Assessment Design of Digital Financial Sharing Service System on Account of Block Chain Technology

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Abstract. With the continuous development of finance, the financial department is gradually transformed from an efficient department to an inefficient one with high power. Blockchain technology is decentralized and data cannot be modified, which caters to the demand of financial sharing services and promotes the rapid professional application of blockchain technology. This paper introduces the financial sharing service system driven by information technology. This system further optimizes yonyou NC financial and supply chain system, and configura ORACLE Hypolon total Budget management system, Micro-ecologyoa and financial sharing service system. The built-in intelligent information processing model includes two: first, block SHA256 verification, mathematical model reference formula (1); Second, the new block to obtain accounting rights, mathematical model reference formula (2). The basic operation principle of financial shared service digital system based on block chain technology is to use formula (1) to SHA256 check the new block information; Then formula (2) is used to obtain new accounting rights for all new blocks that have passed verification. This paper studies the assessment design of digital financial sharing service system based on block chain technology, focuses on the principle of block chain technology, and expounds the relevant content of assessment design of digital financial sharing service system. In the data test, refer to Table 1 and Fig. 2 in Part 4 of the paper. The assessment design of digital financial sharing service system based on blockchain technology has a more efficient performance in the assessment design of digital financial sharing service system.

Keywords: Block Chain Technology · Financial Sharing · Service Digitization · System Assessment Design

1 Introduction

Financial shared service is a management thought change promoted by modern information technology and global economic integration. It has obvious effect in promoting standardized operation and standardized operation of enterprises. Facts prove that it is the best way to realize the transformation of financial functions so far. In the process of constructing the financial sharing service mode, J Group is faced with such problems as how

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to realize centralized accounting and information sharing, how to realize the integration of industry and finance and promote the play of management accounting function, and how to realize centralized management of funds without weakening the enthusiasm and flexibility of subsidiary companies. The assessment design of digital financial sharing service system based on block chain technology improves the assessment design level of digital financial sharing service system.

As for the research on blockchain technology, many scholars at home and abroad have carried out research on it. In foreign studies, HameedS proposed a scalable solution based on blockchain technology for key and trust management of iot devices in iot networks, and successfully carried out a proof of concept to prove the scalability of the solution [7]. GovindasamyC proposed a plan to use blockchain technology for smart inventory management in the cloud domain. Inventory management in the supply chain includes "multiple suppliers, one manufacturer, and multiple distributors". The proposed inventory management model takes into account some important costs, such as "transaction cost, inventory holding cost, shortage cost, transportation cost, time cost, setup cost, out-of-stock cost and quality improvement cost" [4]. MouradM proposes that blockchain is the technology that empowers these unheard of social forces and capital. However, blockchain will continue as an anti-system technology until the right fit is found within the system, until the status quo recognizes and embraces it. Crypto omics is a novel approach that brings those social challenges that systems have not solved into blockchain [11].

Fiscal integration through the industry relations with the group financial control study financial sharing "practice", is the key to fiscal integration, interaction between integration and sharing financial enterprises, in full accord, a business and financial integration is a new mode of financial control conclusion, enrich the theory of financial Shared services and group financial control research [3, 13]. The assessment design of digital financial sharing service system based on block chain technology makes the assessment design of digital financial sharing service system professional.

2 Design and Exploration of Financial Sharing Service Digital System Assessment on Account of Blockchain Technology

2.1 Blockchain Technology

Blockchain technology refers to a decentralized, "block" to "block" big data system where data is stored in a distributed way [5, 12]. Among them, the authenticity of the data in the process of trading, the proof of the unmodifiability and workload are processed by mathematical logic algorithm.

Blockchain algorithm has the mechanism of automatic operation of decision-making performance, but also a system to ensure the realization of decision-making. Traders' information is stored in software algorithms to ensure their rights [8, 9]. The characteristics of blockchain ensure the technical foundation for the widespread popularity of smart contracts in various application fields. Its concrete embodiment is shown in Fig. 1.

