

# Research on Optimizing the Business Model of Cross-border E-commerce Based on Blockchain Technology

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**Abstract:** *Relying on its excellent point-to-point networking technology, blockchain technology has built a brand-new model of cross-border business, saving the cost of grading agency in the process of traditional cross-border e-commerce. Blockchain has a unique traceability. With the support of the digital currency system, a cross-border cargo traceability system is established to ensure the authenticity and quality of the source of goods. Based on this, this paper studies the meaning of blockchain technology and cross-border e-commerce, looks for the problem of the business model of the two blending, and proposes countermeasures.*

**Keywords:** *blockchain, cross-border e-commerce, business model*

## 1. Introduction

In 2016, blockchain officially received widespread attention as a novel shared accounting method, and it was incorporated into the State Council's 13th Five-Year Plan for national informatization by the ministry of industry and information technology because of its strategic frontier technologies and disruptive technologies. Cross-border e-commerce links are complex, involving many countries, regions, and enterprises at all levels, which are relatively time-consuming; quality control problems cannot be ignored, and the span is too large to trace the real problem; cross-border logistics is long and transportation costs are high, which make the exchanges of goods extremely inconvenient; the safety factor of fund payment is not guaranteed, and the amount involved is large; also, it is difficult for cross-border e-commerce companies to raise funds and make innovations. It can be seen that cross-border e-commerce faces various challenges while blockchain technology is widely used. If both of them can be organically combined and help each other, it will bring new vitality and chances to the cross-border e-commerce model.

## 2. What is the blockchain and what is cross-border e-commerce

### 2.1 What is the blockchain

The blockchain is a kind of chained data structure in which data blocks are connected in chronological order, and a distributed ledger that cannot be tampered with protected by cryptography. In essence, the blockchain is a kind of database that records ledgers' information. Each individual information block is a sub-module, which characterizes transaction activities, and the rule that each information block relates to is the "chain". Therefore, it can be said that the blockchain is a database composed of a large number of information blocks under certain rules.

### 2.2 What is cross-border e-commerce

Cross-border e-commerce refers to the online commercial trade model between transaction entities in different countries and regions. The main transaction method is e-commerce (an international commercial activity in which goods need to be ordered and paid online, and finally delivered to complete the transaction after cross-border logistics and customs clearance). There are two main presenting methods:

Domestic purchases are sold to foreign buyers through online trading platforms after a price increase based on the price range of domestic commodities.

For foreign purchases, first buy back through the online trading platform, and then resell them to domestic buyers at an increased price.

In October 2017, the State Council gave guidance on the use of blockchain technology to promote innovation and development. Blockchain technology has been applied in many industries because of its advantages in process transparency, followability, sharing, and intelligence. On the other hand, the cross-border e-commerce model, as a major innovation in our country under the background of Internet plus, has also received great attention from all walks of life. From the perspective of national trade and the development of the enterprise itself, cross-border e-commerce is the highlight of international trade, and it has now become an unexpected winner in my country's foreign trade. However, it should be noted that there are still many problems in the cross-border e-commerce model in spite of the numerous advantages.

### **3. Difficulties encountered by cross-border e-commerce**

#### ***3.1 Logistics issues***

The main manifestations of cross-border logistics restricting the development of cross-border e-commerce are: high logistics costs, a long time on transportation, damage to goods, and the difficulties in reverse logistics. Delays in every process contain hidden dangers of cost and time, especially the customs declaration and clearance process, which are very uncontrollable. Therefore, once there is a time delay in a certain process or there is a problem with the connection between processes, it will inevitably increase the time and cost of cross-border logistics. In addition, cross-border cargo is basically not monitored in real time during transportation, so it is impossible to know the real-time status of the cargo. The link, coordination and conversion between processes determine the total cost of cross-border logistics and the length of time.

#### ***3.2 Payment issues***

From the perspective of transaction subjects of cross-border e-commerce, the B2B transaction mode mainly uses three methods: bank remittance, letter of credit payment and professional remittance company payment; the B2C transaction mode mainly uses two methods: international credit card payment and third-party payment. Among them, bank remittance and letter of credit payment are two common cross-border payment methods under traditional trade. Bank remittance is faster and cheaper, and letter of credit payment is safer and more stable. Regardless of the payment method, cross-border payments must be coordinated by multiple transaction entities. The parties involved in the payment usually include both parties to the transaction, the bank that holds the account, the central bank, overseas banks (correspondent banks or overseas branches of the bank), professional remittance companies, third-party payment institutions, etc.

#### ***3.3 Quality control issues***

Since the business scope is global, the transaction subjects of cross-border e-commerce are often diversified, including supplier companies (manufacturers or agents), e-commerce companies (online trading platforms or sellers and buyers on behalf of purchases), and cross-border logistics enterprises, national customs, tax bureau and other departments. Only by ensuring that every process is not missed can the quality of the goods be guaranteed. From a large perspective, the frequent problems of cross-border e-commerce control problems are: cross-border e-commerce organizations lack a complete transaction evaluation system and relevant laws and regulations are not perfect, and various regulatory agencies fight each other, causing the interests of consumers of cross-border e-commerce not to be effectively protected.

### **4. Strategies of using blockchain technology to optimize the cross-border business model**

The blockchain is essentially a reconciliation system, and it is a system supervised by all participants. The core technology is distributed storage technology, which constitutes a new data structure for the market in accordance with the time sequence and end-to-end principle. In addition, due to the use of cryptographic knowledge, blockchain technology also has extreme security that cannot be tampered with. Blockchain technology can solve potential trust issues in transaction, scope issues, etc.

