

ROLE OF BLOCKCHAIN TECHNOLOGY IN ACCOUNTING AND AUDITING

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ABSTRACT

The invention of blockchain technology can be equated to the invention of the written or Internet network, given their primary role in communication between individuals and legal entities, in terms of information transfer, money transfers, etc. The authors analyze the technology, the realized and foreseeable measures of its use, its relationship with accounting and auditing, as well as its influence on the development of these economic sciences. The development of accounting and auditing is associated with the development of modern technology. Currently, in accordance with the technological progress, the role of blockchain technology is constantly increasing. Blockchain is a distributed database that maintains an ever-growing list of data records that are protected from tampering and revision. Blockchain can be used primarily in the financial and banking sectors, as well as in the e-government and administrative sector. Implementation of blockchain technologies in accounting and auditing does not change their fundamental principles, but increases auditing capabilities.

Keywords: blockchain, accounting, banks, technology, digitalization.

INTRODUCTION

Commonly known are the functions of accounting (informational, analytical, evaluation and control) and the purpose of audit (increasing confidence in the information reflected in the relevant documents). These conceptual frameworks remain unchanged for many years, but there are constant transformations in the technology of their support. There are changes in the ways of providing each stage of accounting: identification, measurement, summarizing and accumulation of information on the financial and economic activities of business entities. So, since the beginning of the implementation of recording economic processes has changed the technology of data reflection in the documents and information generalization from a simple accounting, for which recorded transactions, to a double - when events began to be entered in the documents along with the grounds for their implementation. Such records were made (and often are still made today) in paper registers, later they were transferred to a digital environment with the widespread use of various software using computers. Thus the way of data accumulation was changed. After the invention of XBRL technology, new requirements for the presentation of business (financial) reporting data and their transmission to interested parties were violated. Relevant and actually unchanged are the approaches to providing users with confidence in the reliability of the information in the reporting, accounting documents: the need for their processing by auditors, verification of accounting data, regardless of form (paper or digital) [1].

Consequently, the development of accounting and auditing as a professional activity is inextricably linked to technology in constant interconnection. And modern approaches to the organization of the information flow require constant attention from scientists in this field.



With the invention of the blockchain distributed database and the corresponding technology of working with data, the question of its application, in particular, for the purposes of accounting and auditing has been raised today. This technology is designed to enhance accounting capabilities and increase public trust in accounting information. At the same time, it is important to find out the perspective of the auditors' role in confirming the reliability of financial and other business reporting data under the conditions of blockchain technology application [2].

LITERATURE REVIEW

In 2008, a white paper written by Satoshi Nakamoto described a new digital currency based on the idea of cryptographically linked data blocks, which were designed to rely on a consensus mechanism of a group of computers, removing any intermediary agencies. Over the years, the popularity and value of Bitcoin have grown, and the underlying technology, called blockchain technology, has also attracted considerable attention. Today, blockchain technology has evolved from supporting Bitcoin to potentially revolutionizing payments, data storage, audit record verification, digital asset registration, and transaction execution. The World Economic Forum regards blockchain technology as one of its six major trends, and it is helping the evolution toward a digital and connected world .

Blockchain shows that technology of trust allows different people and organizations to cooperate and create shared values. The application of blockchain opens up a new era where the nature of business will need to be changed within the framework of cooperation to coexist .

The works of such authors as Odintsov V. Paliy, D. Pankov, V. Podolskiy, A. Romanov, T. Singleton, J. Sokolov, J. Hanton, J. Hall, E. Chambers are devoted to the accounting and auditing issues in the conditions of using information technologies. N. Abdolmohammadi, G. Bodnar, P. Williams, A. Williamson, J. Van Dijk, R. Cascarino, J. Robertson, J. Chaplain, W. Hopwood, and others have also considered the application of computers in auditing.

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

METHODS

Modern studies that investigate the current problems of successful combination of information technology with the tasks of auditing refer to the defining role of public financial reporting, the openness of which is possible thanks to the use of blockchain technology [3].

Also, attention is paid to the possibility and prospects of the use of technology in the banking sector in order to speed up the decision of credit institutions to provide services through the rapid analysis of financial indicators in comparison with other social and personal data of customers and increase business efficiency through the implementation of blockchain technology.

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

Security: Its distributed consensus architecture eliminates individual points of failure and reduces the need for data intermediaries such as data agents, messaging operators and inefficient monopolistic utilities. Ethereum also enables the implementation of secure application code designed to protect against fraud

and malicious third parties, making it virtually 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.

Trustworthiness: Its transparent and immutable ledger allows the different parties in the business network to easily collaborate, manage data, and reach agreements.

Programmability: it supports the creation and execution of smart contracts—a tamper-proof, deterministic software that automates business logic—creating greater trust and efficiency.

Privacy: It provides market-leading tools for granular data privacy at every level of the software stack, enabling selective exchange of data across business networks. This greatly enhances transparency, trust and efficiency while preserving privacy and confidentiality.