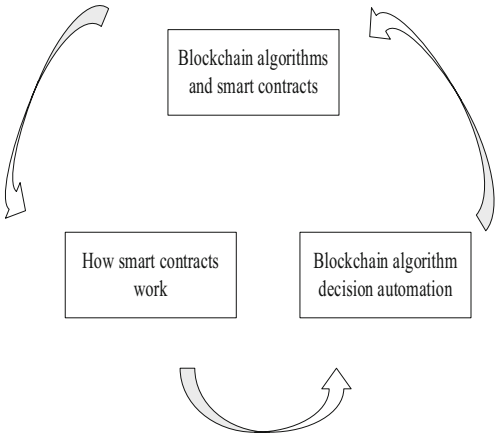

Fig. 1. Smart contract body the use of block chain technology

(I) Blockchain algorithm and smart contract

The system form of blockchain is distributed, so since it is distributed, there must be a distribution of many nodes, each node is a ledger. This node records its own accounts as well as those of other nodes. This system is consensual and guarantees the integrity of transaction records. In bitcoins, for example, blockchain technology can handle financial accounting itself. Users have no chance of regret. Accounting reconciliation and accounting synchronization are also part of the blockchain software.

(II) Operation mechanism of smart contract

A notable feature of smart contracts is that the rights and obligations of both parties can be expressed in code, relying on the blockchain system to keep the program running reasonably [14, 15]. First, smart contract is a form of intelligent transaction, which can remove many subjective factors in the process of contract performance and ensure smooth transaction. Second, blockchain technology promotes the success rate of transactions and reduces transaction costs. In this sense, smart contracts are different but better than contracts. Smart contracts can fully meet the requirements of all procedures of contracts, and at the same time improve the performance efficiency of contracts.

(III) Decision automation of blockchain algorithm

Blockchain algorithm decision automation is mainly reflected in Ethereum. Ethereum uses a complete processing language. It is mainly reflected in the use of the intelligence of the algorithm, instead of artificial calculation, algorithm system calculation. Blockchain technology can come up with perfect procedural solutions for common processing tasks. This technology uses multiple languages to jointly process, expanding the diversity of blockchain technology applications.

2.2 System Principle Analysis

1. Blockchain Compatibility

Financial sharing has some very special functions, that is, "efficiency of ordering", which is the goal of blockchain decentralization. Financial sharing "security" is the block chain "public and private key" can deal with the problem; The trust of data exchange is processed according to the algorithm and system to achieve the trust degree of financial sharing. Blockchain transactions are automated, achieving the purpose of "high efficiency" of the program [10, 16].

2. Analysis of the Shared Technical Architecture of Blockchain and Finance

The important characteristics of blockchain technology in financial sharing mainly include the following aspects. First, the financial assessment design of blockchain technology is professional. Blockchain technology is a high-tech approach, using smart contract technology in transactions, which is qualified for professionalism [2, 6]. Second, the financial assessment design of blockchain technology is effective. Financial sharing system to deal with financial data using intelligent software, intelligent processing of financial data, in dealing with financial problems in lower cost. Third, the financial assessment design of blockchain technology is efficient. Financial sharing system adopts blockchain technology, which has data sharing and decentralization, and has great advantages in the application of data sharing.

3 Research on the Assessment and Design Effect of Digital Financial Sharing Service System on Account of Blockchain Technology

3.1 Functional Structure

(1) Data layer. The financial sharing system supports the transaction system, the transaction segmentation, each transaction will be stored in the blockchain data format [1]. The transaction records stored include the copyright of the transaction software, the batch of the software, the amount of data received and sent, details of the transaction carrier, and transaction timestamps. Blockchain data are connected from head to end using Hash, which encrypts the data of blockchain and reflects the traceability of transactions.

(2) the network layer

The important mechanism of the network layer, the transmission mechanism, has carried on the timeliness and security processing to the data upload function; The automated validation mechanism ensures the authenticity and absence of data upload.

Layer (3) the consensus

PoW consensus mechanism can ensure the security performance of data values on nodes. The sharing mechanism combined with decentralization enables the trusted operation of the program.

(4) the contract layer

Smart contracts can make data run according to rules and automatically change the trust of people into the trust of software, which improves the efficiency of program operation and reduces operating costs.

