Application research of financial management of People's armed police based on blockchain technology

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Abstract: Blockchain technology as an emerging technology, institutions and administrative units began to focus on its important role in financial management, in view of its distributed storage operation mechanism, changed the previous way of information confidentiality and sharing, improve the security of information. Armed police forces, financial management as the important work of the armed police forces, financial management activities using block chain technology, can effectively improve the safety and efficiency of financial management, to improve the safety of financial and economic activities for the police force, the armed police forces combined with blockchain technology, financial management for the armed police troops financial informatization implementation provides ideas and Suggestion.

1. Introduction to blockchain technology

On October 24, 2019, President Xi stressed the importance of block chain technology in the 18th group study of the Political Bureau of the CPC Central Committee, and put forward important instructions to accelerate the innovation and development of blockchain technology and industry.Understanding, promoting and deepening the blockchain technology is an important guarantee to improve the financial management level of the armed police force.

1.1 The meaning of blockchain

Blockchain is a kind of storing data in the corresponding blocks in time order, and connected to each block of a chain data structures, it is using the principle of cryptography encryption protection, so as to ensure financial data cannot be tampered with, storage, trading records decentralized, open and transparent a distributed database.[1]

The technology of blockchain includes consensus mechanism, distributed ledger, hash value, encryption algorithm (timestamp) and Intelligent contractt.At the same time, the programmable infrastructure of Intelligent contractts enables blockchain to handle complex transaction processing, such as triggers, conditions and business logic supporting applications, so that it can be applied to more fields and industries. [2]

1.2 Blockchain's internal technology

First, distributed ledgers.The idea of distribution is at the heart of blockchain, ensuring that every node updates and participates together.Distributed ledgers, which record transactions at various nodes in the blockchain network, can reduce the time and cost of a centralized ledger by adding timestamps and digital cryptographic signatures to the recording process.

Second, the consensus mechanism.Consensus mechanism Simply put, it is an algorithmic mechanism agreed upon by all participants in the blockchain community.Blockchain is a point-to-point network transaction transmission mode, and there may be a high network delay phenomenon in the transmission process. Each node receives information data at different times, and the sequential time of data calculated by an algorithm for the same transaction request within the same time period is called consensus [3].

Third, Intelligent contract.The concept of Intelligent contractts was first proposed by Nick Szabo

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in 1995.The essence of a Intelligent contractt is data programming, in the absence of a third party, to execute a trusted transaction, complete the execution protocol set up in the computer.Because of Intelligent contractts, blockchain can be applied to more industries.

2. The impact of blockchain technology on the financial management of the armed police

2.1 Opportunities of Blockchain Technology for Financial Management of the Armed Police

First, improve the quality of reports.The blockchain distributed shared ledger model makes it difficult to modify records that have already been generated, making fraud technically difficult to implement.Blockchain information technology in an ideal state is an independent operating system. Every business can synchronize to the financial information system at the time when it occurs. The connection between business activities and accounting activities can prevent fraudulent behaviors such as changing records or adding records after the event [4].The control and supervision under the blockchain is conducive to enhancing the reliability of financial data and reducing the risk of misstatement of financial statements.

Second, improve the confidentiality of financial information. The financial information confidentiality of the armed police is an important factor affecting the financial supervision efficiency of the armed police. At the same time, the loopholes of the financial information of the armed police make some criminals have opportunities to take advantage of it.Applying the blockchain technology to the financial supervision of the armed police, the financial information confidentiality of the armed police can be effectively improved.Blockchain combined encryption technology (key technology) is adopted.Data encryption technology has little influence on network service and openness, and is the preferred method to protect information safely transmitted through the network and prevent illegal users from intercepting information.The combination of private key and public key is more effective.And add firewall (Firewal1) to cross the network boundary information to filter, the purpose is to prevent external illegal user access, set up an electronic barrier for data transmission, conversion.

Third, effectively control financial information.First, optimize the financial information control system, improve the armed police financial supervision cycle coverage control.The distributed open ledger technology at the bottom of the blockchain can record all transactions or electronic behaviors over a period of time, which helps financial personnel to access financial data in real time without space restrictions, understand and grasp the financial performance of the unit in time, and conduct real-time evaluation.Second, improve the financial information control system to prevent fraud.Due to the current network structure characteristics, the armed police financial control management information system is not perfect, the information data safety and reliability to strengthen the addition of block chain technology can make up for the imperfect information control system, the timestamp of the function block chain technology and tamper-resistant features will record all information unit of economic activity, it is not only beneficial to financial personnel supervision of financial data, but also to its finances and budget analysis unit usage.

