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Research on the application of market supervision and management information technology in the new era

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Abstract

In the wave of the new era, the market supervision and management system is undergoing unprecedented changes. Information technology provides efficient and accurate data processing means for market supervision and management, and greatly improves the transparency of supervision and public participation. This paper aims to analyze the problems existing in the traditional market regulation, and further explore the significance and application of information technology in market regulation, in order to provide theoretical support and practical guidance for the construction of a more scientific and efficient market regulation system.

Keywords: New era; Market supervision and management; Information technology; application.

With the increasing complexity of the market environment, the introduction of information technology can improve the efficiency and accuracy of market supervision and management, and play an important role in data collection, analysis, early warning and decision support, laying a solid foundation for building a more fair, transparent and efficient market environment.

1| Problems in traditional market regulation

1.1| The disunity of traditional market supervision system

At present, most of the collection methods of market supervision data rely on manual operation, which is not only inefficient, but also difficult to ensure the comprehensiveness and accuracy of the data. With the increase of the number of market supervision and law enforcement personnel, this growth did not match the actual needs of social and economic development, resulting in the lag of infrastructure construction and unable to effectively support the in-depth development of market supervision. In addition, the overall education level of inspectors needs to be improved, which has also become one of the key factors restricting the improvement of market supervision efficiency. These factors work together to make the acquisition of market data face many challenges, such as the difficulty in obtaining accurate, comprehensive, timely and large amounts of data, so as to fully expose the deep-seated problems existing in the traditional market supervision system.[1]

1.2 | Inconsistency of information transmission in traditional market regulation

Field investigation reveals that many enterprises are still mired in the mire of traditional operation mode, their business application systems are complex, and the data are highly fragmented, which undoubtedly sets many obstacles for the integration and utilization of information. Furthermore, the current situation of the market regulatory body is not optimistic. The diversity of market supervision functions leads to the dispersion of supervision resources, which is difficult to form a joint force; At the same time, the lack of credibility weakens the authority and effectiveness of market regulation.

1.3 | Traditional market supervision lacks communication and analysis

The unscientific nature of decision-making often stems from the lag and lack of smooth information exchange, which hinders the smooth progress of regulatory work, and also leads to the repeated allocation of resources and the frequent occurrence of regulatory errors. Strengthening the instant communication and in-depth analysis between departments has become the key to enhance regulatory coordination. However, the current data collection system focuses too much on data collection, visual display and simple summary, ignoring the in-depth application of information processing technology and the refined analysis of data, weakening the support of data for scientific decision-making.[2]

2 | The significance of the application of information technology in market supervision

2.1 | Data collection and integration

Building a centralized market supervision data platform has become the key link to connect the data of various departments and regions. This platform can collect multi-dimensional market data such as enterprise operation dynamics, product quality feedback and market price fluctuation in real time, promote the barrier free circulation and sharing of information, and ensure the comprehensiveness and timeliness of data. Through the use of advanced data processing technology, the platform realizes the in-depth mining and comprehensive analysis of market data, and provides more accurate and scientific decision-making basis for the regulatory authorities.

2.2 | Risk assessment and early warning

With the help of cutting-edge technologies such as big data analysis and artificial intelligence,

market regulators can penetrate the fog of massive market data and accurately capture subtle changes in market dynamics. By building highly intelligent algorithm models, these technologies can effectively identify abnormal trading patterns, such as abnormal fluctuations in capital flow or sudden surge in trading frequency, and have a keen insight into potential illegal acts such as false publicity and price manipulation, so as to send early warning signals before the risks are fully revealed.[3]

2.3 | Supervision and law enforcement and anti fraud

In the modern market environment, the regulatory authorities rely on information tools, such as high-definition video monitoring system and UAV inspection technology, to achieve real-time and remote monitoring of market activities, which greatly improves the efficiency and accuracy of law enforcement. These technologies can not only quickly capture and locate potential illegal acts, but also deeply mine the abnormal patterns behind the data through intelligent analysis system, combined with big data analysis and complex model operation, and effectively warn potential fraud.[4]

2.4 | Openness, transparency and information sharing

Building an online query and publicity system has become a key measure to enhance market transparency. This system shows the credit rating of the enterprise in detail, deeply analyzes every detail of product quality testing, comprehensively records the illegal acts of the enterprise, and provides the public with a comprehensive and multi-dimensional information window. On this basis, consumers can make more rational consumption choices based on detailed data and effectively avoid potential market risks.

3 | Application strategy of market supervision and management information technology in the new era

3.1 | Focus on building intelligent supervision system

The construction of intelligent supervision system needs to comprehensively integrate and optimize the original business work, which is not only a simple comb of the existing process, but also a profound change in the supervision concept, technical means, resource allocation and other aspects. Through the comprehensive strengthening of data integration, we can realize the comprehensive convergence and in-depth mining of regulatory information, and provide a solid data foundation for smart regulation. On this basis, the grass-roots work platform should focus on the informatization and automation of daily regulatory work, and realize the real-time sharing and efficient collaboration of regulatory information through the Internet optimization platform, so as to ensure that regulatory work can quickly respond to market changes and accurately crack down on illegal acts. In software development, we should abandon the one-sided concept of "the more functions, the better", and instead pursue the practicability, compatibility and efficiency of

software. When selecting or developing software, the market supervision department should fully consider the actual needs of the work to avoid the waste of resources caused by functional redundancy and repeated development.[5] The software design should pay attention to comprehensiveness, systematicness and comprehensiveness, ensure that the functions cover all aspects of the supervision work, and improve the accuracy of the software, the accurate judgment ability of the data and the system carrying capacity. At the same time, as the core part of the intelligent supervision system, the construction of information and data processing center is crucial. By introducing advanced technologies such as big data analysis and artificial intelligence, high-quality processing and intelligent analysis of regulatory data can be achieved. On this basis, it is the key to improve the overall data operation effect and quality to build a database that meets the actual development needs of the current society and the requirements of regulatory work. The integrity, accuracy and timeliness of the data should be fully considered in the design of the database to ensure that the regulatory work can be based on accurate data for decision-making and deployment.[6]

