Research on the Application of Computer Technology in Food Safety Traceability System

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Abstract. At present, food safety incidents occur from time to time, which reveals that the food safety traceability system has some outstanding problems and phenomena, such as low credibility of information transmission, large distortion in the process of information transmission and circulation. It is urgent to build an effective food safety traceability system. Based on this, this paper first analyses the value and role of food quality and safety traceability system, then studies the value and role of food quality and safety traceability system, and finally gives the specific utilization; of computer tech in food safety traceability system.

Keywords: Computer Tech, Food Safety, Traceability System

1. Introduction
With the continuous improvement of people's living standards, people's pursuit of food quality is also constantly improving, especially for food safety. At present, domestic food safety incidents occur from time to time, leading to a gradual lack of trust for domestic food safety. In this context, it is imperative to establish a safe and reliable food safety traceability system, which has become an important means to reshape the safety of domestic food industry [1]. However, most of the current food safety traceability systems have some outstanding problems and phenomena, such as low credibility of information transmission, large distortion in the process of information transmission and circulation, which lead to the difficulty of effective guarantee of reliable transmission of food safety information.

The organic integration of food safety traceability system and fast computer tech helps to strengthen the firmness and stability of food safety defense line. The utilization; of computer tech in food quality management represented by food safety has become an important direction in the development of food industry [2]. The food quality and safety traceability system based on computer information tech can realize the efficient management of food in several links as shown in Figure 1 below, and can effectively meet the requirements of safety and quality control, production record preservation, product tracking and traceability.

In addition, aiming at a series of prominent phenomena in the current food quality and safety problems, such as source pollution, lagging detection, lack of standards and management negligence, it is necessary to make full use of computer tech to effectively supervise and grasp the whole process, so as to minimize the probability of food safety incidents and make up for the loopholes in food safety
supervision. Because the management of food processing and manufacturing, transportation, sales and other links will produce a lot of data, only with the help of computer tech can we realize the rapid management of these data and information, so as to ensure the traceability of the management information system.

![Figure 1. Important influence links of food safety.](image)

In short, the establishment of food safety traceability system with the help of computer tech not only helps manufacturers and management organizations to effectively control all aspects of food, but also enables consumers to have a better understanding of the information of the whole link, so as to enhance consumer confidence and motivation. The relevant food quality and safety regulatory agencies in the face of food safety emergencies can find the root cause of the problem more quickly, so as to minimize the impact of food safety incidents. Therefore, it is of great practical value to study the utilization; of computer tech in food safety traceability system.

2. The value and function of food quality and safety traceability system

2.1. The value of food quality and safety traceability system
The construction of food safety traceability system can effectively record the traceability information of food production, circulation, sales and other links, realize food traceability anytime and anywhere, improve the quality and safety of food, and improve the level of food safety production. Strengthening the construction of food safety tech traceability system is of great value for enhancing the sense of responsibility for food product quality and safety, realizing the communication and cooperation with departments of agriculture, quality inspection, health, commerce, food and drug supervision, unblocking the information channel of departments, establishing the cooperation law enforcement network of departments, realizing the linkage of departments and giving full play to the advantages of department cooperation.

In addition, the establishment of food quality and safety traceability system can effectively meet the needs of food safety work, and on this basis, it is gradually implemented to various food related processing enterprises, standardizing the food processing industry production represented by planting, breeding, aquaculture and slaughtering, so as to realize the whole process information tracking management of all purchased food [3]. Through the establishment of food quality and safety traceability system, the health standards of food industry can be effectively improved. For food processing enterprises, it not only helps to enhance the corporate image and product popularity, but also can increase the sales of enterprises, enhance the profits of enterprises, and enhance the control ability of quality and safety.

2.2. Connotation of food quality and safety traceability system
First of all, in the traceability level of food raw materials, with the help of the system, the traceability identification of food raw materials is taken as the main line, and the Internet of things tech is used to run through all links of production, circulation and consumption, and the main business and regulatory data of food are recorded and tracked in the whole process. Secondly, in the aspect of food safety traceability, based on the information transmission tool of food traceability code and in the form of food traceability label, the whole process monitoring of food and its raw materials is realized, and the
food traceability information is sorted out, analyzed, evaluated and warned, so as to further improve the food safety supervision system and ensure the food health and safety of consumers.

2.3. **Function of food quality and safety traceability system**

Through the construction of food quality and safety traceability system, we can coordinate all aspects of resources in the food industry, realize the systematic management of food industry safety traceability, and on this basis, provide the food industry enterprises with convenient and low-cost information management and transaction integrated service platform. For the majority of food enterprises, with the help of the system can provide the corresponding production and operation needs, with the construction and use of relevant systems [4]. For the food industry, the system can provide comprehensive solutions for the realization of government regulatory objectives and business needs. For the relevant government food safety regulatory agencies, this issue is helpful to provide policy support, aggregate social resources and promote the upgrading of food industry.

