



ACCOUNTING FOR CRYPTOCURRENCIES

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Abstract. *The topic of cryptocurrencies has been on the news feeds, magazine covers, business newspapers, financial Internet portals and periodicals for several years in a row. To date, the main cryptocurrency can be called BitCoin (hereinafter referred to as Bitcoin). Often, when trying to discuss bitcoin, the most common response from the interlocutor will be: "I heard about them, but I'm not entirely sure what they are, how they work and how to work with them." Despite its popularity, the cryptocurrency is deprived of attention if we are talking about legislative and other regulatory acts. Also, the instructions of the Accounting Service (RTJ) do not contain information on which balance sheet item cryptographic assets should be placed on and how to keep them accounted, and the International Financial Reporting Standard (IFRS) published only recommendations on how to reflect the cryptocurrency in accounting. In 2014, when entering the word "Bitcoin" in a search engine of the Financial Accounting Standards Board (FASB), the following message was received: "Sorry, no results were found for the search terms you entered." And although cryptocurrency is currently gaining its popularity as a medium of asset exchange, there are no specific accounting guidelines. (Raiborn & Sivitanides, 2015, 25).. The article takes a structural approach by defining the characteristics of blockchain technology for accounting practice. When writing an article in the theoretical part, the principle of operation of the blockchain technology was considered, as well as the market and the mechanism of operation of cryptographic assets. In the practical part of the work, it was considered on which balance sheet item it is possible and not to reflect cryptographic assets, however, which accounting method is preferable to choose based on the activities of the enterprise.*

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

Introduction. The development of blockchain technology has led to the rapid development of cryptocurrencies. At present, the issue of using advanced information technology in various areas of activity is becoming increasingly important, particularly in accounting, which is a central component of the management system of any facility. The development of the digital economy requires the improvement of modern information and telecommunications technology, which provides new opportunities for accounting. The use of information technology enhances the competitiveness of organizations by reducing costs, reducing the impact of the human factor and speeding up work. The global trend of the digital economy is enshrined in the Declaration "On the Digital Economy: Innovation, Growth and Social Well-Being", adopted at the Ministerial Conference in Cancun, Mexico (2016) [1]. An important step in this direction in our country was the Decree of the President of the Republic



of Uzbekistan "On Approval of the Strategy "Digital Uzbekistan-2030" and Measures for its Effective Implementation" of 05.10.2020, No. UP-6079.

Within just one decade, more than four and a half thousand types of new cryptographic assets have appeared on the cryptocurrency market. In order for an accountant to be able to request the necessary information from a client to reflect accounting transactions and prepare reports, he needs to understand what blockchain technology is, cryptocurrency and how it works.

Materials and methods. Blockchain is a special technology that is used to record information in the form of data blocks that are interconnected and protected by cryptographic evidence. Most blockchains are designed as a distributed and decentralized digital ledger whose job is to record all transactions in sequential order. It stores an ever-growing list of ordered records called blocks (Ducas & Wilner, 2017, 544). This technology has a fairly wide range of possible applications and very good development prospects both in the transport sector and in other industries (Kotsoeva et al., 2017, 67). The idea of blockchain technology was described back in 1991, when research scientists Stuart Haber and Scott Stornetta implemented a computational-practical solution for digital timestamped documents so they cannot be backdated and reduce the risk of forgery (Academy Binance, 2018). Vitaly Buterin, Canadian-Russian programmer, co-founder of the Ethereum project, describes the operation of blockchain technology as follows: "In blockchain technology, identical copies of the ledger are maintained and approved collectively by network members. Approved transactions are added to blocks, which in turn are added to the chronological chain of previously verified blocks using a cryptographic signature (hash). Each new block is marked in chronological order - a temporary encoding process that corresponds to the creation of new and immutable data - and contains information that applies to the previous block, ensuring that any attempt to change the block chain will require changing every previously created block, which is almost impossible. given the decentralized nature of the technology (Buterin, 2014).

Mining or, in other words, "extraction" is aimed at building a blockchain. This is a process that includes the calculation of a new block to be added to the distributed ledger. People who are called miners are engaged in such mining. Mining is mainly associated with bitcoins, since the block generation process differs for different cryptocurrencies. Mining computers are often powerful machines that are used in generating correct hash values, in other words, they are required to solve a mathematical puzzle. Once a miner successfully produces a new block, it notifies the network. Then every miner in the network stops mining that block and starts solving equations for the next block. (Sayeed & Marco-Gisbert, 2019, 4).

