

Innovation of Financial Supervision Model for Public Institutions in the Context of Informatization

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Abstract: Driven by the wave of digitalization, information technology has been deeply integrated into various fields of social and economic development, and the financial work environment of public institutions has undergone profound changes accordingly. The traditional financial supervision model is difficult to adapt to the regulatory needs of the new era. Taking the informatization background as the starting point, this paper analyzes the prominent problems existing in the current financial supervision model of public institutions, explores the innovative paths of the financial supervision model combined with the application advantages of information technology, aiming to provide theoretical reference and practical guidance for improving the efficiency of financial supervision of public institutions, strengthening the standardization of fund use, and ensuring the safety of public resources.

Keywords: Informatization; Public institutions; Financial supervision model

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1. Introduction

With the continuous advancement of the modernization of the national governance system and governance capacity, public institutions, as the core carriers of public service provision, the standardization and safety of their financial work have become increasingly important. Financial supervision, as a key means to regulate financial behaviors and prevent fund risks, occupies a core position in the management of public institutions. At present, information technology represented by big data, cloud computing, and artificial intelligence is developing rapidly, providing new opportunities for the reform of the financial supervision model of public institutions. However, problems such as lagging supervision, low efficiency, and insufficient collaboration in the traditional financial supervision model have become more prominent in the context of informatization, restricting the effective play of supervision functions^[1]. Therefore, based on the development trend of informatization, innovating the financial supervision model of public institutions, solving the dilemmas of traditional supervision, and improving the accuracy and effectiveness of supervision have become important issues to be solved urgently in the field of

financial management of public institutions. This paper will conduct in-depth discussions around this core issue.

2. Existing problems of the financial supervision model for public institutions

2.1. Lagging supervision concepts and cognitive biases

At present, the cognition of financial supervision in most public institutions still remains at the traditional level, and the supervision concepts have not kept up with the pace of informatization development, showing obvious lag and cognitive biases. Some institutions simply equate financial supervision with accounting review, believing that supervision work only needs to complete basic tasks such as voucher verification and account checking, ignoring the control value of supervision over the entire process and chain of fund use, and failing to fully recognize the extended functions of financial supervision in risk early warning and decision support under the background of informatization^[2]. At the same time, the management of some institutions does not attach sufficient importance to financial supervision, focusing too much on business development, believing that financial supervision will restrict the efficiency of business advancement, and having resistance to supervision work, resulting in the lack of necessary system support and resource guarantee for financial supervision work. In addition, supervisors themselves also have the problem of rigid concepts, being accustomed to relying on the traditional way of manual inspection, having low willingness to apply information-based supervision tools, and being difficult to adapt to the new requirements of supervision work under the background of informatization, which further exacerbates the disconnection between supervision concepts and practical development.

2.2. Imperfect supervision mechanisms and insufficient collaboration

There are many loopholes in the financial supervision mechanisms of public institutions, and the lack of collaborative linkage between internal departments and external regulatory subjects seriously affects supervision efficiency. In terms of internal supervision mechanisms, most institutions have not established a full-process and full-element supervision system. Supervision work is mostly concentrated on post-event inspection, lacking effective mechanisms for pre-judgment of fund use and in-process control, leading to supervision lagging behind business development and making it difficult to prevent risks in advance. At the same time, the division of internal supervision responsibilities is unclear, and there are overlapping or blank areas of supervision between financial departments and business departments. When problems arise, it is easy to shirk responsibility from each other, and it is impossible to form a supervision joint force. In terms of external collaborative supervision, there is a lack of effective information sharing mechanisms and collaborative linkage mechanisms between external regulatory subjects such as finance, audit, and discipline inspection and supervision. Each subject has inconsistent regulatory standards and non-interoperable regulatory data, leading to problems such as duplicate inspections and regulatory blind spots in regulatory work^[3]. In addition, the information transmission between public institutions and external regulatory subjects is not timely and smooth, and the problems fed back by external supervision are difficult to be rectified quickly, which further weakens the authority and effectiveness of supervision work.

2.3. Traditional supervision methods and insufficient technology application

Traditional financial supervision methods are mainly based on manual inspection, which is inefficient and inaccurate, and the application of information technology is seriously lagging behind, making it difficult to meet the needs of financial supervision work in the new era. In daily supervision work, supervisors need to spend a lot of time and energy sorting out and verifying paper vouchers, statements and other data, which is not only

inefficient but also prone to supervision loopholes due to human errors, making it impossible to timely detect hidden financial risks. At the same time, most public institutions have not built a complete information-based supervision platform. The existing financial systems mainly focus on accounting functions, lacking core modules such as supervision analysis and risk early warning, and cannot realize real-time monitoring and intelligent analysis of fund flow and financial data^[4]. Even if some institutions have introduced simple information-based tools, they have problems such as single function and poor data compatibility, which cannot realize the effective connection between financial data and business data, and it is difficult to accurately identify and control financial risks in the process of business development. In addition, supervisors have insufficient ability to apply information technology, lacking the mastery of technologies such as big data analysis and artificial intelligence, and cannot give full play to the advantages of information technology in supervision work, which further limits the upgrading and optimization of supervision methods.

