

Research on Legal Issues of Food Safety Traceability System under Block Chain

-- A Case Study of Pork

Changqian Yuan

School of Law, Anhui University of Finance and Economics, Bengbu, Anhui 233030, China

1692141705@qq.com

Abstract

Blockchain technology is a disruptive technology. The food safety traceability system based on blockchain technology has obvious advantages such as cost reduction, efficiency improvement, openness and transparency compared with traditional food safety traceability systems. However, due to the short development time of blockchain technology, pork food safety under the Food safety traceability system under block chain model still faces challenges such as serious data information leakage, different testing and inspection standards, and unclear rights and responsibilities. In the face of these challenges, this article will specifically propose suggestions to improve relevant laws and regulations, clarify data classification, and unify inspection and testing standards, in order to provide references for promoting the traceability of pork food safety and quality.

Keywords

Pork; Food Safety; Blockchain Technology.

1. Introduction

Food is the basic material for the survival and development of human society, and pork is the most basic meat necessity on the Chinese table. In recent years, domestic pork safety incidents have occurred frequently, such as African swine fever, clenbuterol, zombie meat and other incidents, making my country's pork food safety face a very serious situation. On March 13, 2021, Xinhua News Agency released the "Fourteenth Five-Year Plan for National Economic and Social Development and the Outline of Long-Term Goals for 2035" to further improve my country's food safety regulatory system. While the state vigorously promotes the construction of food safety projects and strictly controls all aspects of food, it is also actively establishing a punitive compensation system in civil public interest litigation for food safety. However, the current construction of the pork food quality traceability system based on blockchain technology still has legal problems such as inconsistent standards, serious information leakage, and fuzzy division of responsibilities. Based on this, several suggestions will be put forward to improve the laws and regulations of my country's food safety traceability system.

2. Legal Regulations and Application Status

2.1. The Meaning and Characteristics of Blockchain

Blockchain technology, also known as distributed ledger technology, is essentially a distributed database in which blocks are connected in an orderly series through encryption and then stored. Blockchain can be divided into public blockchain, joint blockchain, and private blockchain. The blockchain system has a data layer, a network layer, a consensus layer, an incentive layer, a

contract layer, and an application layer. It has the characteristics of immutability, traceability, decentralization and anonymity, and is a disruptive technology in the current information field. Blockchain technology creatively builds a reliable cooperation mechanism, and at the same time lays the foundation for trust between people. Nowadays, with the rapid economic development, blockchain technology has gradually entered the public's field of vision and has become an important breakthrough for people to develop core technologies and thus independent innovation.

2.2. Food Safety Traceability System

The food safety traceability system is an institutional system that is conducive to the application history of agricultural products and sales channels to restore pork products in the entire production process. The safety traceability process of pork products is generally divided into two types: one is the timeline tracking of the life cycle of pork products, including supervision from upstream to downstream links, to achieve integrated supervision. The second is the reverse timeline traceability system, that is, traceability from downstream to upstream links. The agricultural product safety traceability system is based on the system of information exchange, logistics inquiry and the implementation of safety responsibilities in stages. To a certain extent, it solves the problem of information exchange obstacles between the various links of pork products from production to transportation and consumption. In the first half of 2021, my country's food safety supervision system has been further improved. The state has issued a series of laws, regulations and inspection and testing standards, mainly revised and issued the "Food Safety Law", "Anti-Food Waste Law" and other laws, revised and issued 55 national food safety standards. It can be seen that our country pays more and more attention to food safety traceability, and strictly controls every link "from the field to the table".

