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Principal Contact

Academic Journal Online

[info@academicjournalonline.org](mailto:info@academicjournalonline.org)

## **BLOCKCHAIN TECHNOLOGY IN ACCOUNTING AND AUDIT**

**Ochilov Ilyos Keldiyorovich**

DSc., Tashkent Institute of Finance

**Mirsodikova Dilobar Dilshod kizi**

Teacher at the department "Accounting" Tashkent Institute of Finance

**Abstract:** Over the past decade, the popularity of blockchain technologies has increased significantly, changing not only the economic environment, but also defining new approaches to business management. This article focuses on innovative areas in the field of accounting and audit due to the development of blockchain technologies, since this technology can have an impact on entire industries, including the financial sector. The transition to a financial system with a significant element of blockchain opens up many opportunities for the accounting profession, where the skills of the auditor will be directed more to higher-level considerations.

**Keywords:** audit, system security, blockchain, accounting, data leakage risk minimization, cost reduction

Digitalization has become an integral part of the modern and rapidly developing world. Digital technologies are spreading in all developed countries and countries with economies in transition, including the Russian Federation. They surround us everywhere: from everyday communication to production processes [1-6]. Undoubtedly, digitalization has not bypassed accounting and auditing. To simplify accounting and audit activities, new tools based on the use of digital resources in the work of organizations are being created and implemented. With the help of such resources, the productivity of companies increases, their competitiveness improves, the working environment of the organization's personnel improves. In addition, the heads of organizations, especially large business organizations, put the digitization of data on the activities of the enterprise, that is, the transformation of information into a digital system, one of the key tasks and one of the main priorities. That is why the study of this process in the finance industry is relevant today.

The following advantages of digital technologies can be distinguished:

1. Optimization and simplification of digital platforms.
2. Simplification of traditional production.
3. Improving the methods of building a business strategy.
4. Completion of labor-intensive tasks in a shorter time than previously required.
5. Minimization of errors in computational calculations. Scientific work carried out in the field of research on the impact of digital technologies on accounting is widespread. For example, Robert Half Finance & Accounting conducted a survey on the role of using the blockchain (serial connection of blocks of records, fixed by an electronic signature [8]) in accounting. According to the survey, 36 percent of respondents say that accounting staff will need to be retrained to adapt to new

accounting practices; 34 percent answered that this would increase the need for specialized accounting; 30 percent of respondents say that the accounting department will be forced to cooperate more with the information technology department; 29 percent were in favor of the fact that the use of the blockchain will affect accounting only when these processes become regulated at the state level. And only 9 percent of respondents are sure that this will not affect financial accounting in any way.

The issues of accounting and auditing in the context of the use of information technologies are devoted to the works of such authors as: Odintsov V. Paly, D. Pankov, V. Podolsky, A. Romanov, T. Singleton, Y. Sokolov, J. Hanton, J. Hall, E. Chambers. The issues of using computers in the audit were also considered by N. Abdolmohammadi, G. Bodnar, P. Williams, A. Williamson, J. Van Dijk, R. Cascarino, J. Robertson, J. Champlain, V. Hopwood and others

Each of these scientists has contributed to the development of science, however, the role of blockchain technology in the development of accounting and auditing has received almost no attention in the scientific literature.

In modern studies that explore the actual problems of successfully combining information technology with audit tasks, we are talking about the decisive role of public financial reporting, the openness of which is possible precisely through the use of blockchain technology [3].

Attention is also paid to the possibility and prospects of using the technology in the banking sector in order to make the decision on the provision of services by credit institutions as soon as possible due to the operational analysis of financial indicators in comparison with other social and personal data of customers and to increase business efficiency through the introduction of blockchain technology.

Over the past five years, the technology has matured for use at the enterprise level, demonstrating the following benefits:

**Security:** Its distributed consensus architecture eliminates single points of failure and reduces the need for data intermediaries such as data agents, messaging operators, and inefficient monopoly utilities. Ethereum also allows the implementation of secure application code designed to protect against fraud and malicious third parties, making it nearly impossible to hack or manipulate [4].