3.2 Process Analysis

Financial node is a block that uses the financial sharing mechanism of blockchain technology to solve difficult problems. This block validates SHA256, searches for reasonable random numbers, and ensures that the SHA256 hash of the block header metadata is always within the set value range:

$$H(n||h) \leq t \tag{1}$$

Where, H represents the hash function of SHA256; N represents the random number Nonce in the financial node. H represents the block head data, which contains multiple contents, such as the former block hash, Merkle root, etc. T represents the difficulty target of financial node. When t value becomes smaller, n value becomes more difficult to find. When a node is acquired for the first time, it has the accounting right of the new block.

$$n = Rand(N_1, N_1, \ldots N_i), i = 1, 2, 3 \ldots m \tag{2}$$

$N_1, N_1, \ldots Ni$ represents the value object of n, randomly acquired; I represents the following small table, and M represents the number.

4 Investigation and Research Analysis of the Assessment Design of Digital Financial Sharing Service System on Account of Blockchain Technology

The automation of business and process driven by information technology is the key to build an excellent financial shared service center. Therefore, the financial sharing construction team of J Group attaches great importance to the selection of intermediary consultants and information system suppliers. After repeated screening and scheme comparison, Ernst & Young was finally selected as the intermediary consultant. On the basis of further optimizing the original YONyou NC financial and supply chain system, ORACLE Haibo Long comprehensive budget management system, Pan-Micro Ecology OA and financial shared service system were adopted. The whole financial sharing system was optimized under the guidance of Everyoung information system supplier.

The four items in the first item of Table 1 are mixed technology, Ring signature technique, Zero knowledge proof, Homomorphic encryption. Column 1: Whether to rely on a third party and whether to hide the transaction content Whether to hide the transaction address and protect Privacy protection performance. It can be seen from Table 1 that the assessment design of digital financial sharing service system based on block chain technology has little dependence on third parties, good performance in hiding transaction content and address, and 100% efficiency in privacy protection performance.

Table 1. Table of system performance data

	Mixing technology	Ring signature technique	Zero knowledge proof	Homomorphic encryption
Whether to rely on a third party	√	×	×	×
Whether to hide the transaction content	√	√	×	√
Whether to hide the transaction address	√	×	√	√
Privacy protection performance	√	√	√	√

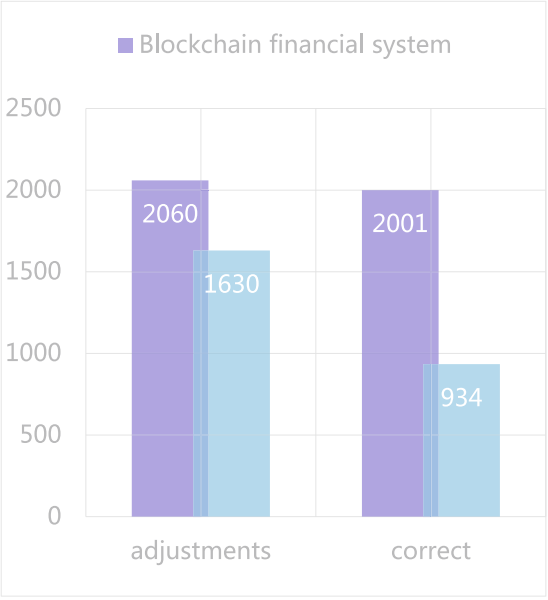

Fig. 2. Comparison of system performance data

As shown in Fig. 2, The data representation of two sets of systems, namely Blockchain Financial System and The Traditional System, is shown in the figure. Performance is divided into financial data adjustments and correct number of bytes per second. The number of bytes of financial data (adjustments per second) of Blockchain financial System and the traditional system is 2060 and 2001, respectively, the former is higher; Correct was more correct than correct. Combined with the above reference factors, Blockchain Financial System performed better.

The test shows that the assessment design of digital financial shared service system based on blockchain technology is more efficient and accurate in the field of assessment design of digital financial shared service system.

5 Conclusions

In the wake of the blossom of social economy, the field of financial sharing service is also changing dramatically. The financial system is no longer content merely to deal with ordinary, day-to-day financial problems. With the increasing complexity of financial problems, financial systems pay more attention to financial sharing services. Companies in China have long reached a consensus on financial issues: promoting financial sharing, promoting the standardization of financial processes, and improving the efficiency of financial operation. The assessment design of digital financial sharing service system based on block chain technology has excellent performance in the assessment design of digital financial sharing service system.

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