Anti-corruption research on "blockchain + national audit" under the background of big data

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Abstract: Under the background of big data, the application of blockchain information technology in national auditing, with its decentralization, transparent transaction mechanism and the advantages of data immutability, effectively solves the current dilemma faced in the national anti-corruption work[1], and with the help of blockchain information technology, it can also effectively break through the barriers between data, realize the efficient collaboration of anti-corruption work, and greatly improve the efficiency and quality of national anti-corruption work. Based on this, this paper analyzes the dilemma faced by national anti-corruption work in the context of big data, and then studies the "blockchain + national audit" anti-corruption under the background of big data.

1. Introduction

Under the background of big data, blockchain technology has been developed rapidly and comprehensively applied. The application of blockchain information technology to the distributed accounting system can not only realize the comprehensive sharing of accounting information, but also once the data is recorded, it cannot be modified again, thereby effectively ensuring the accuracy of the data, and ensuring the uniqueness of the source of data information. It can be seen that the working mode of "blockchain + national audit" under the background of big data can not only effectively solve the problems of data barriers and information blockage in traditional bookkeeping technology, but also have a positive impact on improving the efficiency and quality of national anti-corruption work. Therefore, strengthening the anti-corruption research of "blockchain + national audit" under the background of big data is of great significance to consolidate the victory of the anti-corruption struggle.

2. Formulation of Questions

The 18th CPC National Congress clearly stated that we must unswervingly oppose corruption and always maintain the political character of communists who are upright and clean. Through continuous efforts, the anti-corruption work has achieved obvious results, and the anti-corruption struggle has also achieved an overwhelming trend. In the process of implementing the anti-corruption work, the Government and the state have continuously optimized and improved the supervision system, and put forward directional guidance on the allocation of rights and operational constraints. State auditing is

an important part of the state supervision system and plays an extremely important role in socialist construction and development. Compared with the traditional repeated mechanism, national audit work has strong advantages in both professionalism and penetration. With the help of the work advantages of national auditing, anti-corruption work can be carried out in a targeted manner, and corruption clues can be pursued in real time, which not only has a positive impact on improving the efficiency and quality of national anti-corruption work, but also effectively provides an internal driving force for anti-corruption work.

Against the background of the new era, strictly administering the government is an important policy for China's development. However, with the wide application of information technology in various fields of society, many new types of corrupt behaviors have been derived, which are not only more changeable, but also highly hidden, which puts forward new challenges and new requirements for China's anti-corruption work. Therefore, it is imperative to deeply integrate modern information technology into the national anti-corruption work, and at the same time, through the integration of information technology and national auditing, we can better consolidate the results of the overwhelming victory in the anti-corruption struggle. In the new anti-corruption model of "blockchain + national audit", the use of blockchain technology timestamp, consensus mechanism, asymmetric encryption, smart contracts and other core technologies can make related services more open and transparent, which has a positive impact on strengthening the deterrent power of China's anti-corruption work. The current research on national audit pays more attention to the institutional synergy between the national audit itself and related systems, while there is less research on "system + technology", which restricts and affects the construction and improvement of the "blockchain + national audit" model to some extent. It can be seen that under the background of big data, whether "blockchain + national audit" anti-corruption can better complete the anti-corruption work has become an important research topic at present.

3. The Dilemma Faced by the National Anti-Corruption Work in the Context of Big Data

3.1. Data and Information Barriers Hinder Anti-Corruption Collaboration and Affect Work Efficiency

At present, affected by the regional economy and the degree of informatization construction, there are great differences in different regions and different departments in many aspects such as informatization construction and the application of informatization technology. Some advanced regions have taken the lead in completing the construction of informatization infrastructure, and have built a complete database for public officials, financial basic conditions and personal resumes, thereby improving the accuracy of relevant information; However, due to the influence of various factors such as work concepts and local economy in some regions, the collection and preservation of relevant information still adopt traditional working methods; This has led to huge differences in the construction of information systems in different regions of China, which in turn has led to the lack of unified management of relevant information, resulting in greater obstacles to national audit work and anti- corruption work. In addition, the lack of unified working standards and mechanisms between different supervision and management departments not only affects the efficiency of national anti-corruption work[1], but also greatly reduces the flexibility and mobility of anti-corruption work, and cannot effectively use big data for systematic analysis, which causes China's current anti-corruption work to be in a state of solitary struggle, which greatly affects the efficiency and quality of related work.

3.2. Information Asymmetry Leads to Hidden Corruption

With the continuous deepening of China's reform and opening up, the supervision system of China's laws and regulations has been comprehensively optimized and improved, the supervision of corruption problems has been continuously paid more attention, and the supervision and rectification of obvious corruption problems have achieved obvious results. However, based on the hidden corruption problem under the background of big data, information asymmetry is the key reason for the breeding of hidden corruption. The scarcity of information resources can easily lead to the occurrence of information monopoly. Some information monopolies will use scarce information resources to make profits, which induces a new type of information corruption, which is also called hidden corruption. Compared with explicit corruption, which is corrupt, hidden corruption is more concealed and evidence collection is more difficult. In addition, under the influence of information asymmetry, it will increase the difficulty of the work of relevant supervision and management departments, and it is impossible to make objective and accurate assessments.

