

# On the influence of blockchain technology on Accounting

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**Abstract:** As one of the most remarkable computer technologies in the world, blockchain solves many problems such as low efficiency caused by data concentration and trust risk in the past. It brings new working ideas for the accounting industry. Auditors can apply blockchain technology to avoid the drag of the third party, and also have the characteristics of faster, more automatic, more efficient and safer. This paper analyzes a case study of Deloitte rubix blockchain technology platform to discuss how blockchain is applied in various fields and clarify the advantages of blockchain technology. It hopes that this study can provide effective help for the future development of accounting.

**Key words:** blockchain; computer technology; Deloitte

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## Introduction

With the rapid development of Internet technology in the past 20 years, great changes have taken place in the international situation and the political and economic pattern. China has also stepped out of its own style in this development trend. At present, most enterprises still operate their own financial system with the Internet plus finance. However, the Internet plus finance mode gradually exposes some of its shortcomings in the increasingly efficient modern economic activities, such as the huge capital turnover cost, the cumbersome financial operation process, and the lengthy business time consuming. All these problems are caused by centralization. As a new Internet technology protocol, blockchain will have a profound impact on the financial field.

## 1 related overview

### Blockchain

Block chain technology is to store data in blocks rather than data centers through distributed data storage, common identification mechanism, P2P transmission, encryption algorithm and other computer technologies, and connect each other in the form of a chain. In bitcoin technology, blockchain is an important technical support. Different data blocks are associated by applying cryptography theory. Each data block contains bitcoin network transaction information used to generate the next block and verify the authenticity of its information.

### financial system

Financial system is a kind of operating system, which collects some financial information inside and outside the company, stores and analyzes them, and then establishes, controls, implements and suggests some financial objectives. The financial system can generally deal with the business of non-native currency, can locate its standard currency through the user, and then convert it to other currencies. The financial system provides highly flexible financial vouchers and accounts, which has the advantages of powerful function, high flexibility, strong applicability, easy to control, safe and stable, and become the top priority of financial management. It guides the production progress and the balance control ratio of enterprises, and also provides a reliable first-hand information for decision makers.

### basic principles of blockchain

As a system without data center, blockchain has the advantage of self checking and self repairing. The point-to-point transmission mode ensures that the data is transparent in the transmission process, will not be tampered by a third party, and can avoid the problem of low efficiency caused by repeated records. When a transaction is completed,

multiple nodes with digital signatures will participate in the transaction, witness the birth of the transaction, and propagate a unique hash value to each node by means of blockchain technology. These nodes will generate new blocks after recording data. The first node will have the bookkeeping right of the transaction, and transmit the new block information to each node. After they confirm it is correct, they will record them on their own nodes again. This information with time stamp and digital signature will become unique and unchangeable data, which will be recorded on the blockchain. Finally, each node will update and save this information. After saving, all nodes can query the transaction information.

## **2 Analysis of the impact of blockchain technology on Accounting**

### **2.1 the impact of blockchain technology on accounting supervision**

(1) It strengthens the ability of information tracking and improves the authenticity of accounting information

Through this kind of blockchain technology, when accounting inputs information into the blockchain, This data is officially entered into the blockchain only after other employees confirm. If someone wants to upload false data on the blockchain under the supervision of all nodes on the blockchain, The false data will not be recognized by these nodes, and then the uploaded information will not be recorded by the blockchain.

(2) It reduces the obstacles to accounting work and clears the main responsibility

Through blockchain technology, any false information can not be entered. after the information is entered, it can not be modified. Blockchain technology can also separate the responsibilities of enterprise leaders and accountants, and any node on the blockchain can supervise the information. This not only ensures the stability and credibility of financial information, but also improves the independence of the accounting practitioners. The interference from other aspects of the enterprise can not make the accounting staff to act against the professional ethics.

(3) It improves the quality and efficiency of social audit practice

Because the blockchain uses the time stamp encryption method, a lot of cumbersome information checking and review can be omitted. Accessing to financial information must use a unique private key, so the verification time will be greatly reduced, which can effectively improve the efficiency of audit.

### **2.2 impact of blockchain distributed bookkeeping on accounting information**

(1) It changes the way of accounting error correction and improves the quality of accounting information

By improving the shortcomings of the original accounting model, blockchain technology has become the most efficient accounting method. Specifically, first, distributed accounting is adopted to ensure the authenticity of information, and time stamp is left to record accounting actions. The key supervises the information of different nodes, which makes information fraud impossible. the artificial modification of database information which will be happened in the traditional mode will not happen again. Second, under the traditional accounting mode<sup>[1]</sup>, the two-way accounting mode with certain security and accuracy and its error correction mechanism play a great role. But through the distributed accounting model, the past and future of a transaction information can be traced and tracked without limit, so that the accounting information is more secure and accurate. Moreover, the blockchain itself has a very strong self-examination and repair function. Once the information of some links is lost due to hacker attacks or facility failures, which will cause great losses to the data owners in the past. However, through the blockchain technology, each node will save the data information of the whole chain. Even if there is data lost, the data can be quickly repaired through other nodes, which improves the safety factor of the data stored in the blockchain.

(2) It innovates accounting reporting model and discloses the data automatically

Blockchain technology makes the accounting report different from the past. Every piece of accounting information will be automatically recorded and displayed on the blockchain according to the time sequence after it is generated. The data can not be tampered with or covered up. users can obtain the enterprise information they need in the shortest time and reduce the risk caused by information asymmetry by this timely and accurate information technology[2]. The accounting report is very important as a barometer of the company's operation. Through the blockchain technology,

enterprises can take the initiative to display the accounting report in public, which makes it more convenient for other people to inquire about the business status of the enterprise.