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

Scalability: It supports interworking between private and public circuits, offering each enterprise solution global reach, enormous resiliency and high integrity.

According to a Jupiter Research report, blockchain adoption will enable banks to realize savings of up to \$27 billion in cross-border settlement transactions by the end of 2030, reducing costs by more than 11%. Ethereum, in particular, has already demonstrated disruptive economics, creating more than a 10-fold cost advantage over 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 maintained by blockchain technology.

Core banking activities include transactional, credit, mortgage and payment services. Many of these services depend on legacy fulfillment processes. For example, between information verification, credit scoring, loan processing, and disbursement, it takes 30 to 60 days for individuals to secure a mortgage, and 60 to 90 days for small or medium-sized businesses to secure a business loan. Blockchain can optimize banking and lending services, reducing counterparty risk, as well as reducing issuance and settlement times. It allows [6]:

- Authenticated documentation and KYC / AML data that reduces operational risk and allows for real-time verification of financial documents;
- Optimized credit forecasting and credit scoring markets, instantly informed by matching user activity and sanctioned data across the network;
- Automated syndication, underwriting and disbursement, i.e. principal and interest payments, reducing costs, delays and friction in syndication;
- Facilitated asset collateralization as digitization allows for real time asset management, tracking and regulatory controls.

So, returning to the role of blockchain in the development of accounting and auditing, it should be noted that the trends and uses of technology described above require, first and foremost, an appropriate accounting organization. Auditing should be approached with the understanding that the origin of each transaction can be verified through the history of the transactions that preceded it.

RESULTS

What is important is that all accounting principles remain the same with the appropriate application of elements of the accounting method. Only the technology of processing, storing, transmitting and accumulating information changes. For example, asset transactions fully respect the principles of accounting and recognition: controlled by the business entity as a result of past events and from the use of which future economic benefits are expected. At the same time, blockchain allows a complete, automated audit of all transactions to recognize the controllability of an organization's asset [7]. Such auditing is realized by building and storing information about the original source of any asset in blockchain through the information preservation mechanisms described above: each digital transaction leaves a unique record in the database, creating the possibility of auditing any digital event in the past. Such an entry is made in all the registries related to the asset in question, and each organization in its copy of such a registry can access the relevant information, knowing the necessary key. With access to the registries, other interested parties can obtain complete and unbiased information about the subject, e.g., a bank's decision to grant credit or verify tax payment completeness and the like - blockchain allows for full, automated auditing of all transactions.

Thus, unlike today's practice of asset accounting, when in order to find out the reliability of information, it is necessary to carry out a counter-verification of the various business entities documented in the manufacture, acquisition or modification of the asset under investigation, when working with blockchain, it is sufficient only to have access to a copy of the register (figure) [8].

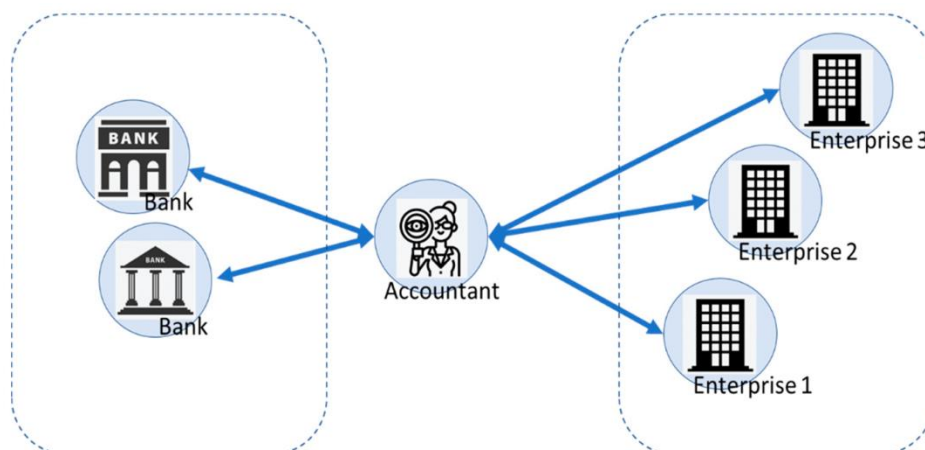


Fig. Technology of processing, storage, transfer and accumulation of information with the use of blockchain

CONCLUSIONS

Each transaction under such technology becomes as trustworthy as a notarized one, so the trust in the information acquires a higher level. The important and main task of auditors will be to determine the credibility of the first transaction with the object under investigation, and all that were carried out later will be considered as valid and credible [9].

In this article, we explored current approaches to the definition of blockchain technology and outlined its role in the development of accounting and auditing. It has been proved that such a distributed database is an information handling technology and does not change the fundamental principles and fundamentals of accounting and auditing. It was found that transactions recorded in such a database are

considered reliable and can be used as an evidence base for banks in their decisions on granting loans to customers, in court cases, etc. This is confirmed by the practical implementation of blockchain technology in transaction accounting in some countries, including at the state level.

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