, and new forms like multi-network, multi-channel, new media, and content operation are having a significant impact, which increases the demands on operators. greater standards for talent are set by refined operations, and raising the caliber of talent will unavoidably result in greater pay levels.

4.3.3. Improving the Personnel Training Mechanism

Collaboration between universities and training organizations, universities and cross-border e-commerce development enterprises, universities and logistics enterprises, and enterprises and training organizations are the four different forms of cross-border e-commerce talent cultivation modes. These four models now make up the majority of cross-border e-commerce training in China, however each model has flaws that reduce the effectiveness of talent training. Cross-border e-commerce training organizations are primarily in the exploratory stage of their collaboration with colleges and universities. They focus on theoretical instruction and lack practical e-commerce project experience, which clashes with the curriculum of colleges and universities and prevents them from complementing one another. As a result, it is difficult to ensure the quality of developed talents and lack of market competitiveness, which is detrimental to raising the employment rate of students [17].

4.4. Cost and Quality of Service

4.4.1. Optimize Logistics Cost Structure

International e-commerce Multiple linkages and intricate transportation procedures are part of logistics, which raises the cost of goods and services for both buyers and sellers. By integrating logistics resources, optimizing network layout, and increasing operational efficiency, businesses may save logistics expenses. Simultaneously, the government should regulate logistical charging practices, increase market oversight, and stop the appearance of arbitrary charge phenomena. Businesses can utilize the overseas warehouse

mode, for instance, to ship items in bulk to overseas warehouses and then deliver the goods straight from the warehouse after customers place orders. This can significantly lower logistics costs and increase distribution efficiency [18]. To further lower logistics expenses and work toward more favorable logistics rates, businesses can also build long-term cooperation relationships with logistics companies.

4.4.2. Improving Service Quality

Issues like protracted logistical cycles and challenging return and exchange policies have an impact on customers' shopping experiences and lower their propensity to purchase. Logistics companies should increase the timeliness, correctness, and dependability of their services, develop a customer-centered service approach, and fortify service quality management. At the same time, create an ideal system for after-sales care, promptly address customer issues and complaints, and increase customer loyalty and satisfaction. Businesses might, for instance, provide real-time logistics information inquiry services to increase customer confidence in logistics services by enabling them to know the progress of customs clearance and the transportation status of products at any time. Additionally, businesses may enhance coordination and communication with customs, taxes, and other agencies, streamline the customs clearance process, increase the effectiveness of customs clearance, and further enhance the caliber of logistical services [19].

5. Conclusion

The development status, issues, and difficulties of cross-border e-commerce logistics services in China are methodically examined in this article, which also suggests specific ways to enhance them. Through various measures, including strengthening talent team construction and operation efficiency improvement, optimizing regulations and policy environment, improving infrastructure and logistics system, improving service quality, and reasonably controlling costs, the goal is to provide theoretical support and practical guidance for the high-quality development of cross-border e-commerce logistics services in China. China's cross-border e-commerce logistics services are anticipated to hold a more significant position in the global market and contribute more to the sustainable growth of the cross-border e-commerce sector in the future due to the ongoing advancements in technology and the ongoing market expansion.

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