Regardless of the field of application, the blockchain is an accessible technology with the following functions (Kotsoeva et al., 2017, 68):

- 1) confirmation of the change, recording and subsequent storage of data;
- 2) protection against unauthorized data changes;
- 3) the ability to exchange data directly, without an intermediary and without additional costs;
- 4) ensuring transparency between network participants.

The main applications of blockchain technologies (Balashov et al., 2017, 40):

- 1) payment systems;
- 2) transfer of ownership rights on an electronic medium through a multicurrency wallet;



3) automation of business processes, the most current trend in most companies and startups.

The main value of the blockchain is that it allows direct database sharing without a central administrator.

Hence, with the blockchain acting as a consensus mechanism to ensure nodes are in sync, transactions can be verified and processed independently. The key advantages of blockchain technology should also be noted (Golosova & Romanovs, 2018, 4):

1) each action is recorded in the block chain, and the record data is available to each participant in this block chain and cannot be deleted;

2) each participant can view all transactions, which means that every action is shown to the participants of the blockchain and it is impossible to make changes imperceptibly;

3) high speed of transactions between participants, regardless of their location and without the participation of intermediaries;

4) reduction of transaction costs, since there is no need to resort to the services of intermediaries.

Despite the fact that bitcoin is the most widespread and most studied blockchain technology, it has a fairly large number of disadvantages (Kotsoeva et al., 2017, 68):

1) the loss of the wallet password means the loss of all bitcoin savings;

2) the password of a bitcoin wallet cannot be restored or changed, and this shortcoming can only be solved by copying the access key to paper;

3) bitcoin privacy is maintained by keeping public keys anonymous, but there is a certain risk that the owner of the key can be discovered, in turn, this means that all transactions associated with this wallet can become public;

4) unstable exchange rate;

5) an unstable legal side, since legislatures and banking associations are still figuring out what cryptocurrency is and how to regulate it, it is not prohibited, but not officially legalized either.

While blockchain was initially recognized as the technology behind the Bitcoin cryptocurrency, its ability to transform payment processing, invoicing, inventory information, contracts, and other documentation also has significant accounting implications (Dai & Vasarhelyi, 2017, 11).

Blockchain can be used by a wide range of industries. In 2016, banks and investment funds invested about \$1.4 billion in this technology. (Nyumbayire, 2017). However, investors exploring the potential of this new phenomenon and its implications are not limited to big tech companies and the financial sector. Other industries, as well as institutions such as central banks and public administrations, are not far behind in research related to the use of blockchain technology. Thus, there is a widespread belief that the blockchain is capable of changing the way information is exchanged and stored. (Bonsón & Bednarova, 2019, 727).

The market and the mechanism of operation of cryptocurrencies

Cryptocurrency is one of the most popular uses for blockchain technology, and Bitcoin is the first and most popular example of a cryptocurrency. The use of cryptocurrencies and blockchain technology can simplify and speed up interbank and interstate settlements, the issuance and circulation of debt securities, the identification procedure, reduce the cost of transactions, ensure the security and convenience of transactions through the use of cryptography. (EEC, 2019, 16-17). Cryptocurrency is a digital asset whose main function is to



serve as a medium of exchange in a peer-to-peer economic system that uses cryptography to verify and secure transactions and control the creation of additional units. Anyone with internet access can exchange currencies from different continents at the touch of a button. The borders of states, different time zones, locations of counterparties on different continents are not an obstacle in the event of such an exchange. Cryptocurrency transaction costs are low compared to intercontinental bank transfers.

Central banks and governments generally refuse to acknowledge that crypto is money, but the number of payment transactions using cryptocurrencies is on the rise and cryptocurrencies make up a significant share of wealth. As with other economic phenomena, cryptocurrencies should be considered in the financial statements of organizations using them, although at the moment there is no unequivocal opinion on accounting in current financial reporting standards. (Procházka, 2018, 162).

