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DECENTRALIZED MANAGEMENT IN BLOCKCHAIN AND ITS ROLE IN MODERN SOCIETY

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Abstract: *Today, the field of digitalization of the economy, blockchain technology and cryptocurrencies attracts the attention of both private businesses and government agencies. These processes are reflected in scientific circles, among Information Technology Specialists, Experts, and economists. Research of blockchain technology, the development of ICO and IEO (Initial Exchange Offering), which characterize the processes of initial placement of tokens in order to attract financial resources, as well as the main risks associated with investing in cryptocurrencies, such as insecurity on the part of the state, lack of regulation in this area, lack of control over the financial condition of the issuer and targeted checks on the nature of the use of funds, lead to the need for a more detailed analysis of the capabilities of the blockchain in the process of digitalization of economic relations.*

Key Words: *blockchain, governance, decentralized, modern society, role.*

1. INTRODUCTION:

This problem becomes relevant in a transparent society and the strengthening of singularity processes when technologies are ahead of any other areas of human activity due to their rapid implementation for consumption and use in real processes.

By 2025, most of the world's inhabitants will overcome the path from almost complete lack of access to “unfiltered” information to possession of all the information in the world, and with the help of a device that fits in the palm of their hand. If the current pace of development of technological innovations continues, most of the eight billion Earthlings will be active users of the network by that time, and the word “digitalization " will become commonplace in human life of the 21st century.

Against the background of transcendent changes, technologies that will have a direct impact on new economic realities and at the same time meet the standards of an innovative digital society, as well as provide an appropriate level of trust, security, and fast and cheap services in conditions of limited and resource savings, come to the fore. Their role will be significantly strengthened against the background of the challenges of the 20s of the 21st century, which will be associated with new financial and economic shocks, epidemics, and testing of new types of biological weapons.

One of these technologies is blockchain, which acts as a secure digital public registry that keeps records of transactions in a public or closed peer-to-peer network. Distributed among all network nodes, the registry continuously records the history of asset transactions between peer-to-peer (single-order) network nodes in the form of blocks of information.

2. MATERIALS:

Summarizing the terminology, DLT and blockchain are used interchangeably in position papers and popular media, although DLT can be considered as a more general term.

Blockchain is a universal tool for building various databases, which has the following advantages:

1. Decentralization – there is no main storage server. All records are stored by each member of the system.
2. Full transparency. Any participant can track all transactions that took place in the system.
3. Privacy Policy. All data is stored in encrypted form. The user can track all transactions but cannot identify the recipient or sender of the information if they do not know the wallet number. A unique access key is required for operations.

4. Reliability. Any attempt to make unauthorized changes will be rejected due to non - compliance with previous documents. To legally change data, you need a special unique code issued and confirmed by the system.

5. Compromise - the data that is added to the system is verified by other participants, that is, they essentially list the hash, allowing digital information to be distributed, but not copied. Blockchain technology has created the foundation for a new type of Internet. It was originally developed for a digital currency (in particular, bitcoin was created on its basis), but today the technical community is looking for other potential uses for these technologies.

3. DISCUSSION:

The importance of blockchain technology is determined by its adaptability to various fields of activity that are built on large databases, which is especially important in the context of the transition from the IT – information technology Society to the DT – data technology society. Based on this, there will be an accelerated transition and transformation of the spheres of analog society into digital, which will have a tangible impact on Business, Finance, social, economic, and political relations.

The implementation of blockchain as a technology based on the first cryptocurrency bitcoin (BTC) and other alternative currencies, such as Ethereum (ETH), Ripple (XRP), Litecoin (LTC), EOS (EOS), clearly showed the advantages of developing technology based on decentralized systems, which become alternative payment instruments to traditional financial systems.

If we talk about blockchain precisely from the point of view of its capabilities in the system of financial transactions, then it is worth highlighting its advantages and disadvantages as a component of financial innovation. Categorically, blockchain is more concerned with technological innovations, but given its implementation in the system of international transactions, we can fully talk about financial innovations in terms of:

1) its use in a specific segment of the financial market;

2) hedging high volatility of market parameters, especially in the context of financial crises;

3) implementation in the form of new financial processes, techniques or strategies aimed at using new products based on a distributed ledger.

