Exploration on the Application of Big Data in Food Production Safety Supervision

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Abstract: The guarantee of food safety has the characteristics of systematization and complexity. All the links need to pay attention to quality, including production, circulation, and so on. In the era of big data background, food safety supervision has changed significantly, strengthened the use of information technology, and promoted the quality of food supervision and management. From the perspective of food production safety supervision, this paper analyzes the application value of big data technology and puts forward specific application strategies, aiming to carry out high-quality food production safety supervision work, accumulate experience for subsequent food safety assurance, and provide reference for safety supervision work optimization.

Keywords: Big data; Food production; Safety regulation

1. Introduction

Food safety is closely related to people's well-being. In order to ensure the safety of people's lives, it is necessary to pay attention to the development of food safety supervision and follow the bottom line of food safety [1]. With the advent of the era of big data and the continuous development of information technology, it can be infiltrated into the food safety supervision work, improve the intelligent and modern level of food production safety supervision, and point out the right direction for subsequent supervision and management work. With the rapid development of society and economy, big data technology is widely used in the field of food safety and has been widely valued by government departments [2]. Due to the abundance of food data, the supervision of food production safety can play the role of big data technology, improve the effectiveness of supervision, and play a good technical support role.

2. The application value of big data in food production safety supervision

In the supervision of food production safety, the use of big data technology shows the characteristics of large data

scale, multiple data types, and good data value [3]. Professionals can skillfully use big data technology to process food information, such as production and sales, so as to synchronize data and supervision, effectively extract data information, and provide information for the smooth development of supervision work. Based on this, food production safety supervision work has gradually transformed into intelligence and refinement, and the specific application value is as follows.

2.1. Integrating food safety data

Based on the help of big data technology, the risk of food production safety supervision link breaks the bondage of personal subjective judgment, mainly combined with food production link testing, data processing, etc., to carry out a comprehensive comparison. For example, the clenbuterol problem in the catering market, the food supervision department needs to combine event information and data to carry out effective identification activities and clarify the production direction of clenbuterol, to carry out targeted monitoring and management activities. In addition, professionals can use big data technology to break the previous data sampling problems, carry out reasonable supervision in the face of food transportation, sales and other links of data, effectively save and analyze the food safety risks of different links, and judge the food production safety risks faced by different regions [4].

2.2. Improving safety supervision capabilities

In the face of food production safety supervision, professionals can use big data technology to continuously mine food data, effectively process data, improve the production process, scientifically manage food classification activities, identify food production risks in a timely manner, and provide countermeasures for regulatory authorities. Big data technology has an analytical role, which can facilitate professionals to extract market consumption information, conduct in-depth analysis of food production trends, and clarify the law of food safety events [5]. In addition, food production safety supervision has professional characteristics. Professionals can use big data technology to harvest more safety risk content, improve the effectiveness of supervision, and clarify the probability and scope of food safety risks, so as to formulate timely measures to improve the quality of professional supervision work.

2.3. Strengthening public opinion management on safety

In the supervision of food production safety, the use of big data technology is of great value. Regulators can use data-based and information-based tools to build a comprehensive supervision mechanism and optimize different aspects, including prevention, control, and treatment [6]. Through the development of the whole chain supervision, food safety issues can be accurately and efficiently dealt with. At the same time, the release of transparent information can facilitate professionals to use big data technology, carry out scientific research work, regulate the behavior of food production enterprises, and require them to comply with laws and regulations, so that consumers can buy safe and healthy food. In addition, the use of big data in food production safety supervision can have a multi-faceted impact. First, big data technology can facilitate regulatory departments to carry out real-time supervision, effectively grasp social public opinion, and timely discover and respond to food safety problems of the public. The development of the above activities can effectively carry out food safety publicity work, so that the masses actively participate in food production safety supervision work. Second, the regulatory authorities can combine the results of big data to adjust and optimize the supervision strategy of food production safety, avoid the spread of bad public opinion, and make the food market more stable.