**Transparency:** It uses interconnected standards, protocols and common processes, acting as a single common source of truth for network participants.

**Trust:** Its transparent and immutable ledger makes it easy for different parties in the business network to collaborate, manage data, and reach agreements.

**Programmability:** It supports the creation and execution of smart contracts - tamper-proof deterministic software that automates business logic - creating increased trust and efficiency.

**Privacy:** It provides market-leading tools for granular data privacy at every layer of the software stack, enabling selective sharing of data across business networks. This greatly increases transparency, trust and efficiency while maintaining confidentiality and confidentiality.

**High performance:** These are private and hybrid networks designed to support hundreds of transactions per second and occasional spikes in network activity.

Scalable: It supports interoperability between private and public chains, offering every enterprise solution global reach, huge resilience, and high mainnet integrity.

According to a Jupiter Research report, blockchain adoption will enable banks to realize up to \$27 billion in cross-border settlement savings by the end of 2030, reducing costs by more than 11%. Ethereum in particular has already shown a disruptive economy, generating over 10x cost advantages against existing technologies. Financial institutions recognize that distributed ledger technology will save billions of dollars for banks and large financial institutions over the next decade [5].

The World Economic Forum estimates that by 2027, 10% of global GDP will be stored on the basis of blockchain technology.

The core banking activities include transactional, credit, mortgage and payment services. Many of these services depend on legacy execution processes. For example, between background checks, credit scoring, loan processing, and disbursement of funds, it takes 30 to 60 days for individuals to secure a mortgage, and 60 to 90 days for SMEs to secure a business. credit. Blockchain can optimize banking and lending services by reducing counterparty risk, as well as reducing issuance and settlement times. This allows:

- Authenticated documentation and KYC/AML data that reduce operational risks and allow real-time verification of financial documents;
- Optimized credit prediction and credit scoring markets, informed instantly by matching user activity and authorized data across the network;
- Automated syndicate formation, underwriting and disbursement of funds, i.e. payment of principal and interest, reducing costs, delays and friction in syndication;
- Lighter asset endowment, as digitization enables real-time asset management, tracking, and regulatory controls.

So, returning to the question of the role of blockchain in the development of accounting and auditing, it should be noted that the trends and directions of using the technology described above require, first of all, an appropriate organization of accounting. The issue of audit should be approached with the understanding that the origin of each transaction can be verified using the history of transactions that preceded it.

It is important that all accounting principles remain unchanged with the appropriate application of the elements of the accounting method. Only the technology of processing, storing, transmitting and accumulating information is changing. So, for example, in transactions with assets, the principles of their accounting and recognition are fully observed: controlled by an economic entity as a result of past events and from the use of which future economic benefits are expected. At the same time, the blockchain allows for a complete, automated audit of all operations to recognize the controllability of an organization's asset. Such verification is implemented by building and storing in blocks information about the primary source of origin of any asset thanks to the information storage mechanisms described above: each digital transaction leaves a unique record in the database,



creating opportunities for auditing any digital event in the past. Such an entry is made in all registries associated with this asset, and each organization in its copy of such a register can access the relevant information, knowing the necessary key. Having access to registers, other interested parties can obtain complete and unbiased information about the object of study, for example, making a decision on issuing a loan by a bank or checking the completeness of tax payments, etc.– blockchain allows for a complete, automated audit of all operations.

Thus, unlike today's practice of keeping records of assets, when in order to find out the reliability of information, it is necessary to carry out a cross-check of various business entities documented involved in the manufacture, acquisition or change of the asset under study, when working with the blockchain, it is enough just to have access to a copy of the register.

In the article, we explored modern approaches to the definition of blockchain technology and outlined its role in the development of accounting and auditing. It is proved that such a distributed database is a technology for working with information and does not change the fundamental principles and foundations of accounting and auditing. It was found that the transactions recorded in such a database are considered reliable and can be used as an evidence base when banks make decisions on providing loans to customers, in court cases, and the like. This is confirmed by the practical implementation of blockchain technology in accounting for transactions in individual countries, including at the state level.

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