3.3. Data Information Distortion Affects the Quality of Work

Information data is an important basis for national audit work and anti-corruption work, and the source of information and data is mainly provided by the national database, if the data information is distorted, it will not only affect the quality of work, but also affect the development of anti-corruption work. These data information will inevitably be interfered by human factors in the process of collection, sorting and transmission, which greatly affects the accuracy of data information. Moreover, the government department database lacks a close connection with reality, which makes the relevant data information distorted and data deviation, the database between different government departments also has data inconsistencies, and even some public officials "self-theft" tampering with data information, which will not only reduce the usable value of relevant data and information, but also affect the quality and efficiency of anti-corruption work.

4. "Blockchain + National Audit" Anti-Corruption Research in the Context of Big Data

Under the background of big data, promoting the construction of "blockchain + national audit" will not only help the comprehensive coverage of national audit, but also effectively solve the current dilemma of national audit and anti-corruption work, and build a more scientific and standardized audit management system, which has a positive impact on improving the efficiency and quality of relevant work.

4.1 Big Data Information Technology Ensures the Uniqueness of Data Information

The storage of relevant data information in blockchain technology mainly adopts timestamp technology, which can effectively ensure the uniqueness of data information, which not only helps to trace the origin of integrity information, but also provides convenient conditions for audit work and anti-corruption work. By building a "blockchain + national audit" working model, if new anti-corruption and anti-corruption information is generated, a new block will be built, and the data of the new block after completing the hash calculation is directly stored in the hash root of the block header. A closed whole will be formed between the newly constructed block and the original block in the blockchain, and if the data information is modified or deleted at will, it will affect the entire blockchain. At the same time, each block in the blockchain does not exist independently, different blocks will be linked in a certain order, and the relevant data has a low superposition, which is equivalent to adding a timestamp to each block, not only can record the transaction information in

detail, but also have a clear record of the time of the transaction, if you want to modify or delete the existing data information, you must carry out a hash tree for digital signature to complete. This technology not only ensures the uniqueness and accuracy of data information, but also provides important technical support for tracing the source of audit work and anti-corruption work, which has a positive impact on improving the efficiency and quality of anti-corruption work.

4.2 The Consensus Mechanism of Blockchain Technology Ensures the Security of Relevant Data

The application of blockchain technology in national audit and international anti-corruption work has greatly improved the authenticity and security of relevant data, and the transactions in the blockchain are realized by peer-to-peer transfer, and the data is a transfer process, and human intervention cannot be made. Therefore, the consensus mechanism of blockchain technology can ensure the security of relevant data and effectively solve the trust problem. During a transaction in a blockchain, each user is provided with a public and private key. Specifically, the main role of the public key is to be used for transactions and signatures in the process of user transactions; The private key, on the other hand, is used to sign and confirm encrypted digital transactions. In the actual transaction process, if a user uses the public key to send a digital signature to another user, the relevant information of the transaction can be accepted by the entire blockchain, and each authorized node in the entire blockchain will use a hash algorithm to calculate the transaction for the transaction, and after the calculation is completed, it will be stamped with a timestamp and broadcast to the whole network, and the "consensus" reached by each network node in the entire blockchain will be recorded in the blockchain[2]. It can be seen that the consensus mechanism in blockchain technology not only ensures that the relevant transaction information can be verified and confirmed, but also effectively avoids the occurrence of double payment problems, and the public transaction information can make the security of integrity data fully guaranteed. It plays a positive role in improving the efficiency of national auditing, ensuring the quality of national anti-corruption work, and enhancing the credibility of national anti-corruption.

4.3 Asymmetric Encryption Technology Protects Personal Privacy Information

The "blockchain + national audit" anti-corruption work model under the background of big data has the problem of infringing on personal privacy in the collection of information and data in the actual work process, so how to avoid infringing on personal privacy in anti-corruption work has become a problem that must be solved in the current "blockchain + national audit" anti-corruption work. According to the working mechanism of the blockchain can be divided into two types of public chain and private chain, of which the private chain can also be divided into pure private chain and alliance chain in detail, specifically the public chain is an open system, in the system each network node enjoys equal rights, all enjoy the right to obtain information, data information maintenance and so on. Compared with the public chain, the private chain has strong privacy, in which only specific nodes in the pure private chain enjoy the corresponding rights, and the remaining nodes can only have the right to read part of the data information, while the alliance chain can only obtain relevant rights through the nodes that pass the filtering rules. And the asymmetric encryption technology in blockchain technology public key and private key is in pairs, and will not appear separately, in which the user's private key is completely in their own hands, and the public key will be distributed to different network nodes, only after the user who holds the private key completes the signature, the public key user verifies, each network node can enjoy the corresponding rights. This not only effectively avoids the violation of user privacy, but also better completes the protection of user privacy information in the anti-corruption process.

5. Conclusions

National anti-corruption is an important task for national governance and national development. Under the background of big data, although modern information technology has brought great convenience to the life, work, and study of people in modern society, it is also easy to breed new types of hidden corruption. Therefore, in the face of new challenges, the fields involved in corruption governance are expanding and the work is becoming more complex, which puts forward new requirements and challenges for national anti-corruption governance and national auditing. This requires relevant workers to have a comprehensive understanding of new technologies, so as to strengthen the application of big data information technology in national anti-corruption governance, and build a more scientific and perfect "blockchain + national audit" working model.

References

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