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MAIN PROBLEMS AND PRINCIPLES OF IMPLEMENTATION OF DISTRIBUTED DATA REGISTRY TECHNOLOGY

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Introduction. Until recently, the world has been organized according to centralization principles. Centralization can effectively solve urgent, critical, and short-term problems [1]. However, in the long run, it is ineffective, as it is not amendable to modernization processes [2].

The general modern information and communication technologies presuppose the economic transition to the digital area. That is directly reflected in management methods at the macro level and at the level of commercial structures particularly, the transition to a decentralized management system is underway. The information and communication technologies for a long period determine the development of the economy and society and can lead to dramatic changes. The digital economy is one of the preferred areas for most countries, including economic leaders.

The latest digital technologies that for their scale and influence depth called "end-to-end": wireless technologies, the Internet, artificial intelligence, robotics, etc., have caused another rise of business and social models transformation recently. Those can increase labor productivity. Shortly, new digital technologies affect the international competitiveness of individual companies and entire countries that form infrastructure and legal background for digitalization.

The above studies used foundations of the economic analysis of the economic entities to analyze the centralized and decentralized models of their management [3]. That approach highlighted that in recent years, there had been another transformation of business and social models caused by advanced digital technologies providing for the shift of the economy to the digital area.

It is shown that blockchain technology, as a decentralized data ledger, is the most discussed and relevant topic in the digital economy development. Revealing the mechanisms for the blockchain technology implementation is based on the current databases and peer-to-peer computer networks, highlighting in detail the main mechanisms of contradictions, realization, and implementation of blockchain technology, and justifying cost reduction, increased security and transparency of transactions, which drew the attention of various sectors of the economy.

Research objectives. Based on the literature analyses and the results of the current state of information and communication technologies development, to analyze the main mechanisms for the implementation of blockchain technology, identify the fundamental problems of its implementation, perform a systematic analysis of the contradictions of blockchain technology and propose ways to eliminate them.

Research of main mechanisms for implementation of blockchain technology. The main task for blockchain technology is coordinating the operation of network participants consolidated by a single goal without mutual trust. Moreover, blockchain technology has great potential as it provides secure personal data storage, making changes in them inaccessible for fraudulent purposes. The most valuable link is the consensus algorithms that grant blockchain technology its reliability. There are three main systems for reaching the consensus: Proof-of-work, Proof-of-stake, and Delegated-proof-of-stake [4].

Hardware and software problems of blockchain technology implementation. Blockchain is surely an attractive and most promising technology but not suitable for every system. Nevertheless, it is notable that even for those systems where blockchain technology is applicable, its implementation has several

problems caused by structure and technology principles [5]. Several conditions mark blockchain implementation: shared database, no trust between the participants, absence of intermediaries, the interdependence of operations, the need to create chains. A few of them are security and privacy issues, implementation and integration issues, understanding technology, and the operations speed issue.

System analysis of blockchain technology contradictions. Like any new innovative technology, blockchain has many problems for full-scale implementation. One of the most important is the decentralized data storage problem: depicts a feature of decentralized data storage problem with the main contradictions for the technology. Each node of the network stores the entire data register; it allows restoring the network until the last node gets destroyed. However, it is notable that the network constantly grows during the operation, leading to uncontrolled data. In addition, to enter the network of a new member, one needs to sync a large amount of data. Alternatively, a standard database can store exact encrypted data and enter only their hash into the blockchain. The obsolete blocks are then archived. Still, this is a local solution to the problem. The following circumstance must be kept in mind. When using blockchain technology to store data, it is important to remember that modern technologies do not allow storing large amounts of information on the blockchain. Thus, in essence, blockchain technology in this industry is practically used as an intermediary and a ledger that enforces the terms of a transaction to provide storage from one person to another (see Fig. 1). The circumstance means, that neither blockchain technology, smart contracts, nor cryptography protects information in decentralized storage. Moreover, it can be argued that information has the same protection in such circumstances as in traditional repositories.

Thus, it can be assumed that one can apply methods from such technologies as "big data". The approach was developed in various architectures. It also focuses on dealing with large amounts of data storage and processing.