Some people believe that Bitcoin is the only cryptocurrency on the market. This opinion arises from the fact that Bitcoin is one of the first cryptocurrencies in the world, and it also dominates over fifty percent of the market with cryptographic assets. But apart from bitcoin, there are more than a thousand different cryptocurrencies today, also called altcoins or alternative coins. All of them have different properties, and their scope may vary depending on the need. (Academy Binance, 2018). Today, there are four main types of cryptographic assets that are based on blockchain technology and are digital coins, or in other words, like a token. Their purpose and intrinsic value are described in the table below (Table-1).

Table 1

The main types of cryptographic assets¹

Type of asset	Target	Intrinsic value
Cryptocurrency	The coin is used as a medium of exchange, for example bitcoin.	Calculated on the basis of supply and demand, independent of the central bank.
Asset-backed token	A coin contains information about the ownership of a physical asset (for example, natural resources such as gold or oil).	The value is determined based on the underlying asset.
Utility token	A coin that grants users access to a product or service. These tokens do not give holders ownership of the platform or company assets, and while they can be traded between holders, they are not primarily used as a medium of exchange.	The value is determined by the demand for the issuer's service or product.
Security token	The coin is similar in nature to traditional securities. It may provide an economic interest in a legal entity: sometimes the right to receive cash or another financial asset. Gives the opportunity to vote when making decisions in the company.	Value is determined by the success of the venture as the holder of the coins participates in future profits or receives cash or another financial asset.

¹ The table was made by author



Results. There are over 4,500 crypto assets at the moment, and they are capable of solving different problems and have a variety of use cases.

Unlike traditional forms of digital payments, cryptocurrencies do not have intermediaries, which have a huge impact on the costs that an intermediary typically charges for each transaction. In the case of digital payments, there are two main costs, the cost of verifying a transaction and maintaining the network.

Describing the properties of cryptocurrencies, they can be divided into two groups, these are transactional and financial properties. Transactional properties include (Kishore Jain, 2020, 2-3):

1. Irreversibility: the operations carried out by the participants in the system are irreversible. If the user made a transaction and made a mistake with the final address or sent an amount many times greater than desired, then the money will not be returned back.

2. Anonymity: neither transactions nor accounts are associated with real identifiers. To use cryptocurrency, you do not need to disclose your personal information, such as name and passport details.

3. Transparency of transactions: payment information is stored on the blockchain and is available to everyone.

4. Speed: transactions are generated on the network almost instantly and are confirmed in a few minutes. Because they take place on a worldwide network of computers, they don't care about the user's physical location.

5. Security: Cryptocurrency funds are encrypted in a public key cryptography system. Only the owner of the private key can send cryptocurrency.

6. Accessibility: You do not need to consult anyone to use cryptocurrency. It's just a program that anyone can download for free. After launching the application, you will be able to receive and send bitcoins or other cryptocurrencies.

Financial properties include (Kishore Jain, 2020, 3):

1. Inflation Resistant: Most cryptocurrencies limit the supply of tokens. For example, Bitcoin has a maximum supply of 21 million coins and they will be mined by 2140.

2. High volatility: the value of coins depends only on the ratio of supply and demand; therefore, sharp fluctuations in the exchange rate and the complexity of forecasting are possible.

Many large merchants are willing to accept cryptocurrencies for payment, but most of them use the services of an intermediary, such as Coinbase, which provides instant and risk-free conversion to the currency of the respective country. Thus, cryptocurrencies have not yet been reflected in the accounting of large retailers. Nevertheless, accounting for cryptocurrencies is important for hundreds of companies whose activities are directly related to them. In addition, the investment attractiveness of cryptocurrencies means that they can appear on the balance sheets of companies interested in high-risk, but high-yield investments.

Discussion. In December 2016, the Australian Accounting Standards Board drew attention to the need to issue a standard or clarification on accounting for cryptocurrencies. This was due to the fact that the capitalization of cryptocurrencies in October 2016 more than doubled compared to 2015 and reached \$10.6 billion (Kanevsky, 2017). However, today we can observe an increase in their capitalization by almost 100 times more compared to 2016, since as of April 30, 2021, the market capitalization of all cryptocurrencies exceeded \$1 trillion.



At the same time, despite the obvious interest in the crypto market from large investors, until recently there were no generally accepted rules for accounting for cryptographic assets. The first recommendations on how to account for and present information about cryptographic assets in accordance with existing IFRS standards were given by the International Financial Reporting Interpretations Committee (IFRC) in June 2019, four years after the International Standards Board issued agenda topic accounting for digital currencies. Similar work on the development of recommendations and the development of accounting standards for cryptocurrencies was carried out by the Financial Accounting Standards Board (GAAP), however, no official clarifications on this issue have yet been received, with the exception of separate local practical recommendations from the Japan Accounting Standards Board for GAAP Japan (ASBJ, 2018).