3.2|Adopt the mode of "one center, three platforms" and integrate smart supervision platform

The key to the Informatization Transformation of market supervision and management is to build a strong market supervision big data center. As the cornerstone of smart supervision, the center has integrated and stored a large amount of market subject information, including but not limited to more than 2.36 million pieces of market subject registration information, more than 350000 pieces of annual report information, nearly 50000 pieces of credit information, more than 27000 pieces of special equipment information, more than 32000 pieces of administrative licensing information and more than 260000 pieces of label and grid information. These data cover the static basic information of market players, and also incorporate dynamic regulatory information to provide detailed data support for subsequent regulatory decisions. Through the application of big data technology, the value of these information can be deeply excavated, laying a solid foundation for smart market supervision. On the basis of "one center", the establishment of "three platforms" will further promote the upgrading and transformation of market supervision services. As the primary platform, the market supervision service platform realizes the deep integration of the original business functions of industry and commerce, food and drug, quality supervision and so on. This platform closely connects various business departments through a unified supervision interface, and realizes the comprehensive and integrated supervision of market players. On this platform, regulators can easily obtain the basic information, business status, credit status and other key data of market players, so as to achieve accurate portrait and risk early warning of market players. At the same time, the platform also supports data sharing and collaboration across departments and levels, effectively breaking down barriers between business lines and hierarchical departments, and improving regulatory efficiency and collaboration capabilities. In addition, the mobile law enforcement platform is another important innovation of market supervision informatization. Through the smart phone app, the on-site law enforcement personnel can obtain the detailed information of the regulatory object in

real time, conduct on-site law enforcement inspection and result feedback. This platform supports on-site evidence collection functions such as photographing and video recording, and also provides convenient case processing process and result entry functions, effectively improving the timeliness and accuracy of supervision. The social co governance micro service platform builds a bridge between the regulatory authorities and enterprises. The regulatory authorities can actively push all kinds of reminder notices such as license overdue reminder, list difference reminder, sampling inspection warning to enterprises, which helps enterprises timely understand their own business conditions and potential risks, and urges enterprises to strengthen the awareness of subject responsibility and actively perform the subject responsibility. In the comprehensive intelligent supervision platform, "labeling" plays a vital role as an innovative supervision mode. Tags are divided into attribute tags and regulatory tags. The former mainly reflects the basic situation and characteristics of enterprises, while the latter records the dynamic regulatory information status of enterprises. By "labeling" the market entities, the regulatory authorities can realize the classified supervision and panoramic portrait of the market entities, which helps the regulatory authorities to grasp the regulatory dynamics of the market entities in the region in real time.[7]

3.3 | Externally embedded into the government regulatory system

As the product of the deep integration of data and technology, the external embedding strategy has injected new vitality and possibility into the government regulatory system. The core of this strategy is to promote the transfer of government regulatory power to social subjects within a reasonable range through the wide application of digital technology, forming a new regulatory interaction mechanism between the government and social subjects. In many industries, as a bridge connecting the government and enterprises, the source of management power of industry associations often involves the common transfer of government and enterprises. However, if the industry association is the agent of a specific interest group, it may form a collusion of regulatory power by formulating industry rules and standards that are conducive to the established interest alliance, thus limiting the market access of new subjects and small and micro entities.[8] To solve this problem, we should build an industry informatization standard platform, open the process of rule making, and set up an interactive column for regulatory authorities to enhance the transparency of rule making. Furthermore, digital technology also empowers social subjects to safeguard their rights. In traditional market transactions, social individuals often choose to give up because of the high cost of administrative and legal rights protection, which leads to the damage of rights and interests but is difficult to get effective relief. The supervision platform formed by digital technology embedding, such as 12315 platform, realizes the direct contact between the supervision department and social individuals, and greatly reduces the cost of safeguarding rights. Through online complaints, intelligent customer service and other digital technology means, these platforms enable consumers to easily reflect problems and regulators to respond quickly, so as to effectively safeguard the legitimate rights and interests of consumers. In addition to the above two points, the external embedding of digital technology also promotes the awareness and ability of social subjects to independently safeguard their rights. Taking the

platforms such as public comment and black cat complaint network as examples, they have set up a comment mechanism through digital technology to visualize and automate the constraint effect of social credibility, so that businesses have to pay attention to the evaluation and feedback of consumers in the process of operation. This consumer led model not only improves the service quality of businesses, but also enhances consumers' awareness and ability to safeguard their rights.

Conclusion

To sum up, the practical application of market supervision and management information technology in the new era plays a vital role in improving the efficiency of market supervision and optimizing the market environment. With the help of the deep integration of big data, cloud computing, artificial intelligence and other cutting-edge technologies, we can realize the comprehensive, accurate and real-time monitoring of market data, and then greatly improve the intelligent degree and fine management level of market supervision and management. In the future, with the continuous innovation of technology and the continuous expansion of application fields, the application prospect of market supervision and management informatization will undoubtedly be broader, injecting new vitality and momentum into the innovation and development of market supervision.

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