3. Innovative paths of financial supervision model for public institutions in the context of informatization

3.1. Update supervision concepts and reshape supervision cognition

Based on the development trend of informatization, updating supervision concepts and reshaping supervision cognition is the premise of innovating the financial supervision model of public institutions. For instance:

- (1) Strengthen the management's attention to financial supervision. Through special training, policy promotion and other methods, guide the management to fully recognize the important significance of financial supervision under the background of informatization for standardizing financial management, preventing fund risks, and improving public service efficiency, abandon the wrong cognition of "valuing business over supervision", incorporate financial supervision work into the overall development plan of the institution, and provide system support and resource guarantee for the innovation of the supervision model;
- (2) Promote supervisors to establish a full-process supervision concept, break the limitations of traditional post-event supervision, strengthen the cognitive understanding of the full-chain supervision of fund use before, during and after the event, fully recognize the advantages of information technology in risk early warning and real-time monitoring, take the initiative to change the traditional thinking of relying on manual inspection, and enhance the willingness to apply information-based supervision tools^[5];
- (3) Establish a collaborative supervision concept, guide all departments to fully recognize that financial supervision is not the sole responsibility of the financial department, but a systematic work that requires the collaborative cooperation of all departments, strengthen the initiative and consciousness of all departments to participate in supervision, and lay an ideological foundation for building a collaborative and linked supervision system.

To further deepen the update of supervision concepts, public institutions can build an information-based supervision publicity platform, regularly push information-based supervision related knowledge and typical cases through internal office systems, official accounts and other channels, and create a good atmosphere of "everyone attaches importance to supervision and everyone participates in supervision"^[6]. At the same time, incorporate the effect of supervision concept update into the department performance appraisal system, commend and reward departments and individuals that actively practice the information-based supervision concept and cooperate with

supervision work, and interview and remind those with lagging concepts and resistance to supervision work. Through positive incentives and negative constraints, promote the supervision concept to be deeply rooted in the hearts of the people and provide ideological guarantee for the innovation of the supervision model.

3.2. Improve supervision mechanisms and strengthen collaborative linkage

Supported by information technology, improve supervision mechanisms, strengthen internal collaboration and external linkage, and build a full-process and all-round supervision system. In terms of improving internal supervision mechanisms, relying on the information-based platform, establish a full-process supervision mechanism of pre-judgment, in-process control and post-event inspection^[7]. Before the event, use big data analysis technology to predict the feasibility and rationality of fund use projects, accurately identify potential risk points, and formulate targeted prevention and control measures. During the event, use the information-based supervision platform to realize real-time monitoring of fund flow and financial data, and timely warn and intervene in abnormal situations such as exceeding the budget and irregular reimbursement. After the event, conduct a comprehensive inspection of the effect of fund use through the financial supervision system, forming a closed-loop supervision process of “pre-judgment-control- inspection-rectification”. At the same time, clarify the supervision responsibilities of financial departments and business departments, build an internal supervision collaboration module through the information-based platform, realize real-time sharing of supervision information and efficient flow of supervision tasks among all departments, avoid supervision overlap and gaps, and form an internal supervision joint force^[8].

In terms of the construction of external collaborative supervision mechanisms, promote the establishment of an information-based collaborative supervision platform between external regulatory subjects such as finance, audit, discipline inspection and supervision and public institutions, realizing unified regulatory standards and interconnection and sharing of data. Through platform docking, public institutions can timely submit financial data and business data to external regulatory subjects, and external regulatory subjects can obtain relevant information of public institutions in real time through the platform to carry out precise supervision and reduce duplicate inspections^[9]. At the same time, establish an external supervision information feedback mechanism. External regulatory subjects can timely feedback the problems found in supervision through the platform, and public institutions can track the rectification progress on the platform to ensure that the problems are rectified in place, forming a positive interaction between external supervision and internal rectification. In addition, explore the establishment of an inter-departmental joint supervision mechanism. For major fund use projects, finance, audit and other departments and public institutions jointly carry out information-based supervision to realize the integration of regulatory resources and improve the accuracy and authority of supervision.

