Research on the Development of Hardware Cross-Border e-Commerce Based on Blockchain Technology

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Abstract: As an emerging internet industry, cross-border e-commerce has developed rapidly with the support of the government, but its sustainable development is also faced with the challenges of low logistics and transportation level, inefficient payment methods, and uneven product quality. More and more hardware cross-border e-commerce giants are embracing blockchain and trying to solve the pain points of cross-border e-commerce industry with blockchain technology. Through the application of blockchain technology, we can realize the decentralized simple trading mode of hardware goods, the timely tracing of commodity production and other information, and the commodity transportation supervision platform, so as to reduce the risk index in the production and operation of cross-border e-commerce, and promote the healthy, stable and sustainable development of cross-border e-commerce.

Keywords: Hardware; cross-border; e-commerce; blockchain technology

1. INTRODUCTION

As one of the basic protocols of the next-generation value Internet, blockchain technology is a major cutting-edge technology and disruptive technology that has triggered social change. It has gradually received widespread attention and attention from more and more national governments and international organizations.   It is convenient for anti-counterfeiting verification and validity verification of information and generates the next block.

In short, blockchain is a chain-like block data structure formed by connecting and combining various data blocks in a chronological manner and establishing a distributed account book that cannot be forged or tampered with by means of cryptography. What is different from physical payment is that when consumers consume goods, the information of both sides of the transaction will appear through the network system, which also shows to some extent that cross-border e-commerce payment is essentially based on Internet technology and platform, with the characteristics of networking and virtualization. This KBGHE exhibition covers an area of 30000 square meters. In addition to Haier, Jiumu, Wanjiale, Wanhe, Vantage, Fantai, Boss, A.O. Smith, Linnei, Hesheng, Humegao, Opec and other domestic and foreign brands, Shengzhou and Shunde also appeared in the form of exhibition groups.

Blockchain technology stores data in each node of the blockchain system instead of one or several data centers through the point-to-point network topology, which makes it present a distinct decentralized feature. At the same time, each node of the blockchain system is an independent data information storage and query service responder and requester, and the nodes are independent and non-interference with each other. In the blockchain technology, except for the encryption of private information of the transaction, all other data are open to anyone, and everyone can query and develop through open applications. Therefore, the openness of information in the whole transaction process is high, and everyone keeps accounts and participates, ensuring the

transparency of the transaction. Although China's current online transaction has risen to a new level, cross-border e-commerce payment is also highly favored by consumers, but affected by the stability of the network system, there are also a series of uncertain factors hidden in the cross-border e-commerce payment work, which not only affects the stability of cross-border e-commerce trade, but also leads to the loss of trade funds and endangers the security of cross-border e-commerce trade.
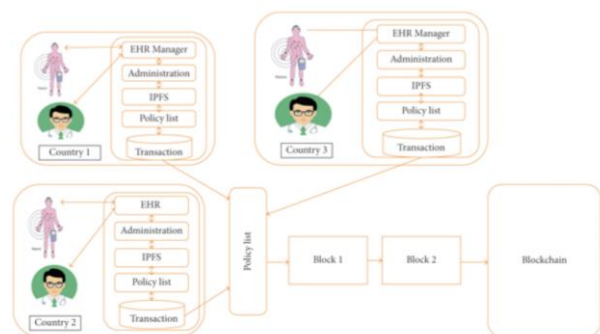

Figure. 1 Network model of the proposed cross-border e-commerce approach based on Blockchain technology. (Image from Internet)

2. THE PROPOSED METHODOLOGY

2.1 The concept and characteristics of blockchain technology

According to Zheng Changqing, general manager of eBay's international cross-border trade business unit in China, cross-border e-commerce has become the new normal. In global e-commerce, cross-border trade accounts for 20%, with an increase of 29%, twice the growth rate of non-cross-border e-commerce. In this process, any malicious tampering behavior will be rejected and corrected by other nodes, thus ensuring the tamperability of blockchain data.

Finally, timestamp technology. Timestamp is to give the blockchain system a time dimension, connect nodes according

to the time sequence and cover the system time certificate, so as to provide accurate time for the data transaction information inside the blockchain system. The encryption method used by the blockchain system is asymmetric. When encrypting and decrypting the information stored in the blockchain, the public key and private key should be used at the same time. Secondly, if there is malicious tampering, it will be rejected through consensus mechanism, and then the security of the blockchain system will be guaranteed.

2.2 The application challenges of blockchain technology in the cross-border e-commerce payment model of hardware products

If you want to manipulate and modify the block data, you need to master more than half of the nodes, which is difficult, and it also avoids the risk that the blockchain data will be controlled and changed maliciously. In the process of in-depth analysis of blockchain technology, we learned that this technology could achieve the purpose of direct cross-border e-commerce interaction, effectively improve the efficiency of cross-border trade, and further achieve the purpose of smooth cross-border e-commerce trade.

Yu Jinshan, general manager of Wendeng Power Tools Group, said: "The eBay platform provides us with a new channel to open the international market with low cost and high efficiency. As long as the products published on the eBay platform are of excellent quality and receive the positive evaluation and approval of the buyers, they can quickly open the market. In recent years, China's cross-border e-commerce has developed rapidly. Although the speed and quality of cross-border e-commerce logistics have been continuously improved, they also face the following problems. First, the level of cross-border logistics and transportation is not high. Generally speaking, Cross-border logistics transportation takes a long time and customs clearance is more frequent. Few enterprises will monitor the cross-border goods transportation process in real time, which leads to cross-border products are vulnerable to damage during multiple transportation and transfer.

Cross-border e-commerce involves many intermediate links and processes, mainly involving cross-border procurement and sales, commodity storage, commodity after-sales and other links. A slight error in one link will lead to product quality problems. For example, in the process of cross-border procurement and sales, e-commerce companies will establish fake overseas authentic product inquiry websites to provide consumers with inquiry services and deceive consumers through fake overseas logistics information.

3. CONCLUSION

In the communication environment where media means are increasingly diversified and attention is scarce, enterprises need to use traditional media and Internet media in a comprehensive way to obtain higher user attention at a lower cost. "Therefore, we take the five linkage forms of 'CCTV+Outdoor+Dual Microvirus Video+We Media Creative Poster+Tiktok Extension' to integrate and make efforts. The new business form of" blockchain+cross-border e-commerce "is gradually emerging, which can effectively solve many problems in the current cross-border e-commerce development, such as commodity trading, quality control, logistics and transportation, but it also needs us to continue to dig deeply into the value of blockchain to promote the sustainable development of cross-border e-commerce.

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