Ideally, transaction processing within the framework of blockchain technology should meet the following properties:

- transactions must be consistent with the current state of the system. In the case of financial transactions, if the balance of a certain user A is 1000 Yandex units, they cannot pay the user 10,000 Yandex units;

- transactions must be authorized. Only user a must have a key for making transactions on behalf of A;

- transactions must be immutable. After that. as a transaction is recorded in the registry, it cannot be changed (for example, if the registry records a transaction in which pays 100 Yandex units, the attacker should not be able to change the amount of the payment, its sender or recipient);

- transactions must be final. Once a transaction is recorded in the registry, it cannot be deleted from there, which essentially results in a refund to the sender;

- resistance to censorship. If the transaction complies with all the rules of the blockchain, it must be added to it.

Thus, if we talk about the prospects for implementing blockchain in the financial system, the main advantage of its development and comprehensive application can be the ability to increase the efficiency of the financial system itself without additional burden on intermediary structures (saving financial resources on administrative centers and their services), since the advantage of the technology itself is to minimize the influence of intermediaries and trust between counterparties at all stages of movement of goods, works and services, or directly their financial support.

It is worth noting that although awareness of the benefits of blockchain technology has increased significantly, there are significant obstacles to its large-scale application.

The main ones are: uncertainty in the field of law, collective efforts to standardize the main requirements for the implementation of blockchain, the relative high cost of development and the lack of a sufficient number of highly qualified specialists who could ensure the improvement of its transactional capacity, through the development of new versions (generations) of the blockchain, such as 2.0, 3.0, 4.0. There are also difficulties in ensuring trust in cryptocurrencies, which is due to the lack of their material support and so far they are only equated with currencies, or are considered their analogues in most countries of the world.

However, despite these disadvantages, it is possible to identify the following advantages of blockchain for its use in the financial sector:

1. Blockchain has great potential to introduce simplicity and efficiency in the financial sector and its main tools by creating a new infrastructure of financial services;

2. The application of blockchain will vary on a case-by-case basis, and in each case the technology will be used differently to generate different benefits and benefits;

3. Digital identity identification is critical for the use of blockchain to spread to new verticals; electronic fiat currency (electronic money expressed in one of the state currencies, and is one of the types of monetary units of the state's payment system) at the time of implementation, it is being discussed by leading governments and central banks of the world, along with other opportunities, it can increase the benefits of using blockchain;

4. In those financial sectors where the use of blockchain would give the maximum effect, deep cooperation between market participants, developers and regulators is necessary, which will complicate and delay its implementation;

5. The new blockchain-based financial services infrastructure will build processes in a new way and challenge the traditional approaches that underlie today's business models.

From the point of view of Legal Regulation, the fate of cryptocurrencies and blockchain technology will largely be determined by legal approaches to their further functioning.

4. RESULT:

In UAE (United Arab Emirates), as in other countries of the world, there is still an imbalance between the economic realities of the market and the development of legislation, which complicates the creation of formal and institutional norms regulating the procedure for issuing and circulating cryptocurrencies and increases possible risks at the macro-and micro levels [4]. Despite the institutional uncertainty, in 2017 UAE confidently entered the list of leading countries in the use of cryptocurrencies.

Also, according to the draft law, it is proposed to introduce a 5% tax on income from operations with virtual currencies. According to the initiators, such a step stimulates the development of the virtual asset market in UAE and will help to get additional budget revenues. However, cryptocurrency is a convenient tool not only for electronic payments and rather risky investments, but also for money laundering and crime financing. Therefore, legislative initiatives must meet international requirements for identifying users in a decentralized database system (KYC – know your customers), as well as preventing transactions with proceeds from crime (AML – anti money laundering) [8].

At the beginning of 2020, there are more than 4,000 types of cryptocurrencies, and with the development of digital assets, their number is actively growing. The cryptocurrency market functions and allows you to analyze their value in more detail, and therefore for analysis we have selected the top 10 cryptocurrencies according to the rating of the international digital platform coinmarketcap.com let's consider their types by capitalization as of March 2022.

Despite such currency fluctuations in the price, Bitcoin remains the most common and expensive cryptocurrency today. The pricing policy in relation to bitcoin is determined solely by speculative demand on international exchange platforms for trading cryptocurrencies, the capitalization of the world's first decentralized cryptocurrency is more than 110 billion. This represents more than 66% of the global cryptocurrency market [8].