It is an excellent example of the integration of technology and business in recent years.

#### ***4.1 Classification***

Defining cross-border logistics involves types of transaction entities. It is recommended that the government or large Internet companies take the lead to enhance the credibility and persuasiveness of the established platform. Finally, the transaction subject registers and real-name authentication enters the circle, and then obtains the transaction authority (public key and private key). Government departments, such as customs, and large-scale Internet platforms enter the circle in the form of cooperation and establish transaction authority.

#### ***4.2 Establish a basic database***

The large-scale Internet platform digitizes the collected and verified customer information and uploads it to the blockchain system to realize the sharing of transaction information on the blockchain. At the same time, the transaction subject is given the authority to keep accounts, and the transaction is carried out in full accordance with the blockchain technology rules. For cross-border logistics, warehousing transaction databases, cargo transportation or distribution real-time information databases, and customs clearance information databases are particularly important. When customers find that the goods do not meet the order requirements through the real-time distribution information, they can directly communicate with the international logistics company to request rectification or suspension to achieve the purpose of controlling the problem in advance, thereby reverse logistics and fake goods can be reduced even be avoided. Customs can also control false cross-border through the authenticity of the source of goods.

#### ***4.3 Focus on supervision from the source***

The quality assurance mechanism of blockchain technology for cross-border e-commerce mainly lies in traceability. Since the information in the blockchain cannot be tampered with, the source information guarantees the authenticity, which brings convenience to subsequent ordering, delivery, evaluation, and return and exchange, and makes it easy for consumers to trust. Therefore, we must be precautious of the source problem beforehand and solve the problem timely, in case problems accumulate and eventually cause negative consequences such as poor ratings and returns of goods. Because of its unique advantages, blockchain technology is suitable for recording source information of cross-border e-commerce product, logistics process, etc., and establish a database that can query and increase data, so as to ensure the authenticity of products from the source. Customers and customs can establish a cargo source inquiry platform based on blockchain technology to facilitate the traceability of each piece of cargo, thereby the quality of the cargo and the quality control could be guaranteed, as well as the security of entry and exit.

### **5. Conclusion**

Based on the cross-border e-commerce trade under the background of the information age, its operating ecology is more complex and changeable, and its business coverage is broader. At the same time, it brings an increase in operating risks. Only solving problems to cross-border logistics, cross-border payment and goods quality cannot completely eliminate cross-border risks. With the changes of the times and the advancement of technology, the cross-border e-commerce model will also show more and more problems and risks. In addition, blockchain technology is not an omnipotent technology. Its high latency, high computing cost and limited storage space determine the limitations of its application scenarios, and this limitation also determines that the blockchain technology does not solve all the problems of cross-border e-commerce but only works out certain important issues. Therefore, in the scenario of exploring and solving cross-border e-commerce problems, blockchain technology can only be applied to key events in the scenario and form a general ledger in a time sequence to achieve the purpose of solving the problem. In addition, after sorting out the problems in cross-border logistics, cross-border payment, and cross-border goods quality, it is found that, for cross-border logistics, the key to solving the current high cost and low efficiency of cross-border logistics is to realize the whole process monitoring of cross-border logistics, especially the overseas warehouse storage and the processes of logistics transportation; for cross-border payments, the key to solving high payment costs is to eliminate the hierarchical agency structure that exists in traditional

cross-border payments, so it is particularly important to establish a trustworthy transaction system for reducing transactions cost and to building a unified electronic currency for improving transaction efficiency; for the quality of cross-border goods, the key to solving the high return rate of cross-border goods is to establish a traceability mechanism, in which it is particularly important to ensure the authenticity of the source of goods information.

## References

- [1] Xu Denghui (2021). *Research on the development path of "blockchain + cross-border e-commerce"*. *Hainan Finance*, (03), pp. 31-36.
- [2] Yu Wenwu (2021). *An analysis of the optimization of cross-border e-commerce business model based on blockchain*. *Journal of Commercial Economics*, (05), pp.159-162.
- [3] Wang Chao, Bao Xianyu, Xing Jun, Wang Fei (2018). *Cross border e-commerce trade chain and alliance chain research based on blockchain technology*. *Modern Electronics Technique*, 41 (21), pp. 169-172+178.
- [4] Jia Songtao, Yang Xiaojuan (2021). *New cross-border e-commerce model based on blockchain technology*. *Modern Business*, (03), pp 30-32.
- [5] Jiao Liang (2020). *The construction of cross-border e-commerce platform system based on blockchain technology*. *Journal of Commercial Economics*, (17), pp. 81-84.
- [6] Zhang Yuzhao (2021). *On the construction and application of e-commerce platform system from the perspective of blockchain*. *China Journal of Commerce*, (04), pp. 26-28.
- [7] Luo Wei (2020). *Research on the development of cross-border e-commerce business model in the context of blockchain*. *Journal of Henan College of Finance & Taxation*,34 (06), pp.22-26.
- [8] Li Donghui (2020). *The value co creation system construction of e-commerce platform under blockchain technology*. *Journal of Commercial Economics*, (18), pp.97-100.
- [9] Wang Fei (2019). *Blockchain technology and new ideas for promoting cross-border e-commerce development in China*. *Theory Monthly*, (03), pp. 117-122.
- [10] Li Linqiu (2019). *The value co creation research of digital enabled export cross-border e-commerce*. *Journal of Commercial Economics*, (24), pp. 68-71.