3.3. Upgrade supervision methods and build an information-based supervision platform

Relying on information technologies such as big data, cloud computing and artificial intelligence, upgrading supervision methods and building a fully functional information-based supervision platform is the core support for innovating the financial supervision model. For instance:

- (1) Build an integrated information supervision platform, integrate data resources of existing financial systems, business systems, asset management systems, etc., realize the deep integration of financial data with business data and asset data, break data barriers, and provide data support for full-chain supervision. The platform should have core functions such as data collection, intelligent analysis, risk early warning,

supervision inspection and rectification tracking, and be able to realize real-time monitoring and intelligent analysis of the entire process of fund use^[10]. For example, use artificial intelligence technology to intelligently review reimbursement vouchers and automatically identify problems such as false vouchers and irregular reimbursement; use big data analysis technology to analyze fund flow trends and budget execution to accurately predict potential risks;

- (2) Promote the application of advanced information-based supervision tools to improve the intelligence level of supervision work. Introduce financial supervision software, data mining tools, etc., to realize the rapid processing and in-depth analysis of massive financial data and business data, replace the traditional manual inspection method, and improve supervision efficiency and accuracy^[11]. At the same time, explore the application of blockchain technology to encrypt and store financial data to ensure the authenticity, completeness and immutability of data, providing a reliable data basis for supervision work;
- (3) Build a mobile supervision platform to support supervisors to view financial data in real time, receive risk early warning information and carry out on-site inspections through mobile terminals, breaking the limitations of time and space and improving the flexibility and timeliness of supervision work.

In the process of building the information-based supervision platform, attention should be paid to data security guarantee, a sound data security management system should be established, data access rights should be clarified, and full-process security control over data collection, transmission, storage and use should be strengthened to prevent risks such as data leakage and tampering^[12]. At the same time, attention should be paid to the compatibility and scalability of the platform to ensure that the platform can adapt to the changes in the business development and supervision work of public institutions and realize continuous optimization and upgrading.

3.4. Strengthen team building and improve professional quality

Building a compound supervision team with solid financial professional knowledge and mastering advanced information technology is the talent guarantee for the innovation of the financial supervision model under the background of informatization as outlined:

- (1) Optimize the professional structure of the supervision team: Through open recruitment, internal selection and other methods, introduce compound talents with knowledge in multiple fields such as finance, informatization and risk management to enrich the supervision team. At the same time, strengthen the training of internal personnel and encourage existing supervisors to take the initiative to learn information-based knowledge and improve their technical application capabilities^[13];
- (2) Establish a systematic training system, formulate targeted training plans, and regularly organize supervisors to carry out training on information technology application, new supervision models, laws and regulations, etc.: The training method can adopt a combination of online and offline modes. For online mode, carry out regular learning through online courses and live lectures. For offline mode, organize practical exercises, case studies, exchange forums and other activities to improve the training effect. For example, invite information technology experts to carry out special training on big data analysis and artificial intelligence application, and organize supervisors to exchange and learn from units with remarkable informatization construction results to learn advanced experience^[14];
- (3) Establish and improve an incentive mechanism to stimulate the learning enthusiasm and innovation awareness of supervisors; Incorporate information technology application capabilities and supervision work results into the performance appraisal system, and give commendations, rewards and promotion

opportunities to outstanding performers to fully mobilize their work enthusiasm; Establish a fault-tolerance and error-correction mechanism to encourage supervisors to boldly explore new models and methods of information-based supervision, and create a working atmosphere of courage to innovate and break through^[15];

(4) Strengthen cooperation with universities and scientific research institutions, carry out industry-university-research collaborative education, provide continuous knowledge update and skill improvement support for the supervision team, and ensure that the professional quality of the supervision team can always meet the development needs of financial supervision work under the background of informatization.

4. Conclusion

The rapid development of information technology has provided new opportunities for the innovation of the financial supervision model of public institutions, and also put forward higher requirements for supervision work. The current problems such as lagging concepts, imperfect mechanisms, traditional methods and insufficient team quality in the financial supervision model of public institutions restrict the effective play of supervision functions. Based on the development trend of informatization, the innovative paths such as updating supervision concepts, improving supervision mechanisms, upgrading supervision methods and strengthening team building can effectively solve the dilemmas of traditional supervision and build a precise, efficient, collaborative and linked new financial supervision model. In the future, public institutions should continue to deepen the application of informatization in the field of financial supervision, continuously optimize and innovate the supervision model, improve supervision efficiency, and effectively give play to the important role of financial supervision in standardizing financial management, preventing fund risks, ensuring the safety of public resources and improving the quality of public services, so as to contribute to promoting the modernization of the national governance system and governance capacity.

Disclosure statement

The author declares no conflict of interest.

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