The graph of the Bitcoin dominance index is shown in Fig. 1.

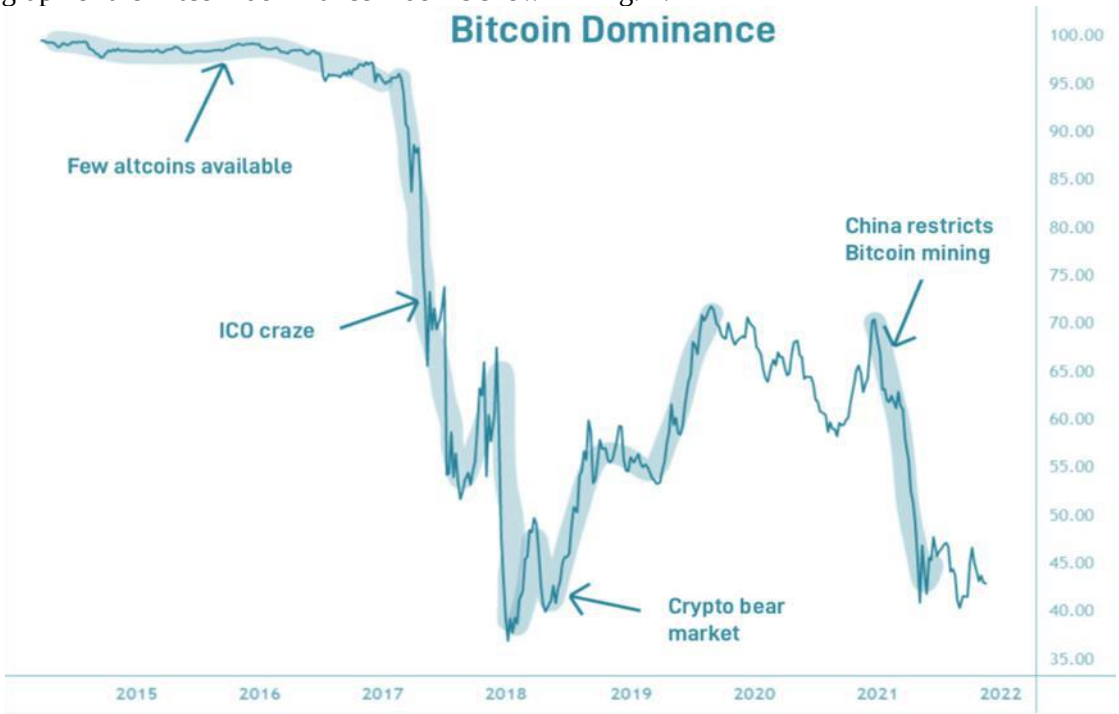

Figure 1. Bitcoin dominance index 2014-2022

The dominance of bitcoin until March 2018 was decisive and amounted to approximately 96%, but it was after this period that the rapid growth of alternative cryptocurrencies took place, the Bitcoin dominance index began to fall to the level of 71-51%, and this indicator was lowest at the beginning of 2018 – 38%. It is worth noting that it was during this period that the value of bitcoin had the highest indicators in history at the level of 20 thousand dollars. USA.

However, other cryptocurrencies also showed their market maximum prices, in particular, the second most popular cryptocurrency Ethereum (ETH) in early 2018 at the peak of the price was worth 1,350 USD. The third – Ripple (XRP) in its value rose to 3.5. USD. Thus, alternative cryptocurrency units have lost more than 90% or more of their value, while the first cryptocurrency has lost about 70% of its maximum price to date [9].

Such price instability in the cryptocurrency market creates additional risks for their users, which determines the fact that cryptocurrencies have not yet taken their place as means of payment and systems of units of account for certain goods or services. However, high volatility allows certain categories of holders-investors, as well as traders, in case of successful choice of market behavior, to create high returns in a short period of time.

The determining factor of high volatility of cryptocurrencies is the level of capitalization of the entire market (the total market capitalization, compared to the beginning of 2018, fell by more than a quarter – from 870 billion). Both the capitalization of some of them and its "transfusion" between various cryptocurrency assets. It is often possible to determine the direct dependence of the cryptocurrency price on MarketCap [9] indicators.

