# APPLICATION OF BLOCKCHAIN TECHNOLOGY IN ACCOUNTING SYSTEMS.

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**Abstract**. *In recent years,the blockchain technology is becoming the one of the most powerful technologies in accounting system by enhancing accuracy, trancparency and data security.In this article,I explore the key features and benefits of using blockchain ,such as real-time transaction recording,immutability and decentralization which address long-standing issues in financial reporting and auditing.The study reviews previous relevant literature and analyzes international applications and also evaluates the potential of blockchain adoption in Uzbekistan's accounting practices.*

**Keywords**: *Blockchain technology ,Accounting innovation, Audit automation ,Financial transparency ,Supply chain accounting,Real-time auditing, Digital ledger, Cryptocurrency accounting.*

## 1.Introduction.

Blockchain technology was officially introduced in 2009, with the launch of its first application, Bitcoin cryptocurrency, but its history is not the only one; it is considered to have several decades of history. The many technologies we use, which today form the basis of blockchain, were developed long before the advent of Bitcoin. Nevertheless, blockchain is more likely to be mentioned by contacting Bitcoin.

Since then, the technology has evolved on its own, and despite recent frightening stories about cryptocurrencies, there has been a revival of interest in this technology in many areas. Governments, businesses, and other organizations are studying and implementing blockchain technology to meet needs beyond digital currency. Blockchain technologies are being used in order to increase cybersecurity and ensure the confidentiality of governments ' data.

What is blockchain?

Blockchain is a type of database in the form of a public register that records transactions without the need for a third party to approve each action. It forms a continuous, invariant chain of records consisting of distributed and interconnected blocks of information in a P2P network. Each computer on the network stores a copy of the register, thus ensuring that no error or interruption occurs at the single point. Blocks are added in sequence and are constant as well as invariant. The blockchain chain begins with the initial block—often this block is called the "Genesis block," and it

writes the first transactions. The block is assigned an alphanumeric line — hash based on the timestamp. Blocks are added to the chain in series. Each block uses the hash of the previous block to create its own hash, so the blocks are tied together [1]. To more accurately visualize how blockchain technology works, it can be compared to a beehive. Each hive is connected to one another, and all bees are aware of this; blockchain word translation also provides block sequence . Blockchain also uses a computational process called consensus to confirm the validity of a new block before it is added to the chain. As part of this process, most of the nodes in the blockchain network must agree that the hash of the new block is calculated correctly. The consensus ensures that all copies of the distributed register are in the same state.

Today, blockchain is widely used in accounting , among several industries. It is the purpose of this article to determine the place and relevance of technology in the field of accounting, how blockchain is changing accounting processes, and the possibilities of this technology, as well as the disadvantages and difficulties in traditional accounting systems (such as fraud, transaction security, data immutability, etc.) to review and make proposals.

**Literature review**

It is no secret that in recent years blockchain technology has become widely used not only in cryptocurrency,but also in accounting, among many industries. Research shows that this technology offers a high degree of transparency, reliability, and automation capabilities compared to traditional systems in financial computing.

In his work “The Definitive Guide to Blockchain for Accounting and Business,” Dutta (2020) argues that blockchain is the most important problem in accounting — trust—and that blockchain's application in this area serves to eliminate the need for return and re-verification of data.

Secinaro's (2020) ” Blockchain e Accounting " analyzes the legal and technical barriers faced in the process of integrating this technology into current accounting systems. In particular, aspects such as the real-time formation of financial statements and the immutability of information (immutability) are particularly noted.

Pimentel and Boulianne (2020) have noted the easing of auditors ' work, fraud prevention, and increased reporting quality through the integration of blockchain technology into accounting. They argue that this technology is causing revolutionary changes, especially in the field of internal control and financial investigations.

Coyne and McMickle (2017), however, questioned whether blockchain could serve in practical accounting processes, but their study also showed that it was possible to record transactions through this technology with reliability and accuracy. It was envisaged to make the kora double-entry system more reliable by linking it to blockchain.

