Application Analysis of Intelligent Contract Based on Block Chain Technology in Labor Relations

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Abstract: As a new information technology to change the future, block chain technology has been widely used in many fields since its introduction. Block chain intelligent contract has the advantages of high efficiency and real-time update, accurate execution, decentralization, etc. However, the loopholes in the process of intelligent contract execution have brought great troubles to users and investors. Computers can replace manpower, machinery and equipment to conduct more complex digital asset transactions one day. Some day in the future, these automated procedures may replace some experts or institutions dealing with specific financial transactions. With its inherent properties, blockchain smart contract technology provides efficient and reliable technical support for multiple business partners, cross-border business development assistance and business collaborative development. The combination of smart contract and blockchain improves the automatic execution ability of the contract. This paper mainly analyzes the application characteristics and methods of intelligent contract based on blockchain technology in labor relations.

1. Introduction

In today's rapidly changing technology, information technology, represented by big data, artificial intelligence, Internet of Things, digital economy, etc., has a profound impact on the development of modern business models, which poses new challenges to human resources management. Block chain is a new application mode of computer technology, such as distributed architecture data storage, point-to-point real-time transmission, security algorithm, etc. Block chain technology is the subversive core technology of the next generation banking industry after the Internet [2]. The proposal and development of block chain technology have provided new opportunities and challenges for human resource workers. The increasing maturity of this technology will completely change China's business model, and the working methods and contents of human resource workers will also have great changes. Because intelligent contracts are different from traditional contracts and the complexity of computer programs, there may be conflicts between intelligent contracts and related legal systems in our country, which need to be solved urgently [3]. Block chain technology has the main advantages of de-centralization, traceability, security and non-tampering. It was originally applied to bitcoin. It enables all data providers to cooperate with each other and provide data without mutual trust, generating a time-sequential, tamper-proof, secure and reliable database [4]. Lu Yao pointed out that computers could one day replace manpower, machinery and equipment to conduct more complex digital asset transactions [5]. At some point in the future, these automated procedures may replace some experts or institutions dealing with specific financial transactions.

The blockchain consists of a block data structure. Each block contains data, a timestamp, information associated with the previous block, and the corresponding executable code [6]. A smart contract is a computer protocol. Ethereum is a public blockchain platform and is currently the most advanced blockchain platform supporting smart contracts. The concept of smart contracts appeared almost simultaneously with the Internet. A smart contract is a set of rights and obligations defined in digital form, including an agreement on which contract participants can enforce these rights and obligations [7]. Although the development of smart contracts is in its infancy, its potential is obvious. It programmatically contracts participants, contract agreements, and the complex relationship between participants and agreements. Blockchain has experienced the development and

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evolution from digital currency technology to applications in various industries. The scope of work has been greatly expanded, the role of human resources has been changed, and the popularity of various human resource management software or systems has facilitated the daily work of human resource managers. Blockchain smart contract technology provides efficient and reliable technical support for multiple business partners and multiple cross-border business development and collaborative business development with its inherent properties [8]. This article mainly analyzes the application characteristics and methods of smart contracts based on blockchain technology in labor-management relations.

2. The Working Principle of Intelligent Contract Technology Based on Block Chain

Users obtain the public key and private key through registration, and jointly agree on an electronic promise as required, and sign with their private keys. The signed intelligent contract will be transmitted to the block chain network. The intelligent contract based on block chain includes transaction processing and preservation mechanism, and a complete state machine for receiving and processing various intelligent contracts. Fig. 1 is a schematic diagram of block chain structure.

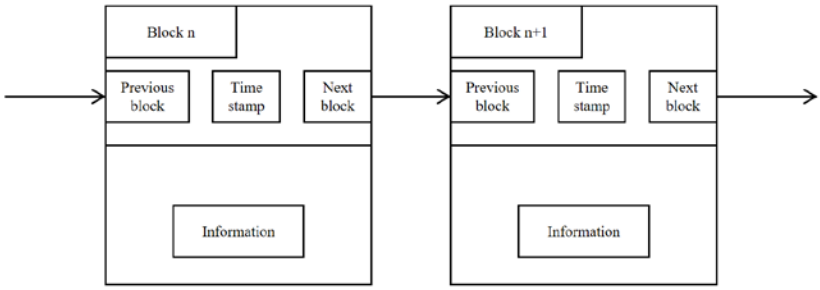

Fig.1 Block Chain Structure

The intelligent contract system built in the bottom layer of the block chain traverses the automatic execution state, transaction and trigger conditions of each contract to automatically complete the processing of the whole transaction and state. Transactions mainly contain data to be sent, and events are descriptive information of these data. After the transaction and event information is passed to the smart contract, the resource status in the contract resource set is automatically updated. For the citizens in this country, this contract is restricted by the laws and regulations of this country. But the block chain intelligent contract is different and can be adopted globally and is applicable to the global scope. The block chain information also contains a set of contracts that have reached consensus. Once the nodes of the contract set receive the information, they will endorse and verify each contract. Only after the verification is passed will the contracts finally be written into the block chain [9].

Users design smart contracts through programs to predefine several states and transition rules, scenarios that trigger contract execution, and processing actions. The program will automatically check whether certain trigger conditions are met to respond. Fig. 2 shows the operation mechanism of intelligent contract.