The choice of the applicable IFRS standard for accounting for cryptocurrencies is determined by their economic essence and nature. It is on what a cryptographic asset is inherently that their accounting and presentation in financial statements depends. Cryptocurrencies are used to make payments and transfers by participants in a decentralized system as a means of exchange, thereby performing one of the functions of money (Almagambetov & Tekebayev, 2020, 28). However, cryptocurrencies are not cash as they are not backed by any government and are highly volatile. Cryptocurrency is also still not a widely accepted medium of exchange. In addition, if we consider cryptocurrencies as money, then they have a huge deflationary potential, given that the number of bitcoins, the largest cryptocurrency in the world, is limited to 21 million units (Kanevsky, 2017). Cryptocurrency cannot be cash equivalents, since their future value is not known in advance (IFRS, IAS 7, clause 6).

Cryptocurrencies cannot be fully attributed to financial instruments, as they do not give the holder the legal right to receive funds or financial assets in the future (Afanaseva, 2019). Under IAS 32 Financial Instruments, a financial instrument is a contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another (IFRS IAS 32)

Conclusions. With the digitalization of accounting, the enterprise itself determines the criteria for the usefulness of information, through the formalization and presentation through a system of special software products. After collecting data in the blockchain system, there is a need to create special digital accounting platforms. In theoretical terms, the digital platform is a kind of accounting policy of the enterprise, as it contains methods, accounting methods that contribute to the effective functioning of the business.

The main advantages of blockchain accounting technology are:

1. Openness of the transactions performed - the network user is free to trace the history of transactions on the site - explorer.
2. The presence of a digital record - makes it impossible to forge, change, delete data.
3. Each blockchain participant has a constantly updated copy of the database.
4. High speed and accuracy of transactions, which ensures the speed and reliability of transactions.
5. Decentralized communication between servers, which gives high security to users and transactions. With these properties, the blockchain system is one of the most suitable for use in accounting.



Thus, the digitalization of the economy necessitates the use of digital technologies in all areas of economic development. First of all, the introduction of digital technologies concerns accounting processes, which is a prerequisite for the digitalization of accounting, through innovative technologies of data transfer and storage. Blockchain is the most appropriate digital technology for improving accounting methodology. The digitalization of accounting will increase the speed of information collection and processing, increase the reliability of data storage, and increase the availability and timeliness of information for interested users.

The lack of regulation of this type of activity allows enterprises to show some flexibility in the choice and application of appropriate accounting standards. But it is worth remembering that in order to legally work with cryptographic assets, you need to obtain a license. Also, in case of large or doubtful transactions, it is necessary to notify the money laundering bureau, since such transactions are comparable to cash.

When preparing the annual report, the accounting method should be justified by reflecting it in the accounting policy and in the notes to the financial statements. When forming it, it is necessary to proceed from the goals and objectives of the use of cryptocurrencies by the enterprise, as well as the technique of making payments.

The purpose of this work was to write a guide to accounting for cryptographic assets to help accountants.

The following tasks were performed by the author of the work:

1) the International Financial Reporting Standard (IFRS), the Accounting Services (RTJ), the official opinion of the International Financial Interpretations Committee (IFRIC) and the Board of Auditors (Audiitorkogu) were analyzed to determine the procedure for an accountant to work with cryptographic assets for accounting purposes;

2) the practical experience of foreign countries in accounting for cryptographic assets was studied;

3) the practical experience and training materials of local experts in the accounting of cryptographic assets were studied;

4) 3 interviews were conducted with local sworn auditors who have experience in auditing companies with cryptographic assets;

5) 2 interviews were conducted with accountants who have experience in the introduction of accounting with cryptographic assets;

6) legal aspects of the use of cryptographic assets are defined;

7) based on the data and results obtained, a manual on the accounting of cryptocurrencies was drawn up.

The compiled guide will help the accountant or other interested person to obtain not only information about cryptocurrencies, but also how to reflect such assets and the accounting method. It can also be taken as a basis for drawing up internal accounting rules, and changed depending on the needs of the company.

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