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DIGITAL TRANSFORMATION OF THE BANKING SYSTEM WITH THE INTRODUCTION OF BLOCKCHAIN

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ABSTRACT

This article explores the issues of the process of transforming banking sector in the context of the development of digital technologies. The main purpose of the article is to reveal that blockchain technology can be an effective tool for developing partnerships, the need for which is determined by the emergence of new business opportunities related to the sharing economy or the internet related things. Researched and carried out from the point of view of science, international and national legal acts. The issues of introducing blockchain technology in securities transactions, clearing, crowd investing, register of property and property rights, decentralized data storage, user and customer identification, smart contracts, and to confirm the validity of identification data were studied.

KEYWORDS: *Digital Asset, Blockchain, Digitalization, Banking System, Property, Financial Institution, Security, Patents.*

INTRODUCTION

The rapid development of scientific and technological progress is reflected in almost every sphere of human life. Countries are trying to adapt to these conditions through ongoing reforms and innovations in regulatory systems. A similar situation can be seen in our country, where attention is especially focused on the involvement of information technology, which aslo can be seen in a number of adopted regulatory documents. In particular, the President of the Republic of Uzbekistan, in one of his works put forward the idea of the significance and further prospects for the development of the introduction of information and communication technologies in all sectors, where it was noted: "Modernization of industries and regions, increasing their competitiveness, and developing export potential will always be in the center of our attention. For this, it is necessary to attract even more actively foreign investments, advanced technologies, including information and communication technologies, in all spheres. It is on this basis, that we will be able to achieve an increase in gross domestic product by more than 2 times by 2030."

So, for these purposes, the year 2020 was declared the Year of the Development of Science, Education and the Digital Economy. The development of the Concept of the National Strategy

"Digital Uzbekistan - 2030" was started, a number of decrees and resolutions of the President were adopted, regulating the procedure transition to a new economic order **[1].** It should be noted that such changes in the economic sphere are directly related to the liberalization of entrepreneurial activity, which includes the sale of goods, works and services. This, in turn, serves to improve the culture of service and accelerate the development of the service sector, which also includes the implementation of promotional activities. The rapid spread of digital technologies, often referred to in the scientific community as the "digital revolution", is fundamentally changing the economic structure, creating new conditions for the functioning of markets and influencing the change in the traditional business landscape.

Materials and methods

Blockchain technology is publicly and privately distributed databases containing records of every operation (transaction) ever made by members of this network. Records are combined into blocks with date and time stamps, which are protected by cryptographic keys, calculated using a special algorithm - a hash function. The hash (or key) of each block is its unique identifier and is included in the key of the next block, providing data validation. The reliability of data in the blockchain network is additionally ensured by the fact that each new participant who connects to it sees the entire chain of blocks, and any changes to the block are made with the consent of the majority of participants. Thus, in the blockchain structure, all network participants ensure cybersecurity **[2].**

The blockchain chain also provides for the technology of "smart" contracts, which are parts of the executable code that work when certain conditions within the chain are met. "Smart" contracts allow you to automate the actions performed by the participants of the blockchain network, for example, settlements after completing a certain task or partial payment upon completion of an agreed stage of work.

It is believed that there is no centralized control in the blockchain chain. The practical use of the technology, of course, assumes that some official organization is preparing interoperability standards and protocols for private blockchain networks used in a particular sector of the economy. **[3]**

Blockchain technology can be an effective tool for developing partnerships, the need for which is determined by the emergence of new business opportunities related to the sharing economy or the internet related things. Specialists use the term "industrial mashups" to describe alliances in which one or more participants use the assets or functionality of their partners to create new added value in the business. At the same time, such alliances do not affect the current use of such assets in any way (in accordance with the basic purpose).

The first versions of the blockchain involve large amounts of calculations, which is associated with the protection of blocks and the need to combine them **[4].** In this regard, the performance of the blockchain network will decrease with an increase in the number of participants.

It should be taken into account that the anonymity of participants in the blockchain network is relative: all transactions are related to specific participants, so they can be easily identified by blockchain addresses. By analogy with e-mail, anonymity in the blockchain network will be possible if the participant performs certain actions that will not allow him to be identified by the blockchain address. An important feature is that if the blockchain provides an opportunity for all

network participants to “see” the content of all blocks, then the so-called “block” disappears the information asymmetry with all the consequences.

In the practical implementation of blockchain technology, it should be taken into account that attackers may try to gain access to relevant information using the “vulnerable” places of the information system.

The essence of the technology, its features make it possible to formulate a methodology for its use by Developing Banks, to assess the possible consequences of the introduction of blockchain technology in the form of a sequence of actions.