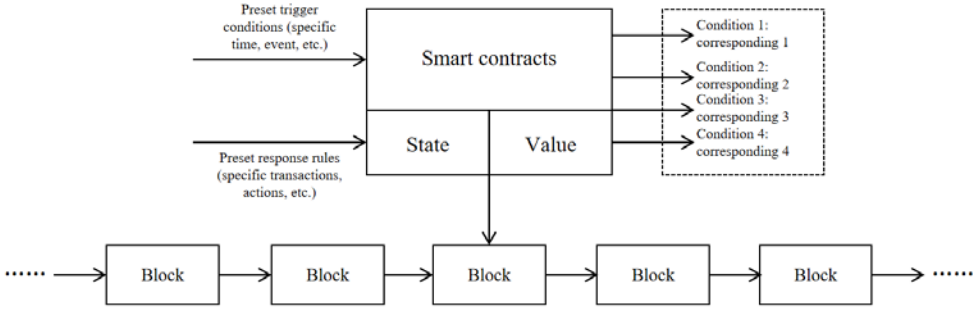

Fig.2 Smart Contract Operation Mechanism

Different from the traditional contract approval process, which has the characteristics of long

time and complicated procedures, the intelligent contract platform based on block chain makes the contract into a standard module platform through algorithm data. Although the concept of intelligent contract was put forward before the block chain, the relationship between the two is very close, because the platform or environment required for intelligent contract is very similar to the block chain. The premise of intelligent contract is to solve the trust problem, that is, the consensus mechanism. It can also be understood as mutual trust, which is a very important feature of the block chain. All operations need to be verified and confirmed by consensus mechanism before they are successful. The intelligent contract is written into the block chain in a digital form, and the block chain technology is used to realize decentralization. The characteristics of intelligent contract determine the irreversibility and irreversibility of the whole process of storage, reading and execution. All participants will manage this contract. In order to achieve the same effect as traditional contracts, intelligent contracts must meet the contract theory of contract law. The core requirement is that the parties to a transaction must comply with the general rules of offer and acceptance when entering into intelligent contracts. Smart contracts are quite different from traditional paper-based contracts in terms of expression, audience interpretation and meaning expression. Block chain is a new application mode of distributed data storage, point-to-point transmission, consensus mechanism, encryption algorithm and other computer technologies.

3. Application Direction of Block Chain Intelligent Contract Technology

Smart contracts are often contracts involving foreign elements. When disputes arise and a lawsuit is filed in a court in any country, the judge may face a problem, that is, to find the applicable law needed for the judgment of this case. The intelligent contract based on block chain includes transaction processing and data storage mechanism, as well as a complete contract state mechanism, which is used to accept and process all kinds of intelligent contracts, and the preservation and state processing of transactions are completed on block chain. The security of intelligent contracts is much better than that of traditional contracts, and the degree of automation is very high. From a technical point of view, an intelligent contract can be regarded as a kind of computer program code, which can autonomously perform all or part of contract-related operations without human intervention [10]. The bigger difference between smart contracts and traditional contracts is the expression of the contract content. Traditional contracts express the agreement reached by both parties through the use of natural language. Similarly, smart contracts use clear and explicit codes to express the true meaning of the contract. Once a smart contract is established, it cannot be tampered with. The blockchain also has a function that cannot be tampered with, which makes decentralization and consensus mechanisms complement each other and forms a fair and transparent platform. Since smart contracts are a set of programs characterized by automatic operation and can be executed after a condition is triggered, decentralization is essential.

The versatility of the Ethereum platform and the ability to execute smart contracts have become the preferred elements of the banking and Internet finance industries. Through smart contracts, financial institutions and various trading platforms can automate background procedures, reducing labor and process time. Multiple users in the blockchain participate in the formulation of smart contracts. The rights and obligations of both parties are stipulated in the contract, programmers write these rights and obligations program electronically, and the code will contain conditions that trigger the automatic execution of the contract [11]. When a dispute arises from a smart contract and is brought to a court in China, higher demands are also placed on the professionalism of the judge. Blockchain is the use of cryptographic methods to generate related data blocks. Each data block contains time, transaction information, and verification information. Generally speaking, the traditional contract uses natural language, such as Chinese or foreign language to record the content of the contract. The smart contract on the blockchain can control the value flow of the crowdfunding system through code, and also improve the efficiency and credibility of crowdfunding business. The validation node on the blockchain first validates the event. When most verification nodes reach a consensus on its validity, the smart contract will be executed successfully and users will be notified. Blockchain can easily place nodes with different permissions at different

users, users participate or partially participate in management, issue authoritative authentication or messages, and all information is traceable. Semi financial projects use the digital asset management and smart contract functions of blockchain to solve the trust problem of participants. Based on the existing blockchain technology, through the mutual cooperation of various links, multi participants have a good degree of agreement.

4. Conclusion

The emergence of blockchain technology makes the traditional field need to innovate in technology and management in the Internet era. Blockchain can easily place nodes with different permissions at different users, users participate or partially participate in management, issue authoritative authentication or messages, and all information is traceable. Once released, the smart contract can no longer be modified, and it is a way of code disclosure. Therefore, strict code review and code security test must be carried out during development. The characteristics of blockchain technology, such as decentralization, immutability and long-term retention, make it have broad application prospects in many fields. This paper first introduces the background of block chain, then introduces block chain and intelligent contract, then expounds the relationship between block chain and intelligent contract, looks forward to the typical application of intelligent contract, and analyzes the possible problems of intelligent contract technology. Intelligent contracts based on block chain technology have received great attention in new business applications and the scientific community. Writing a secure smart contract in Ethernet Square is a difficult task. Block chain technology has an impact on all aspects of enterprise management. It can not only promote the production and marketing of enterprises, but also improve the internal human resources management level of enterprises.

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