An analysis by Singh et al. (2023) shows that blockchain technology has ushered in a wide range of improvisations in the areas of accounting, auditing, and financial

management. They particularly cited the introduction of the" triple-entry accounting " (third-entry accounting) model as an important innovation.

Bellucci et al. (2022) systematically analyze the capabilities and disadvantages of blockchain technology in practical accounting activities, emphasizing the need for a strong regulatory framework and technological training for its implementation.

Stein Smith (2024), on the other hand, explores ways to improve the quality of accounting and financial analysis through blockchain integration with artificial intelligence. He also says that blockchain will be an important tool in solving the problems of cryptocurrency accounting.

Kanaparthi (2024), on the other hand, substantiates that blockchain, artificial intelligence, and machine learning technologies together serve to improve accounting efficiency. Through this integration, data processing processes are significantly automated.

An article by Weinberg and Faccia (2024), however, shows how the triple-entry accounting system can be amplified using machine learning algorithms. This approach increases analytical capacity in auditing processes.

President of the Republic of Uzbekistan on July 3, 2018

"Measures for the development of the digital economy in the Republic of Uzbekistan the adoption of the resolution"on" PQ-3832 developed the field of crypto-assets in our country, increased investment attractiveness and to introduce advanced technologies and innovations of our country once again showed his loyalty. Crypto-asset turnover in the decision implementation of innovative projects in the field, blockchain technology and issues such as the introduction of other modern digital technologies have been seen.

**Methodology**

This research methodology involves following parts.First,a search and review of academic Blockchain Technology in the accounting context was performed and use analysis,synthesis and evaluation techniques during the study with real examples and foreign country experience.

**Results and Discussion.**

Based on the results of the analysis, it was found that blockchain technology has a positive effect on accounting practice in several main areas:

1.Increased reliability of financial data through accounting records under the triple entry accounting system (Triple-entry accounting).Today, the accounting system uses general ledger and is written in the form of debit and credit, which has a 500-year history known to all of us. While the use of blockchain in this area

It makes the traditional accounting system visible to all organizations in the supply chain and reduces errors that can be caused by the human factor.

Let’s look at this process together.For example, a company A transfers money to a company B.

In the traditional system:

Company a writes debit and credit in its general ledger.

Company B also makes such a note on their accounts.

In the Blockchain system:

In addition to these two entries, information about the transaction (debit and credit sums, time, participants) is stored as a third entry in the blockchain network .This entry is fixed, open, and will be available to all participants on the network.In this system, each transaction is strengthened in the blockchain network, which reduces the risk of fraud.

2.Simplifies Audit processes.

It speeds up the process of checking documents for auditors due to the automatic storage of data on a blockchain basis.

3.According to recent international research, the majority of accountants have reported that blockchain technology has further clarified accounting processes and simplified document auditing (PricewaterhouseCoopers, 2022; Deloitte, 2023).

Companies using and experimenting with Blockchain technology in accounting (accounting) practices include:

| Companies | How they use? |
|---|---|
| 1.Deloitte | Deloitte is working on automating audit processes and enabling real-time data monitoring using blockchain technology. |
| 2.PwC | PwC uses blockchain to track transactions,reduce errors and store audit documents securely |
| 3.EY(Ernst&Young) | EY has developed a tool called 'Blockchain Analyzer' to audit financial data using blockchain. |
| 4.KPMG | KPMG is testing blockchain in real-time auditing and supply chain accounting. |
| 5.IBM | IBM provides blockchain accounting services through its 'IBM blockchain'platform. |

6. Bank of America

Bank of America (BofA) is making great strides in the blockchain industry — providing its customers with access to the global payment platform and in-depth experience in blockchain.

The bank's commitment to digital innovation is demonstrated in a comprehensive research report entitled "Digital Assets Primer: Only the first inning" (digital assets: just the beginning).

