

Research on the Construction Path of Digital Audit

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Abstract: Audit informatization is an imperative revolution. Under the new social situation, in order to continuously improve the audit efficiency and audit quality, the construction of digital audit platform and its related credit system is particularly important. This paper mainly combines the current advanced digital technology with the specific process of audit work. This paper discusses how to construct the digital audit platform and the related credit system effectively to provide the development direction for the high quality development of audit work.

Keywords: Digital audit, Block chain, Period of big data.

1. Research Background and Significance

1.1. Research background

In the "12th Five-Year Plan" and "13th Five-Year Plan" of audit development, the National Audit Office proposed to strengthen the construction of audit informatization, and audit institutions should accelerate the construction of "digitization" and "informatization" of audit. So as to improve the efficiency of audit supervision, improve the efficiency of audit work. From this, we can also see that the national emphasis on digital audit work is increasing. In recent years, due to the popularity of Internet big data technology, both private enterprises and government units have gradually got rid of the traditional manual bookkeeping and applied the accounting information system to deal with accounting more conveniently and efficiently. At the same time, with the continuous segmentation of the market, With the continuous iteration and update of enterprise functions, the business of the enterprise is becoming more and more complex, so is the audit work. Traditional audit methods, data processing is slow and prone to error, audit tasks are heavy, audit strength is insufficient, so the construction of digital audit path, is also an important measure to adapt to the development of the current era.

1.2. Research significance

With the continuous progress and development of the society, the Internet, big data, artificial intelligence and blockchain technologies have become more and more mature, and the auditing methods have moved from the traditional paper-based stage to the new digital and intelligent stage. The big data technology and intelligent algorithm also show more and more absolute advantages in the accuracy of data mining and data deduction calculation. At the same time, studies show that the higher the degree of digital audit, the higher the efficiency of audit work and management level [1]. However, with the continuous digitization of audit work, we also need to pay attention to many problems, such as privacy disclosure, easy data tampering and system instability brought by digitization, which are a series of problems we will face in audit digitization. Therefore, the construction of digital audit path must establish reliable trust and management and supervision system to ensure the safety and accuracy of data in each link [2].

2. Literature Review

2.1. Research on digital audit technology, mode and application

Qiu Shuang and Pan Wei emphasized the application of the concept of "technology device potential" to digital audit, "technology" is the main method used in digital audit, mainly represented by computer technology, artificial intelligence, blockchain and other technologies. "Tool" is the container bearing technology, applied to the audit is the audit framework bearing high-tech technology. Audit work should accurately use technical tools to extract relevant data, form an enterprise database center, build an enterprise audit platform, build a flexible and efficient audit model, conform to the law of future development, follow the trend, and realize the value of the enterprise and the value of internal auditors. The trend of "trend" is the future development direction of digital audit. The three complement each other and connect organically, liberating people in the level of technology, mode and application, helping people realize the leap to higher value, realizing the further upgrade and iteration of digital audit, and thus empowering the development of enterprises.

2.2. Research on construction of digital audit system

Sprun and Cao Jiaying analyzed the digital audit work system into three levels in their paper on the construction path of the digital audit system in the post-epidemic era. The first level mainly analyzed the digital audit module system, which mainly included the operation module, management module and guarantee module [4]. The second layer analyzes the subsystem of each module, including forensics system, security subsystem, and so on seven subsystems. The third layer studies the business system, which is the most basic part of the digital audit. All levels work together, multi-party participation, according to certain norms to carry out the work, and then gradually realize the multi-party collaborative digital audit system, solve practical difficulties, improve audit efficiency and audit quality.

2.3. Construction of digital audit trust system

Digitalization and intellectualization are the inevitable choices for audit work to continuously improve work efficiency under the development of today's society. However, digitalization and intellectualization also have the

disadvantages of data easy to be tampered with. Aiming at this problem, Hou Benzong, Wang Wei et al. summarized the current application of blockchain technology in audit in the paper Construction and Application of digital audit trust system based on blockchain technology [5], summarized the necessity of application of blockchain technology in audit, and specifically introduced the typical scenarios of application of blockchain audit from three aspects: audit data collection, audit operations and audit management. At the same time, it puts forward the framework of audit credit system construction, and finally draws the conclusion that blockchain technology can play a predictable role in the construction of digital audit credit system.

3. Current Situation of Digital Audit

At present, Chinese government audit departments at all levels are making every effort to build a large audit information system that integrates data collection and analysis. To collect, process, analyze, share and verify massive financial data, a powerful information system is needed, and the construction of this platform is more complex and dynamic.