2.2 Challenges posed by blockchain technology to the financial management of the armed police

First, blockchain technology raises the technical requirements for data systems.Blockchain technology has greatly improved the efficiency of accounting systems, but this is based on having a good system.The traceability in blockchain technology moves the position of accounting work directly forward to the end of business occurrence, which requires the chain formed by the accounting information system inside the financial system and the external system to integrate the accounting resources of both sides with high quality and carry out efficient and accurate connection.At present, due to the lack of sufficient applications and markets, related software development is still quite difficult [4].At present, the military information processing platform construction and data standard system construction lag behind, there is no unified information processing platform in the processing of massive data of financial management operation process, so the task and pressure of collecting data, extracting information and analyzing suspicious points is huge.

Second, blockchain technology raises the technical requirements for financial personnel.The

application of blockchain technology is complex, and the specific operation involves a variety of disciplines, which is difficult for ordinary people to master in a short time.At the same time, the army lacks high-quality financial informatization talents, and the informatization level of financial personnel is generally not high. Therefore, there is great resistance to the full application of blockchain technology in the financial field, leading to a higher threshold for the application of blockchain technology into the practical financial application.Future financial work is more dependent on network and information technology, which requires higher comprehensive skills of financial personnel. Future financial personnel should not only be proficient in financial work, but also be proficient in information technology and network, and be all-round talents [5].

Third, financial management under blockchain technology faces issues of privacy and regulatory coordination.Decentralized mechanism brought by blockchain challenges people's cognition of authority and regulatory system [6].The mechanism of 51% of blockchain nodes being certified is theoretically self-governing without the need for traditional authoritative regulators.But generally speaking, compared with the "pure technology" of blockchain, relying on the "manual" means of regulatory agencies can not only check and manage the authenticity and reliability of information, but also generate direct communication between people and prompt risks and precautions.Under the blockchain technology, the data between branches is relatively transparent, but the confidentiality of the data requires that users be anonymous, and the retention of anonymity does not meet the requirements of the audit industry authentication. How to achieve the balance between privacy and supervision in the development of blockchain is also a key work.

3. Blockchain armed police financial management application concept

3.1 Application of blockchain technology in fund management

First, increase the speed of capital collection.Take local enterprises as an example, the ability of capital collection is a measure of whether an enterprise is excellent or not.According to the theory of information asymmetry, information transmission in enterprises is unbalanced and unequal.In the execution of capital budget, allocation plan, transaction record and other business, there will be inefficiency and information fault. As a result, a large amount of resources, human and material resources and financial resources have been wasted while the enterprise is dealing with these problems, which eventually leads to the problem of missing data and low degree of capital collection.To solve the same problem, the armed police force can use block chain technology to build a fund management sharing platform within the armed police force, and use the built fund sharing platform to carry out a series of information management and transactions, share data and issue allocation plans.

Second, the payment and settlement functions should be optimized.Through the point-to-point transaction, the two-way transaction can be completed quickly on the basis of the hashing algorithm, which can reduce the transaction cost of capital moving back and forth in the intermediaries, reduce the link of manual processing in the middle, simplify the steps and improve the payment efficiency.At the same time, Intelligent contractts based on blockchain technology can realize paperless transactions, improve the execution rate of financial department's business and reduce the documentation work of financial department's business.

Third, the implementation of a comprehensive and whole-process monitoring of funds.Based on the tamper-proof feature of blockchain, the information cannot be modified once it is confirmed. It can be verified in a short time, which can ensure the transparency of transactions and avoid the moral hazard caused by manual operation.Blocks in the application of chain technology can change the past traditional way of regulation step by step, each level can be directly clear know the trading records, make the organs at higher levels can be directly to participate in the activities of armed police force assets, financial flows and other business regulation, achieve comprehensive, full and part-time regulatory capital and trade links, is responsible for monitoring the effect of together.