2.3. The Current Status of the Safety Traceability System

At present, the blockchain has developed into the 3.0 era, expanding from the financial field to digital finance, Internet of Things, intelligent manufacturing, supply chain management, digital asset trading and other fields. In 2016, the State Food and Drug Administration issued the "Opinions of the General Administration on Promoting Food and Drug Manufacturers to Improve the Traceability System", which laid a theoretical foundation for the development of food traceability in China. To this end, the Chinese Academy of Agricultural Sciences organized relevant experts to propose a blockchain agricultural application technology action initiative, and took the agricultural product traceability blockchain as the primary development task. Press release of the first blockchain food safety and quality traceability summit forum on May 21, 2018 Will be held. On June 18, 2019, JD.com announced the development of the blockchain, claiming that more than 700 brands have been connected to JD's global blockchain quality traceability plan, and more than 50,000 products have been scanned by consumers to query traceability information. Already more than 13 to adjust the chain data. The 2021 "When Blockchain Meets the Internet of Things: Key Technologies to Ensure Food Safety in the 2020s" research report predicts that the global use of blockchain and the Internet of Things to track food will reach US\$300 billion by 2027.

3. Problems in "Blockchain + Food Safety Traceability "

3.1. Relevant Laws and Regulations of the Blockchain

At present, in the "blockchain + food safety traceability" system, the phenomenon of data tampering is not stopped after repeated prohibitions. The data for food safety information traceability can be divided into non-secret and non-sensitive data that can be disclosed, desensitization and desensitization can be disclosed, and confidentiality and sensitivity cannot be disclosed. Three kinds. The risk of data tampering comes from the following three aspects.

On the one hand, the concept of private information is vaguely defined. Because the blockchain has the characteristics of openness and transparency, the information of whether it is a business operator or an individual farmer will appear in the public's field of vision at a glance. However, the current Chinese law does not have very clear or even relevant legal provisions regarding the exchange and sharing of data information and the definition of the value of data information and the classification of information in the process of "blockchain + food safety traceability system". This will greatly increase the difficulty of data confidentiality, so that the possibility of information leakage will greatly increase. Second, in order to obtain high profits, cyber hackers illegally intruded into the data systems of merchants or administrative departments and changed the original program logic of the system, thereby obtaining a large amount of information for reselling, causing serious leakage of a large amount of data. On the other hand, the administrative staff who kept the data adopted internal methods or black-box operations, which resulted in a large amount of serious data leakage. However, due to the lag of laws and regulations, the failure to regulate related violations in time and improve the punishment mechanism resulted in very light punishments or even helplessness.

3.2. Different Testing Standards

The starting point for the development of my country's food industry is relatively late, resulting in poor operational risk assessment standards and resistance capabilities. So far, the conditions for the formulation of food standards are not mature enough, which restricts the formulation and effective implementation of my country's food safety standards. On the one hand, there are many existing standards related to pork food safety traceability in my country, for example, but there are contradictions in the standards formulated in many places. On the other hand, in recent years, my country's economy has developed rapidly, and people's requirements for pork consumption have become higher and higher. However, the changes in relevant laws and regulations take a certain amount of time, so the standards formulated have a certain lag. In addition, with the participation of blockchain technology, the development of pork inspection and inspection standards needs to be more refined and professional, and more manpower and time are needed to improve. Accordingly, my country's current pork inspection and testing standards are still different from international standards. Therefore, it cannot be well coordinated with the development of the pork safety traceability system supported by blockchain technology.

3.3. The Responsibilities of the Pork Food Safety Traceability System

As the main body of safety traceability, that is, various institutions responsible for safety inspection and testing of pork, there are many in my country, such as market supervision departments, customs, etc., but the responsibilities are relatively loose and the division of responsibilities is confused, which sometimes does not help. Instead, it seriously hinders the smooth development of work in the pork inspection process. There are three reasons. One is that these resources are scattered in several different departments. In our country, there are currently four categories of departments for retrospective supervision of food safety, namely the Market Supervision Administration, the Agricultural and Rural Administration, the Health Administration, and the Customs. These do not include some other small responsible departments. This leads to the decentralization of resources and directly increases the difficulty of coordination in the actual detection process. Second, there is a specialization in the technical industry, and most of the administrative staff have limited knowledge of blockchain technology, and their ability to collect information and save it is also limited. Third, from the production, processing and sales of pork, each link is assigned to different administrative departments. However, the coordination among various departments is unsatisfactory, there are divisional interests of departments, and lack of unity, which leads to scattered and messy pork

information collected, and lack of data integration and entry and management sharing and coordination mechanisms.

