

Research on the Construction of Cold Chain Logistics System Based on the Perspective of Blockchain

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Abstract: With the rapid development of my country's economy, blockchain has become a demand of the times. The blockchain cold chain logistics industry has also become a new hot spot in social and economic development. In this context, how to develop cold chain logistics from the perspective of blockchain has become a new topic. The research on this subject is of great help to the development prospects of cold chain logistics. It can greatly reduce the cost of cold chain logistics transportation, improve the efficiency of cold chain logistics transportation, and make up for the deficiencies in the cold chain logistics industry. The construction of cold chain logistics system from the perspective of blockchain has become a very important part of the blockchain system.

1. Introduction

The research on cold chain logistics actually has decades of history abroad. However, this logistics system is a new thing for our country. my country's cold chain logistics has just emerged. Not only is the technology imperfect, the system is incomplete, and more importantly, my country's cold chain logistics system lacks financial support. As a result, development is slow and unbalanced. The emergence of these problems has greatly hindered the development of my country's cold chain logistics industry and is not conducive to the rapid growth of my country's economy. The emergence of new things like blockchain in recent years has greatly made up for the shortcomings and defects in cold chain logistics. In this case, doing a good job of cold chain logistics research from the perspective of blockchain has become an important issue at the moment.

2. The History of Cold Chain Logistics

2.1 The Development of Cold Chain Logistics in the World

Cold chain logistics has appeared in foreign countries for decades, but my country's cold chain logistics has just emerged. With the rapid development of the world Internet in recent years, the world's cold chain logistics industry has developed rapidly, especially my country's cold chain logistics industry, which has developed rapidly. Take my country's neighbor Japan as an example. In Japan, cold chain logistics has become the main force in the Japanese logistics industry. As of

2016, Japan has 15 refrigerated transport vehicles, and the number of refrigerated warehouses has reached nearly 3,000. Such a huge cold chain logistics system supports Japan's cold chain logistics system. my country's cold chain logistics industry is also developing rapidly. At present, my country's cold chain logistics industry is in short supply. The development of cold chain logistics cannot meet the needs of people's lives.

2.2 Problems Encountered in the Development of the Cold Chain Logistics Industry

Cold chain logistics is a complete industry system, which not only requires a huge number of cold chain transport vehicles and refrigerated warehouses, but also a huge amount of financial support. If the funds are broken, it will cause an avalanche of the cold chain logistics industry. Because cold chain logistics warehouses and transport vehicles require a huge amount of funds, coupled with the increase in transportation costs in recent years, the overall development of the cold chain logistics industry has been slow, restricting the needs of my country's economic development.

3. The Construction of Cold Chain Logistics System Based on the Perspective of Blockchain

3.1 The Development of Blockchain

Blockchain is a new term that has emerged in my country in the past decade. This industry is related to a digital currency, and this digital currency is Bitcoin. With the rise of Bitcoin in 2008, some industries related to Bitcoin emerged at the historic moment, such as big data, cloud computing, and the Internet of Things. The emergence of the blockchain can be said to be a revolution in the history of the world's Internet development. The blockchain is no longer simply an application of the Internet, but the Internet is applied to industries such as economy, agriculture, and logistics. It is precisely based on the widespread application of blockchain that all blockchains have attracted wide attention from countries around the world as soon as they appear. Countries including China, the United Kingdom, the United States and other countries have introduced relevant policies and measures to vigorously support the development of blockchains. In particular, China defines the block as a national development strategy and directly writes it into the 13th Five-Year Plan, which shows that the country attaches importance to the blockchain industry.

3.2 Application of Blockchain in the Cold Chain Logistics Industry

The reason why the blockchain can seamlessly connect with cold chain logistics is due to the characteristics of the blockchain itself. The biggest feature of blockchain is the decentralization of the ledger. Before the creation of the blockchain, various financial media in China, including UnionPay, Alipay, WeChat transfer, etc., had transaction records, but they could not share information and exchange information. The emergence of the block chain has changed this status quo. The block chain is aptly named as combining and connecting the originally split blocks to form an organic whole. The point to be clear is that the blockchain can be documented for every transaction and every transaction, and will not erase the traces over time. Therefore, the emergence of blockchain has changed the original transaction methods, making transactions more convenient and safer, and ensuring the rights and interests of consumers. The application of blockchain to cold chain logistics is optimistic about this advantage of blockchain, and this advantage is also the shortcoming of cold chain logistics.