3.2 Application of blockchain technology in financial supervision

First, enhance the confidentiality of financial information.Blockchain technology relies on asymmetric encryption technology to keep financial information secret.Under the support of asymmetric encryption algorithm, each unit of the program setup has a public key and a private key two keys, match each other.A key is a public key that everyone can open. A private key is a password that only the people in the organization can open.As a result, the financial department in check and supervision of the financial information, the unit can be through the use of the financial department at all levels (object) to receive the public key to encrypt, when the flow of information to the financial department (object) to receive the end, the original unit's public key to encrypt immediately fails, then the financial department can use the private key to decrypt the financial information and data to, and the one and only the financial department with the private key, to other units without permission to contact and decrypt the transmit data and financial information.

Second, improve the efficiency of financial supervision.As the chain-like structure of blockchain storage is the information encrypted with time stamps, many tedious steps are reduced in the aspect of information verification and verification.The financial department mentioned above can access financial information through the private key. This new way has privacy and uniqueness, so it can also greatly reduce the links and pressure of financial supervision, and effectively improve the work efficiency of financial supervision.

Third, optimize financial information control.With the application of blockchain technology as the basis, financial information can be strongly controlled in the core link of distributed ledger, which has a great improvement compared with the previous financial information control ability.This is because after the application of blockchain technology in the field of accounting, distributed ledger is also a kind of digital ledger. This digital ledger has strong tamper-proof property. Therefore, this technology reflects strong control over information.The updating, checking and even data exchange of financial information is no longer the traditional way of recording. The data modification of digital ledger is taken charge of by the consensus mechanism of distributed ledger, which can accurately control the rights and data of financial information.

3.3 Application of blockchain technology in financial sharing

First, the necessity of the combination of blockchain technology and financial sharing.Based on blockchain technology, we can build a financial information sharing platform for the armed police force, which is similar to the internal reimbursement platform, business operation platform, capital budget platform and settlement platform of local enterprises.Financial business information can be shared through blockchain, and information feedback and transmission can be carried out according to the business.The financial department of the PAP may set up a comprehensive management platform to fully receive and grasp all the financial information transmitted by different platforms of each unit.According to the information, the financial department can implement comprehensive management, monitoring and review according to the financial situation of each unit, strengthen communication in financial management and improve operational efficiency.Building such a financial information sharing platform between the financial department of the People's Armed Police Force and all units can effectively carry out financial management, promote the development of the financial management of the People's Armed Police Force towards refinement and informatization, strengthen the integration of internal resources, and maximize the benefits of financial management.

Second, the analysis of blockchain and financial sharing technology architecture.One is professionalism, which requires professionals and high technology as the backing. The Intelligent contractt of blockchain is to directly convert the reliance on people into the program reliance on information and data.Second, technology, the use of Intelligent contractt contract execution to weaken the excessive reliance on high-tech;The third is the efficiency. The efficient operation of each department, while the decentralization of blockchain does not need to pass instructions step by step, which meets the requirements of financial sharing efficiency.The transparency of the blockchain reduces the processing time of the business, and at the same time strengthens the performance assessment. It can serve the related data shared by the financial sector at a high standard.Fourth,

security. Traceability and tamper-proof of blockchain make outstanding contributions to the security of financial sharing.Fifth, timeliness.Blockchain technology can help verify and trace financial information and data in a timely manner, the same principle.With the increasing cost of financial sharing, difficulty in control, operation and financial risks, financial sharing at the present stage can no longer meet its own development. It is necessary to continue reform and innovation, inject new technologies, and break through the development bottleneck of financial sharing at the present stage.

In the third.System architecture analysis of financial shared service center based on block chain. The connection between financial sharing center and branches is linked by four levels of blockchain, which are respectively: first, the data layer.The direct payment of fund management, the record of each payment and its details constitute the main content of the block body, in which the transaction record includes the version number of the transaction object, the number of transactions sent and received, the sending and receiving address of the transaction object, and the transaction timestamp. Each block is connected end to end based on the hash function to form the blockchain, which ensures that the data on the chain cannot be tampered with or forged, and achieves the traceability of transactions. The second is the network layer.The transmission mechanism ensures the timeliness and security of uploading and filing documents.The verification mechanism ensures the integrity and authenticity of the uploaded data.The third is the consensus layer.PoW consensus mechanism guarantees the consistency of data and the security of consensus by introducing force competition among distributed nodes.PoS consensus mechanism ensures decentralized and trusted operation of financial shared service centers introduced with blockchain technology.Fourth, the contract layer.Intelligent contractts ensure that all structured programs execute automatically according to the contract, and transform the trust in people into the trust in programs and codes, thus improving work efficiency and reducing labor costs.

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