The reason for the growing demand for alternative cryptocurrencies in 2017 was also the system of initial placement of coins (tokens) on cryptocurrency exchanges (ICO – Initial Coin Offering), which mainly took place based on the Ethereum blockchain (ETH), containing smart contracts (smart contract). ICO has become the main way to attract investment funds in many blockchain-related projects. However, according to a study by Statis Group, about 80% of ICO projects were failures, and although in total they attracted a tenth of all investor funds (out of 11.9 billion raised in 2017). Fraudsters received 1.34 billion in funding), which undermined investor confidence in such an investment system. In addition, the legislative regulation of this area in most countries of the world has not reached a new level, which is why investors are unprotected from fraud and have suffered significant capital losses.

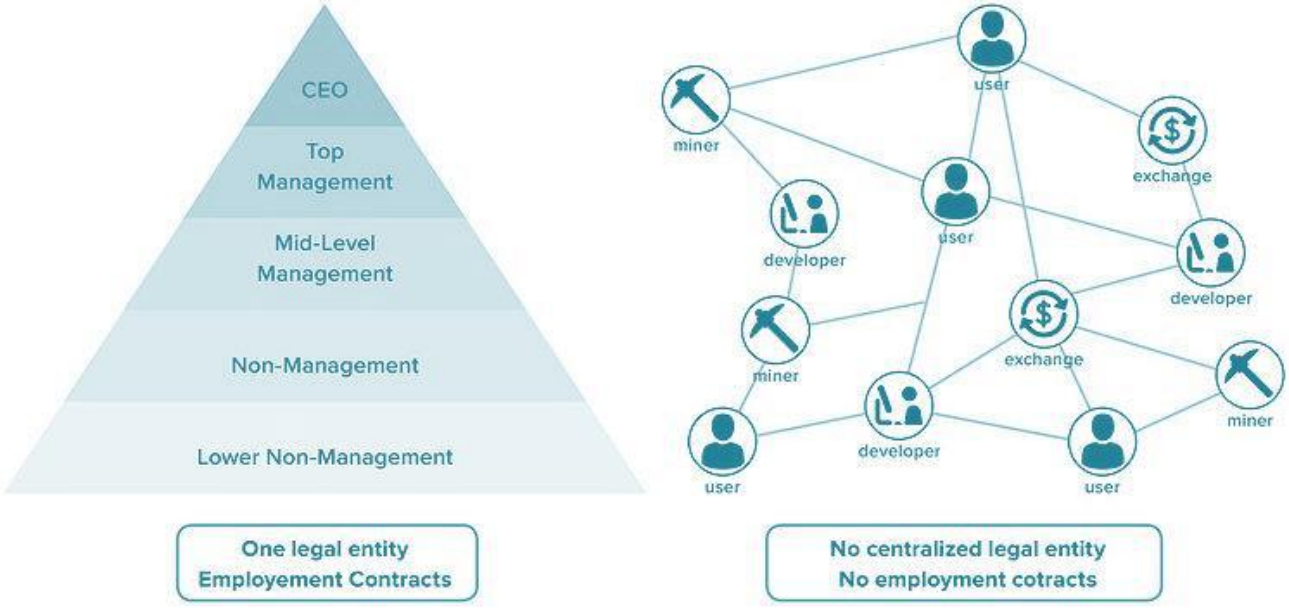

Figure 2. Decentralized management structure in blockchain

Today, we can't say that interest in ICOs has completely dried up, but the situation has changed dramatically compared to the end of 2017, when 50-60 new ICOs were held per day. But for greater security of investors, crypto exchanges began to offer a new format of participation in the initial placement of crypto assets, where they act as intermediaries and guarantors of such operations – the system was called IEO (Initial Exchange Offering).

That is, since the need to finance cryptocurrency projects remains relevant, today this issue is solved in two ways. The first is private placements, when the project collects the required amount behind closed doors (the most striking example is Telegram), which implies a high initial interest in the project. The second way is to agree with the exchanges on an initial public offering or IEO. In the second case, the exchange, acting as a guarantor, conducts a preliminary audit and technical audit of the project and its tokens, assesses the investment attractiveness and potential of the project, and then announces the launch of a "token sale" on the exchange. Investors who buy tokens do not send funds to a smart contract (as happens in an ICO), but Register on the exchange and buy coins immediately from their personal account [11].