3.3 Construction of Blockchain and Cold Chain Logistics System

If the blockchain is applied to cold chain logistics, then the big data in the blockchain can be used to integrate the order and customer data in the cold chain logistics, and then perform classification processing. In this way, cold chain logistics companies can deliver goods to every consumer accurately. Conversely, customers can use the big data function of the blockchain to timely transmit their own needs and addresses to cold chain logistics companies. In this way, the transportation efficiency of cold chain logistics is greatly improved, and transportation costs are reduced. For example, cold chain logistics companies can obtain consumer demand through the blockchain, and transmit these orders to the relevant departments as soon as possible. The relevant departments and farmers can prepare the goods as required, without worrying about the delay and broken of the goods.

4. Research on the Construction of Cold Chain Logistics System Based on the Perspective of Blockchain

4.1 The Current Status of My Country's Cold Chain Logistics Industry

my country's cold chain logistics industry has a history of more than ten years of development. After more than ten years of development, my country's cold chain logistics system has been gradually improved, and the cold chain logistics industry has gradually become a scale. Despite this, there are still many problems and deficiencies in my country's cold chain logistics industry. For example, cold chain logistics has high transportation costs and low transportation efficiency. Cold chain logistics has too much loss during transportation. Due to the large loss, it cannot be recognized by consumers, which ultimately leads to conflicts between businesses and consumers.

4.2 Assumptions of Cold Chain Logistics System Construction Based on the Perspective of Blockchain

Many problems in cold chain logistics are mostly caused by poor information, inability to communicate in time, and inability to share information. The emergence of blockchain just makes up for these problems of cold chain logistics. Cold chain logistics can take advantage of the information sharing in the blockchain to accurately and timely record every order and transaction of consumers, and then the data is transmitted to related departments or related companies through the database. After the related companies and departments get the information, they will prepare the goods as soon as possible. When the cold chain logistics transport truck arrives, the related departments or companies have already prepared the required goods. To ensure the freshness of the goods. After the cold chain logistics truck arrives at the designated location, the goods are placed in the refrigerated truck and directly transported to the designated cold storage. The cold storage has been docked with downstream enterprises. Downstream enterprises and merchants will transport the goods in the first time. Even if some merchants and enterprises are located far away, the goods will not be kept in cold storage for too long. When the merchant ships the frozen goods away, since the big data of the blockchain already knows the specific information and addresses of the relevant consumers, the merchant can contact the consumers as soon as possible and deliver the goods to the consumers. This greatly reduces the transportation and storage costs of cold chain logistics companies, while ensuring the freshness of the goods, and greatly reducing the conflicts between merchants and consumers.

4.3 The Construction Mode of Cold Chain Logistics System from the Perspective of Blockchain

With the rise of my country's blockchain, the seamless construction of blockchain and cold chain logistics is imperative. Blockchain provides technical support for cold chain logistics, greatly improving the efficiency of cold chain logistics and greatly reducing transportation costs. With the use of blockchain, the model of blockchain + cold chain logistics has been completed. This model not only maximizes the role of blockchain, but also enables the rapid development of cold chain logistics. The block chain + cold chain logistics model is actually an advanced supply chain combination, which can maximize economic benefits. The core of this model is cooperation and sharing. Since the previous supply chains were all low-level and extensive models, after years of development, the B2B2 model was gradually formed. Later, after years of development, the supply chain collaboration model we are familiar with appeared. There are more than 30 years history of this model, the core of this model is to take the enterprise as the dominant party of the model, initiate collaboration by the enterprise, and then convey the information to the relevant departments, and finally achieve seamless docking and dynamic management. However, due to the needs of the development of the times and the needs of people's lives, this model can no longer meet the needs of consumers and businesses. In this case, blockchain has emerged to make up for the shortcomings and deficiencies in cold chain logistics, meet the needs of the market. More importantly, the blockchain is a new technology that combines the Internet and finance, which can ensure consumer privacy and property security. In order to achieve the ultimate goal of security and transparency, mechanism sharing, information sharing, and management sharing, and ultimately the coordinated management of the supply chain, this is also the ultimate development goal of the cold chain logistics industry and the ultimate goal of the cooperative development of blockchain and cold chain logistics.

5. Discussion

In summary, the application of blockchain to the cold chain logistics industry is the need of the development of the times, the needs of the people's consumption, and the need of world integration. The application of blockchain in cold chain logistics is based on the shortcomings and shortcomings of cold chain logistics. The application of blockchain in cold chain logistics not only solves many problems in cold chain logistics, but also provides a new way for the future development of chain logistics.

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