4. The Suggestions for Perfecting Legal Issues

4.1. Pay Attention to Prevent Data Information Leakage

4.1.1. Strengthen the Legal Protection of Information Privacy

The food safety traceability system will involve a lot of business and consumer information, plus the decentralized and distributed characteristics of blockchain technology itself. We need to establish a shared supervision platform among various participants, make provisions through relevant laws and regulations, give due notices to the merchants and customers of the food chain on the platform, and clarify the purpose of current information collection, and make sure that this data collection will only be used for this purpose. At the same time, the detailed application process of tracking related data can be recorded in the data record of the access platform of the blockchain.

4.1.2. Determination of Grade and Subject

After the laws and regulations are used to finely divide different levels of confidentiality, after determining the information that people at different levels know, the level of confidentiality must also be classified. This not only better protects consumers' right to know, and allows the public to understand every step of the entire food safety traceability system as much as possible, but also protects the data that has been obtained to the greatest extent, thereby preventing information data from being abused.

4.2. Improve Legislation and Unify Inspection Standards

The Fourth Plenary Session of the 19th Central Committee of the Party proposed: "Improve the legislative system and mechanism, adhere to scientific, democratic, and legal legislation, improve the legislative work pattern of party committee leadership, NPC leadership, government support, and participation of all parties, and simultaneous implementation of legislation, reform, abolition, and interpretation. Continuously improve the quality and efficiency of legislation." Close to the grassroots level, make legislation more in line with actual requirements. In the process of tracing food safety, a variety of data will be generated, but not all this information is suitable for publicity and display in front of the public. The consumer's right to know is of course very important, but it must be taken into consideration to protect relevant privacy information as much as possible. Otherwise, once the information is excessively released, a large amount of data may be abused, which will lead to the leakage of data in the entire food safety chain and cause immeasurable consequences. Therefore, the definition, screening, and classification of information in relevant laws and regulations should be increased to ensure that the protected privacy is as secure as it should be.

4.3. Improve the Access System and Clarify

Enter the information of the administrative staff of each link in the food safety traceability system, upload each link, especially the information of the inspection and testing personnel in the production and processing links, such as name, age, telephone number, main address, etc., better Someone is responsible for the implementation step by step, and the responsibilities are clearly delineated. Administrative personnel must focus on solving practical problems at the grassroots level, insist on going from the masses to the masses, conduct in-depth investigations and researches, sum up practical experience, and improve the effectiveness of legislation. We must pay attention to listening to the opinions of the grassroots market supervision departments, especially the staff who are on the front line of the grassroots all the year round. Relevant legislative departments need to further refine existing regulations and make clearer

regulations or guiding regulations. Improve work efficiency, so that they can better establish a positive image among the people. At the same time, it is necessary to strengthen the implementation of the principles of unanimity of power and responsibility and administrative openness, so that "power must have responsibilities, and power is locked in the cage of the system." The immutability of blockchain technology can urge them to legally produce and operate, and ensure quality assurance. Quantity, win the market with quality.

5. Conclusion

Food safety issues are not only related to the "one meal" on the people's table, but also related to the harmony and stability of the entire society, and even the prosperity and development of the entire country and nation. With the advent of the Internet of Things era, a series of disruptive information technologies such as blockchain and cloud computing will be widely used in various fields. In the face of many problems in the field of food safety in our country, we must stand from a strategic point of view and put forward constructive suggestions to deal with related problems. Conscientiously implement the spirit of General Secretary Jinping's important instructions on market supervision, accurately grasp the new situation, tasks and requirements of market supervision, in-depth understanding, and resolutely implement the major deployment of market supervision work by the Fourth Plenary Session of the 19th Central Committee of the Communist Party of China and the Central Economic Work Conference, Closely focus on the key tasks of market supervision in 2020, make overall plans, and truly and effectively ensure the food safety of the Chinese people in every link from "field to table", and build a food safety power!

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