This report serves as a roadmap for investors in the rapidly growing digital asset market.Although Bank of America is interested in the blockchain, in August 2022, the bank's CEO said that the bank could not work with cryptocurrencies for the time being due to restrictions by regulators.

Nevertheless, BofA continues to invest in blockchain technology and demonstrates the growing importance of blockchain in the financial industry by providing innovative solutions to its customers.

6. McDonald's

McDonald's filed ten trademark applications indicating that it intended to provide its digital products — which also included virtual restaurants — services. This move meant that the company was infiltrating Web 3.0 technolo

McDonald's was also reported to have created ten unique NFTS (nofungible tokens). So far, it is not clear how these NFTS will be used, but they may play an important role in the company's broader digital strategy.

Through the use of NFTs, McDonald's aims to adapt to customer needs and be ahead in terms of digital technology.

7. Roche

Roche Diagnostics and NHS Wales have collaborated to use the Digipharm blockchain platform to improve health outcomes.This platform is designed to improve patient care by accelerating diagnostic services, reducing waiting times, and making the health care process efficient.It also allows the safe and transparent exchange of health information between patients, doctors and payers. This leads to better decision-making and better health status.

8. SAP

SAP and Unilever launched a blockchain-based pilot, "GreenToken", in March 2022.

This project aims to increase transparency and observability in Unilever's global palm oil supply chain.Palm oil is widely used in food, cosmetics and other products, but it has been cited as a cause for concerns about its adverse environmental effects and human rights violations.The GreenToken pilot provides real-time information on where each palm oil product is grown, when it is harvested, and how it is delivered to the processing plant.This transparency makes it possible to identify and prevent problems in the supply chain, such as deforestation or forced labor.

9. Tata Consultancy Services (TCS

TCS, as a leading IT services and consulting company, announced it would launch several projects on blockchain and metaverse.Another project Tata Consultancy Services (TCS) is working on is the creation of the NFT market (marketplace) based on the company's blockchain solution. This NFT market allows users to buy, sell and share NFTS within metaverse (virtual universe).TCS ' NFT market aims to provide a secure and reliable transaction platform for users in Metaverse.

10. Walmart

In early 2022, Walmart Canada used blockchain technology to improve its supply chain management.As a result, the company managed to reduce the number of disputed invoices from 70% to only 1%, and cut the volume of manual work associated with payments and acceptable accounts. This new blockchain solution also ensured timely payments to shippers.Prior to this development, in December 2021, Walmart had filed several trademarks related to blockchain, digital currency, NFTS, and metaverse.Through the use of new technologies, Walmart is trying to increase efficiency, transparency and responsibility in its business processes, which will eventually allow customers to provide more improved service.In addition, this step by Walmart can have a huge impact on the retail industry. Other companies can follow in Walmart's footsteps and explore ways to develop their performance using blockchain, cryptocurrencies, and NFTS.

**Conclusion**

The examples presented in this discussion show the potential of blockchain technology in increasing transparency, strengthening security, and simplifying work processes.Companies ranging from Adobe to Walmart are recognizing the benefits of blockchain in improving customer experience and increasing operational efficiency. In addition to Apple Pay, other digital wallets and contactless credit/debit cards can also make transactions using this function.This development makes crypto transactions more popular and easier to use, which can increase the reach of users.

The above analysis and examples show that blockchain technology also has an extremely large place in accounting.It accelerates processes in the field of accounting and auditing, increases transparency, confidence ,by entering transactions through technology so that they cannot be changed.The time it takes to check large volumes of hukjats is reduced, and as a result, auditors and accountants can give importance to their other priorities in their work.Large companies such as Bank of America, Walmart,McDonald's use blockchain technology in their operations. The fact that it is used is a sign that this technology is useful.There is also a significant increase in efficiency in areas such as blockchain-assisted supply chain (supply chain) monitoring, payment systems, data exchange, and NFT trading.

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