In recent years, cloud audit has been a big problem in our country. The state vigorously develops cloud audit to reduce human capital and implement regular audit supervision on enterprises more effectively. From July 2002 till now, our country through unremitting efforts, and success in the way of cloud audit and made significant research results "gold audit project" was born. The project will be built in three phases, with the central and local governments spending nearly 3.29 billion yuan. In the first phase of construction from 2002 to 2005, the central government invested 192 million yuan to solve equipment problems for the country and two centers "data center, exchange center" to meet the daily needs of the country's audit department, three systems "on-site audit implementation system (AO), networked audit system and audit management system (OA)". In the second phase of construction from 2008 to 2011, the central government invested 238 million yuan and the local government invested 500 million yuan to further solve the problem of national informatization unification, Internet security end, network audit + centralized management of data center. After the two phases of construction, the cloud client has been largely solved. Since 2016, the central government has invested 410 million yuan and the local government has invested 1.95 billion yuan, greatly improving the cloud audit capability, big data statistics, and cloud computing capability. So far, the state has preliminarily realized the normal supervision of economic audit, and effectively played the role of national audit governance.

4. Digital Audit Implementation Path

The digital audit is different from the computer audit we are familiar with. It mainly relies on the computer and the Internet as the means. At the same time, it uses big data technology and algorithm to replace the previous manual work, effectively solve the problem of "fewer people and heavy tasks" in the previous audit work, and improve the efficiency of the audit. The design of digital audit platform mainly consists of three systems, that is, data collection and transformation system, audit operation system and data security system.

4.1. Data collection and transformation system

The core of audit is to accurately audit the financial data of the audited entity. Therefore, the first step in the construction of the digital audit platform is to ensure that the audit department and the audited entity share and interwork data. Therefore, data collection and transformation is a part that we need to focus on.

This is also the most basic function of the digital audit platform. It should have strong adaptability, be able to support different data engines and data structures of different software brands, and be able to accurately and efficiently collect the data information of the auditee. Only in this way can the interworking of data be realized and the basic work of audit be completed. Now the digital audit platform applies the pre-data acquisition module, which is responsible for extracting, cleaning, converting and loading the data of the audited unit. After collecting the data, the audit data is converted. Using the data conversion engine, the visual definition of the data processing process can be provided and the SQL statement or programming language can be used for secondary development.

4.2. Audit the operating system

After data collection and transformation, the system will further integrate and arrange the transformed, cleared and verified data in a way that can improve the efficiency of audit analysis and realize the purpose of audit. In the process of data analysis, the basic intermediate table will be screened and arranged according to different objectives in our audit to form an analytical intermediate table. And then we're doing data analysis and computation.

4.3. Data security system

The data security guarantee system is mainly to manage the collected and converted data, which is an important system to manage and maintain the digital audit platform and ensure the normal operation of the digital audit system. The security guarantee system has two subsystems, one is internal, that is, starting from the software and hardware of the digital audit platform, the operation of the system software, hardware facilities and network equipment are inspected and maintained regularly to ensure the normal operation of the digital system. The other subsystem is mainly external, such as paying attention to the health of the network and dealing with the attacks of viruses such as hacker trojans.

5. Construction of Digital Audit Trust System

Due to the change of audit carrier in the digital economy environment, the problem of easy data tampering exists in centralized management. Therefore, multi-link reliable technology is established to ensure the smooth progress of digital audit. The continuous development and progress of blockchain technology has become a key technology conducive to promoting trust to solve this problem.

5.1. The reliability of the algorithm is provided

At present, blockchain technology has experienced the development from the programmable currency stage and programmable finance stage to the 3.0 stage of the programmable society stage. Smart contract technology has actually replaced the traditional contract mechanism, without the need for a third party to ensure the perfect operation of the

agreement, and built an efficient credit mechanism. Building a digital audit trust system based on blockchain technology can effectively solve the trust problem. The core of blockchain technology is algorithm, which is decentralized and involves hashing, asymmetric encryption and other algorithms. The reliability and tamper-proof of its data are guaranteed by algorithm. Whether it is data encryption algorithm, consensus algorithm or smart contract mechanism, they are all open, transparent and authoritative, providing a trusted foundation for blockchain applications.

5.2. Provide credibility

Blockchain technology can provide a unique digital account for each user on the chain. Users can execute operations by submitting blockchain transactions. At the same time, in the audit activities, each role user needs to sign his or her digital account. The identity of the user is confirmed by the public key and signature. Because the private key is unique, it can prevent others from impersonating, improving the credibility of the identity.

5.3. Provide data credibility

Blockchain technology is alliance oriented, and its technical characteristics such as decentralization, openness, tamper-proof and asymmetric encryption can effectively increase the transparency of data and improve the difficulty of data tampering. Blockchain Merkle tree is an efficient hash tree structure that can effectively verify whether part of the

data exists in the specified data set and is not tampered with. It can be very useful in auditing data verification and traceability.

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