3. **The function of computer tech in food safety traceability system**

3.1. **The necessity of computer tech utilization:**

First of all, the government food regulatory agencies have an urgent need for the construction of food safety traceability system. The construction of computer traceability system objectively reengineers the process of industrialization of food industry and informatization of management system for all links of food production and circulation. Secondly, for the utilization; of production control and customer management in food industry, with the help of computer tech, it is easy to realize the management functions of food enterprise content such as ERP and CRM. In addition, at the level of e-settlement management of logistics distribution, information management of product circulation system with the help of computer tech can provide e-commerce with management means such as logistics distribution and electronic settlement payment, as shown in Figure 2 below.

![Figure 2. Relationship among the parties involved.](image)

3.2. **The value of computer tech utilization:**

First of all, for food industry enterprises, the construction of food safety traceability system based on computer tech can not only enhance the brand image and value of food enterprises, but also provide practical possibility for the overall solution mobility [5]. The construction of agricultural products traceability utilization; hosting service platform for food industry enterprises helps to provide reference templates and standards for food standardization and data management. Secondly, for the whole society, the construction of food safety traceability system based on computer tech is conducive to improving the ability of food quality control, improving the level of food quality and safety supervision, promoting the circulation and export trade of food products, and standardizing food inspection. For consumers, the use of computer tech to build the system can make consumers have a new understanding of food safety, from a scientific perspective to examine and evaluate food safety,
strengthen the awareness of self-protection, so that consumers can safely buy safe food, improve the level of food safety.

4. Utilization; of computer tech in food safety traceability system

4.1. Architecture of food safety traceability system based on computer

The computer-based food safety traceability system mainly includes intelligent agricultural supervision, food safety traceability management system and e-commerce platform [6]. The business scenario of food safety tracking and traceability mainly includes food processing, food transportation, preservation and storage, sales and other processes and links. The traceability information transmission process is shown in Figure 3 below. In the process of food safety system construction, multi-level traceability system architecture is adopted. According to the latest standards of the industry, improve the quality of food products and services, have a complete standardization work guarantee system from top to bottom, and perfect technical standard system to ensure the smooth implementation of the project. In addition, the mobile intelligent identification tech as the solution of food production information collection, easy to operate, high degree of integration, so as to realize the utilization; of information tech in food industry represented by Internet of things and mobile e-commerce.

![Figure 3. Traceability information transmission process.](image)

4.2. Food safety traceability process

By using RFID electronic tag, two-dimensional bar code, wireless sensor and network transmission, video monitoring tech, etc., the whole process of food information transparency is realized. Consumers can view the food history information through the network, so as to effectively supervise the standardized operation of food intermediate processing link. In addition, with the help of computer tech, the production environment of food standardization production area can be effectively monitored. Once it is found that the food safety exceeds the standard, it will be recorded to the system immediately, and the alarm will be sent out, and the information obtained will be recorded at the same time.

Through real-time monitoring, the transportation environment in the field of food circulation can be monitored all day and all day. With the help of the backstage of the traceability system, the collection and confirmation of food vehicles and temperature information in the circulation field can realize transparent management. With the help of portable terminal, all information in the process of food transportation can be collected and confirmed to avoid disputes. In the field of circulation, if the environment temperature exceeds the standard or exceeds the time limit, the system background will send out an alarm in time, and the system background will generate various reports for users to analyze and manage.
4.3. *Optimization and development of food safety traceability system*

Through the comprehensive collection of food information, the transparency of food supply chain can be realized, and each link can be measured and supervised. Secondly, with the help of supply chain process control and optimization, reduce the cost of food industry and standardize the development of the industry. In addition, accurate and efficient data, clear food circulation and all aspects of the work, the implementation of effective evaluation and supervision, and ultimately achieve a standardized and safe food supply chain. Standardizing regulatory process, risk monitoring and assessment, and collaborative emergency response provide effective help for sustainable development of food industry.

5. Conclusion

In summary, the effective utilization; of computer tech in the construction of food safety traceability system helps manufacturers and management organizations to effectively control all aspects of food, and can promote consumers' awareness of the whole link of information, and build a perfect food industry safety standards and norms. This paper studies the value and function of food quality and safety traceability system, and analyzes the value and function of food quality and safety traceability system. Through the analysis of the role of computer tech in food safety traceability system, the necessity and value of computer tech utilization; were studied. Through the research on the utilization; of computer tech in food safety traceability system, the specific process of food safety traceability was analyzed.

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