Against the background of high volatility of cryptocurrencies in 2018, a new concept appeared in the blockchain environment – stablecoins is a cryptocurrency that has a stable price, is not subject to volatility, unlike traditional cryptocurrencies. This property is achieved by linking the stablecoin exchange rate to stable assets, such as fiat currencies (US Dollar, Euro), or physical assets (oil, gold).

However, today many developers are working to remove the dependence of stablecoins on traditional assets, since they contradict the basic property of cryptocurrencies – decentralization. So, the idea of linking the stablecoin exchange rate to the CPI (Consumer Price Index) – an indicator that reflects the average cost of a basket of consumer goods and services-is popular.

One of the main reasons for creating stablecoins is the idea of using them as a means of making daily household payments. An ideal stablecoin should perform three functions:

1. Act as a medium of exchange (purchase and sale of goods and services directly, without intermediaries and barter operations).

2. Be a means of storing assets (saving savings for a long time without losing their value).

3. Used as a unit of account (allows you to measure and compare the cost of goods and services).

That is, stablecoins in their functional affiliation and essence, firstly, more correspond to the characteristics of money, and secondly, they perform the role of digital assets with full-fledged payment functions, on the basis of which it will be possible to develop an extensive infrastructure for ensuring their functioning and development (from new financial services to merchants). There are two types of stablecoins:

1. Stablecoins secured by the asset to which they are linked (owners of this type of stablecoin are legally entitled to the underlying assets).

2. Stablecoins that remain stable compared to the asset's price, but do not grant ownership of the asset. This type of stablecoin is maintained stably thanks to original, sophisticated systems that prevent discrepancies between the price of the asset and the price of the stablecoin itself.

Among the stablecoins that are linked to the underlying assets, we can distinguish:

1. Tether (USDT) is the most popular stablecoin pegged to the US dollar (1 USDT = 1 USD), – the fourth largest cryptocurrency by capitalization according to the data coinmarketcap.com (see table. 1). Other examples of stablecoins pegged to the US dollar are Carbon, NuBits, and USD Digital.

2.DGX Token – a stablecoin that is planned as the future gold standard for value exchange in the Ethereum ecosystem (ETH). This token is compatible with Ethereum smart contracts.

3.Basecoin – the idea of which is that the basecoin protocol can be linked to the value of any asset or basket of assets, dynamically adjusting its market price through the creative use of a combination of tokens.

4.Libra, Gram – project stablecoins of the largest social networks Facebook and Telegram.

The popularity of stablecoins as units of stable value of digital assets has contributed to the fact that the governments of many countries around the world, together with their central banks, began to develop projects of national cryptocurrencies based on blockchain technology. In particular, the United States has already announced the development of a digital dollar and plans to present the White Paper of the project by May 2020.

Similar projects have already been launched or are currently being tested in countries such as China, Japan, Germany, Switzerland, the United Kingdom, France, and Russia. According to IMF representatives, state-owned digital currencies can bring many advantages to the traditional financial system, as they will open the door to more efficient payment services, make them available to many users at once, increase stability and reduce entry barriers for new corporations, and strengthen monetary policy tools.

Also, state-owned digital currencies can become a significant means of countering the emergence and growth of new cryptocurrency projects, which, as a rule, do not track either technological solutions or improvements in the current characteristics and scalability of the blockchain [11].

5. CONCLUSION :

The results of our research prove that although blockchain technologies have not become “breakthrough” in terms of their mass use at the end of 2019, however, 2020 can be a defining year for decentralized management systems, which will be due to the crisis economic phenomena and the restructuring of financial systems both at the local and global levels.

Additional incentives for the development of technology will be provided by the Covid-19 pandemic, which will accelerate the activation of such services that will be directly related to online resources, digital and electronic payment systems, communications, and other forms of social interaction. It can also be expected that as more companies invest human and financial resources in blockchain and understand more deeply how this technology can improve their business processes and financial results, blockchain technology will gain popularity, as its advantages in cost savings, competition and return on investment will become more noticeable.

In our opinion, the exchange of information both within and between different sectors of the economy will allow distributed ledger technologies to reach a completely new level. As the relationships between blockchain and other new technologies are established, such as automation and cloud solutions, nanotechnology discoveries, and advances in quantum physics, blockchain can create and realize competitive advantages that cannot be achieved in other existing technologies.

Proof of this is the attention to decentralized systems from the banking sector, public financial institutions and multinational corporations that invest significant resources in research and technology.

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