3. The application strategy of big data in food production safety supervision

3.1. Strengthen top-level design and improve supervision effect

China's food production safety smart supervision activities, its application practice has some problems, especially at the overall level [7]. From a specific point of view, the food supervision departments in different regions lack the construction of data information sharing mechanism [8]. Due to the intelligent supervision of food production safety and grasp its work basis, the policy needs to pay attention to the following aspects and carry out a good top-level design. First, pay attention to the convergence of multi-subject forces, build a national level food production safety supervision system, and carry out good overall planning work. Based on the guidance of the unified planning policy, food supervision departments in various regions need to pay attention to the optimization of food supervision work, point out the right direction for practice, effectively carry out intelligent supervision work, and reduce the waste of funds and human resources. Second, establish a unified food production supervision policy and clarify the data standards for smart supervision. With the help of top-level design, it can provide a reference and basis for the smooth development of smart supervision of food production, smoothly build smart food production supervision data, provide help for information exchange, and build a cross-regional information exchange platform. Through unified standards and requirements, food production supervision data can be collected, laying the foundation for subsequent intelligent supervision work, and promoting the construction of a national supervision mechanism to have a good data support effect. Third, the food production supervision database in different regions can be combined to carry out intelligent evaluation activities, play the role of big data technology, and carry out resource integration work. And all kinds of food safety supervision information can be centralized, thus promoting the sharing of regulatory data and effectively exerting the value of the current regulatory database. Fourthly, the government needs to play a supporting role to provide support for the intelligent supervision of food production safety in various regions, and rationally allocate policies and funds to effectively narrow the regulatory information gap in different regions and improve the quality of food production safety supervision.

3.2. Make good use of big data technology to optimize risk early warning

Starting from the supervision of food production safety, big data technology has played an important role in effectively adjusting the early warning work of food safety risks [9]. Professionals can use big data technology to carry out real-time monitoring, analyze food production safety data, identify possible food safety problems, improve decision-making guarantees for the smooth development of supervision, and avoid the emergence of food safety problems. Food safety risk early warning work can provide a guarantee for food production safety, so that teachers can carry out timely monitoring work, clearly identify food safety risks in a timely manner, and take scientific and reasonable countermeasures to avoid the emergence of food safety accidents [10]. Among them, the integration of big data technology can optimize the food safety risk early warning work and effectively play its technical role. From the perspective of traditional food safety supervision, it mainly relies on manual sampling and statistical analysis, but the food industry chain is complicated and huge, and it is difficult to deal with diversified data in the traditional mode. However, through the use of big data technology, the data can be processed and analyzed efficiently, so that the food safety risk warning activities have the characteristics of accuracy and timeliness [11].

In addition, professionals use big data technology to skillfully use the early warning system, integrate the construction of multi-level models and algorithms, and carry out diversified risk assessment activities [12]. For example, professionals can build a good early warning model based on real-time data and a knowledge graph,

accurately and effectively analyze potential risks, and reduce the problem of false positives and missed positives. Food safety risk early warning of big data technology has good advantages, but the specific application process faces challenges such as data quality, privacy, and technology updates. Based on this, professionals can carry out continuous optimization, carry out data collection work, and with the help of pre-processing and analysis activities, carry out data sharing, improve safety policies, promote the use of big data technology, and carry out good risk early warning activities [13]. In the process of using specific big data technology, in order to improve the early warning effect of food safety risks, professionals need to carry out real-time monitoring, data analysis and other activities, play the role of big data, effectively improve the effect of food safety supervision, mitigate the possibility of risk, accelerate enterprise optimization, and build a safe and transparent food market atmosphere.