(3) It reshapes the functions of accounting personnel and cultivates comprehensive and innovative talents

The wide application of blockchain technology liberates employees from the monotonous and mechanical work of bookkeeping and auditing in the past, and their daily work content will also be simplified. However, the existence of blockchain also puts forward higher technical requirements for them. The accountants need make use of the intelligence of data for market analysis, and strive to improve its own professional skills and industry knowledge to become a more competitive skill under the new technical conditions<sup>[3]</sup>.

### **2.3 the impact of blockchain technology on Accounting Informatization**

(1) It achieves the integration of data collection and transportation

It changes the way of auditing the original data in accounting informatization. Relying on the unique recording method of blockchain, accurate and reliable accounting informatization data can be obtained. Blockchain does not need the supervision of external forces, it can make the transmission of data information more direct.

(2) It achieves the fusion of data processing and analysis

Through the non modifiable feature of blockchain, the integrity of data is protected, the efficiency of accounting work is improved, and the needs of accounting data analysis are met. The wide application of blockchain technology will also bring a new pattern to other industries, leading to the secondary development of some traditional industries, and then feedback to the accounting industry, which also promotes the progress of the accounting industry and forms a virtuous circle. The accounting industry must grasp the change and development of this era, study the practical application method of block chain technology in accounting field, make full use of block chain as a powerful tool to improve the efficiency of accounting work, and welcome the new development of accounting industry.

(3) It achieves the integration of data security

Blockchain technology records data through encryption and sharing function, and records data in chronological order, which can not be modified in blockchain. When applied to accounting information, the data in the database generate records in chronological order, which can find the source of the original voucher and ensure its true degree. The database formed by blockchain technology can complete the automatic backup of accounting information, which provides a strong guarantee for the safety and integrity of data.

(4) It achieves the integration of data authorization

Block chain technology makes information no longer a state of internal sharing controlled by a few people, so that it can be truly open and transparent, and its data birth time and source can be easily queried. The existence of the key also avoids the interference of irrelevant personnel to the blockchain information, and achieves the accuracy of authorization and the standardization of data use. Making good use of blockchain technology can help the management and control of data authorization for accounting data informatization<sup>[4]</sup>.

## **3 the impact of blockchain technology on Accounting -- Taking Deloitte blockchain system as an example**

### **3.1 case introduction**

So far, one of the most laudable projects of rubix platform is Deloitte's perma rec, which has the advantages of security, convenience and other advantages by connecting with different financial systems in other countries. It can effectively reduce the cost of tax audit, and is a more successful distributed account book worldwide. Deloitte's relevant person said: "the blockchain dominates the economic business of various enterprises, so it will accelerate the implementation of the preparatory audit scheme of the blockchain. At the same time, because the blockchain data is recorded according to time and can not be modified, all the business data in this chain can be mined out. It can reduce audit workload, improve efficiency and reduce costs." <sup>[5]</sup>

## 3.2 accounting

The application management of rubix platform of Deloitte can be divided into three types: simple information does not need to be applied to the network logic of blockchain, and data is retained on personal nodes and stored separately. Complex authentication applications should be applied to the network logic of the blockchain, which is bound with personal information or various application information. After the transaction is recorded, data support can be obtained efficiently through direct connection of information. Transactional applications, such as large-scale international procurement or currency exchange, require the whole blockchain network to initiate transactions, review information, execute transactions, distribute bookkeeping, confirm the completion of transactions, and store transaction information. The successful implementation of these three functions cannot do without the distributed ledger of blockchain technology.

## 3.3 business audit

Through the rubix financial system of Deloitte, everyone can query the financial information of any enterprise joining the rubix platform. Rubix platform can monitor the operation of blockchain in real time to ensure the stability of blockchain operation. Rubix finance allows system auditors to audit the financial status and business of the audited unit without any third party. It can not only increase the efficiency of work, but also make the audit results more credible with the existence of blockchain.

## 3.4 data storage

### (1) Distributed encrypted storage

On rubix platform, access can only be done by specific people. Without private key authorized by rubix platform, it is impossible to browse account information, initiate transaction request, leave data, and so on. In addition, rubix manages historical data by using blockchain based database, which can make the information reasonably public, and ensure the security and order of financial information. Besides, because the information generated by the block chain is in the network and does not fall literally, these paperless information is more conducive to the search, transmission and sharing of information, which is conducive to the development of enterprise financial work. It also conform to the current “paperless office” trend, reduce the generation of waste, make the office more environmentally friendly.

### (2) Security and transparency

The data writing mechanism of rubix platform is very private. The distributed ledger reduces the existence of false information, and the binding of the chain also makes the falsification of data meaningless. For the transparency of financial data, rubix has unique advantages, which can be called one of the most secure and trusted information storage centers in the world. However, it has to be considered that absolute transparency is difficult to achieve because of the centralized market environment. But by turning the manual audit into platform audit, the concentration effect is reduced, the existence of the center is weakened, and the work pressure of relevant personnel is reduced, the regulatory needs can also be meet. Rubix’s financial system obviously has the potential to reduce false information, increase the degree of information disclosure, make accounting work more accurate, more efficient, and reduce the risk of violation of rules, and has a great prospect of application.

### Summary and Prospect

Through the combination of distributed ledger and other advanced Internet technology theories, rubix’s blockchain platform has completed the efficient running in of blockchain finance and traditional financial system. After that, the convenience, safety and efficiency of blockchain will bring great changes to the whole accounting industry, and the efficiency of business process and the security of information and data will be guaranteed. Enterprises should actively participate in the huge development opportunities brought by the blockchain, and organically combine the blockchain technology with their original business, which will plug in the wings for the future development of enterprises.

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