Blockchain as a technology-phenomenon have moved from the stage of skepticism towards to the stage of benefits and opportunities for its practical implementation in business. Although the legal regulation of blockchain-based products and services has lagged behind the pace of development of the technology itself, such regulation already exists in one form or another in many developed legal orders. The breadth of blockchain application and its practical value in the digitalization of the modern world is obvious, although the degree of its practical implementation depends on many factors, including applicable regulatory requirements that must be met. Legislation on the protection of personal data, regulation of the activities of organizations operating in the financial sector (banks, payment systems, auction organizers, etc.), control of money laundering and terrorist funding, licensing, certification, registration. Regulatory requirements should not be forgotten when developing any products or services. Blockchain solutions and products based on it are no exception. In this regard, it is very important to have, at a minimum, a general idea of the potential legal problems that a developer may encounter, and how qualified legal assistance, can competently be resolved. **[5]**

More than 20 years ago, Bill Gates said, "“Banking services are necessary, but banks are not”. Today, the financial institutions are under enormous pressure: the needs of the “digital” generations of customers are changing, compliance with the rules of doing business is becoming increasingly expensive **[6].**

Research results

Financial institutions understand that they must change. At the same time, changes can affect not only product offerings, but also lead to a significant change in the roles of the organizations themselves. We cannot look behind the Research and Development departments of financial institutions because it's a trade secret. However, according to various indirect signs, one can draw conclusions about the quality in which such structures see themselves in 5-10 years. When it comes to digital transformation, there exists several scenarios for it. You can come up with an innovative solution yourself, you can buy it on the market, or can buy a company with all its innovations and developments. Based on these three scenarios, we analyzed the work with blockchain technology in the world's largest financial institutions. We studied their patents and patent applications (“invent yourself”), their case studies (“acquire in the market”) and their investments (“acquire a company”). In this study, we discuss which attempts by financial institutions to “reinvent” themselves can lead to: what new roles they can play, what markets can appear, and how the balance of power in the financial industry will change.

The banking industry plays a vital role in determining the growth and the development of an economy. In recent years, we have seen a major reform in the banking sector around the world,

namely the automation of traditional tasks for banking. Automation has become a great tool in almost every industry due to the many benefits it offers. One way to automate banking sector is the implementation of the Blockchain system. Blockchain technology has the potential to completely change the financial industry we know and use today.

Blockchain is a technology for the formation of a distributed database consisting of blocks of information containing records created to solve applied problems **[7].** The invention of this particular technology goes back to 2008, when an unknown person or group of people under the pseudonym Satoshi Nakamoto published an article "Bitcoin: A Peer-to-Peer Electronic Cash System". Blockchain involves hashing and works according to the following principles: new information is sent to all nodes of the network, after which each of them combines it into a block. This is followed by the selection of a hash (a hash-digital string of a fixed length). Once such a hash is found, the block is sent to the network. The remaining nodes accept a new chain block that includes the cryptographically protected information of the previous block **[8].** This means that each new block is attached to the previous one using complex algorithms, and in such a way, they are connected to each other. The described chain guarantees the absence of such operations as deleting, modifying or overwriting a block that contains information **[9].** It is worth noting that the blockchain technology is decentralized, so even if one of the network computers is hacked or exited, this will not affect the operation of the database as a whole, whereas classic centralized database is vulnerable to such attacks. **[10]**

The introduction of blockchain technology in the banking sector has both advantages and disadvantages.

Blockchain technology is much more advanced than previously used banking applications. It allows:

- To register all transactions using cryptocurrency;
- Allows users to track transactions of interest, which makes the banking system very transparent.

Arises:

- The ability to conclude simple contracts automated (Smart contract);
- Cost savings for system maintenance;
- Reduces the risk of fraud;
- Increases the speed of banking operations;
- The ability to access information without connecting to the Internet, which is an advantage of the technology provided timely for data synchronization.

The disadvantages include the following aspects:

- High cost of implementation;
- A large amount of resources is needed to move from outdated technologies to new ones.
- High power consumption, and affecting the physical environment as in Uzbekistan over 80% of the energy produced by burning fossil fuels.

- And the fact that the blockchain technology in the market of the Republic of Uzbekistan appeared not so long ago, there is a drawback performance, as well as the lack of basic cryptographic tools;

CONCLUSION

Financial institutions around the world are exploring Blockchain technology, for the purpose of application in their electronic services, conducting tests with a distributed ledger, conducting proofs of concepts and publishing their results.

There are attempts to introduce blockchain technology in securities transactions, clearing, crowd investing, register of property and property rights, decentralized data storage, user and customer identification, smart contracts, and to confirm the validity of identification data. In our days, many banks use Blockchain technology and prove its effectiveness to the whole world.

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