3.3. Optimize the regulatory environment and carry out comprehensive management

In the current era, the development and dissemination of the concept of collaborative education has been valued by the government, and relevant policy documents have been issued. In order to effectively realize the transformation of social governance, it is necessary to actively absorb external forces, carry out scientific social management activities, effectively enhance the enthusiasm of all subjects to participate in social governance activities, carry out good social governance activities, and promote the transformation of intelligent food supervision. To develop from the perspective of pluralistic co-governance. However, food production intelligent supervision activities, belong to a new management method, most people do not know enough about the relevant content, the understanding of food safety intelligent supervision is insufficient, the government plays a leading role, can be for professional personnel, carry out special skills training, assessment, and effectively improve the use of food production safety supervision equipment [14]. Through the development of regular activities, teachers can be helped to familiarize themselves with the functions of supervision equipment and software, and effectively apply them to supervision activities, and effectively improve the level of production management. In the food safety supervision activities, the public plays the role of participants, while the food supervision departments need to pay attention to the development of publicity activities, skillfully use various ways, such as the Internet, television, and periodicals, popularize the knowledge of food production supervision, improve the quality of the masses. At the same time, the government and enterprises can carry out social activities to make food production safety the theme, to help the masses intuitively understand the significance of food safety supervision. By expanding the channels for the masses to participate, they can actively integrate into the safety supervision work, enhance their self-confidence and enthusiasm, and provide help for the comprehensive management of food production safety. From the perspective of food enterprises, enterprises play the role of corporate responsibility. In order to effectively supervise food production safety, it is not only necessary to strengthen the awareness of the main responsibility, promote enterprises to fulfill their responsibilities, and carry out good production and operation work. In addition, it can also use the improvement of incentive measures to enhance the enthusiasm of professionals and the masses, effectively carry out food safety co-governance activities, provide security for food production activities, promote the formation of an intelligent supervision system, carry out diversified governance, and promote the construction of a comprehensive governance pattern.

3.4. Strengthen personnel training and innovate big data technology

In the supervision process of food production safety, the ability of supervisors directly affects the effectiveness of supervision [15]. In this regard, in order to effectively carry out production safety supervision work, it is necessary

to pay attention to the innovation of personnel supervision concept, carry out good guidance activities through advanced supervision ideas, and successfully carry out food safety supervision behavior, which can be started from the following perspectives.

First, pay attention to the optimization of traditional supervision activities, towards the development of digital supervision. In the past food production safety supervision, often need to rely on manpower to carry out supervision work, under the background of the current era, through the use of big data technology, can improve the intelligent level of supervision work, strengthen the use of modern science and technology, good digital supervision, big data as the basis, optimize the working ideas of professionals, and effectively improve the effectiveness of supervision. Second, to promote the transformation of supervision methods, the development of preventive supervision is needed. In the current era, food production safety is a basic livelihood issue. After the emergence of related problems, the regulatory authorities carry out accountability supervision passively, and the punishment carried out after the fact, it is difficult to fundamentally solve the food safety problem. Based on this, the regulatory department can carry out preventive supervision, effectively reduce the occurrence of damage, and truly keep pace with the times. Third, to promote the development of multi-angle supervision. For a long time, the government has played the role of the main body of food safety supervision, and specific regulatory practices are prone to some problems, such as poor regulatory effect and insufficient supervision. With the emergence of regulatory problems, regulatory departments need to change the concept of food supervision and form a diversified concept of food supervision, so as to effectively exert the value of smart supervision. Effectively improve the effectiveness of supervision.

4. Conclusion

To sum up, in the food safety supervision work, the supervision department can use big data technology innovatively, grasp the influence of various factors, carry out real-time and dynamic supervision work, so that the supervision has a higher depth, effectively reduce the work pressure of professionals, ensure the development of production supervision work, and ensure the safety of food production. Specifically speaking, the regulatory authorities can point out the direction for the supervision of smart production by strengthening the top-level design, optimizing the regulatory environment, and focusing on the training of professional talents, to have a good technical support effect. By promoting the innovation concept among professionals, the industry can meet the needs of production safety supervision, clarify the channels for public participation, create a good regulatory environment, and promote the smart transformation of food safety governance.

Disclosure statement

The author declares no conflict of interest.

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