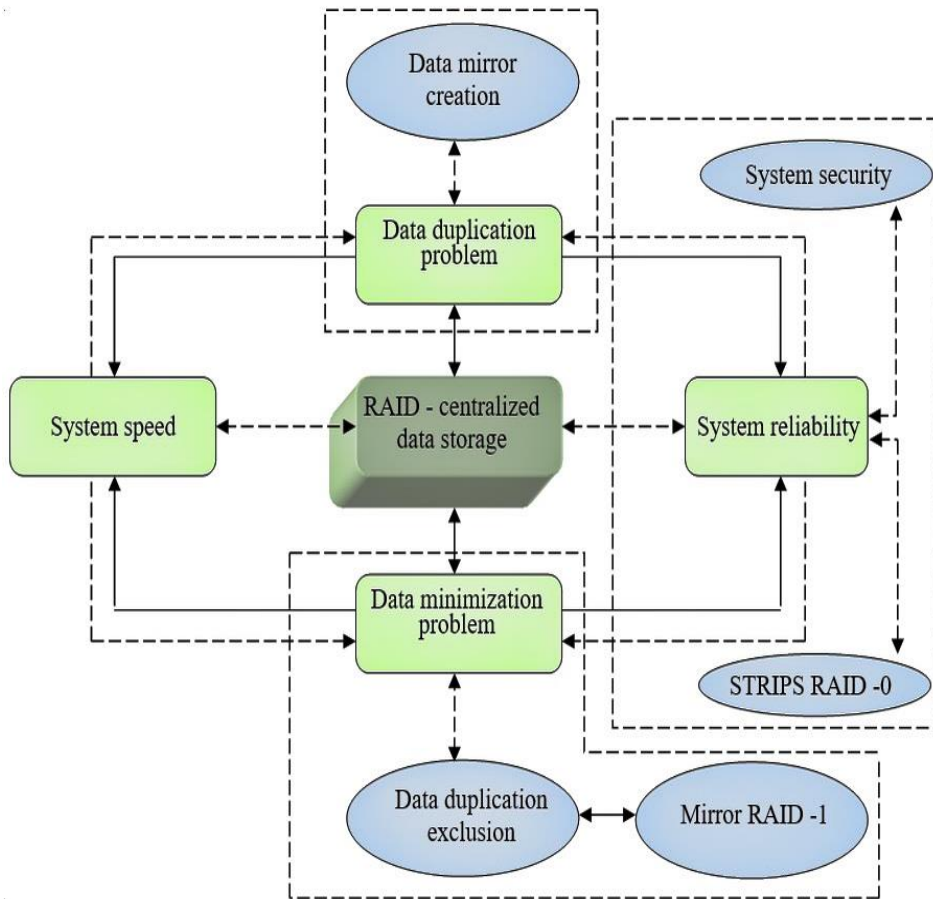


Fig. 1. Contradiction scheme for decentralized data storage in the blockchain system

The main obstacle to integrating big data tools into blockchain is the system type: blockchain is a decentralized distributed system requiring the computations to be distributed among multiple nodes, and there are no nodes that control other nodes' operations.

Nevertheless, one should remember that, practically, the blockchain is a simple database with significant scalability and no-query languages. However, decentralization, immutability, transparency, and universal data exchange more than compensate for its shortcomings.

Discussion. Research data show that the economy of various countries is developing based on the use of advanced information and communication technologies. Digital technologies reveal great prospects for economic development. Nowadays, one of the major components of the digital economy develops most

intensively, the distributed data ledger technology. The paper analyzes the basic principles of blockchain technology, emphasizing that blockchain technology is a distributed system with the opportunity of making transactions for each participant. The paper analyzes the stages of blocks forming in the blockchain environment for that purpose. The above schemes for the formation of system blocks, their validations, and additions do not always strive at disclosing the visibility of the system's operation, but they also point to the problem of coordinating the system participants' actions. In this regard, the paper reveals the main mechanisms for implementing the technology. Thus, it was shown that the technology has huge potential for secure personal data storage, making changes in them inaccessible for fraudulent purposes. In this respect, the mechanism for reaching consensus was highlighted as the most valuable link in blockchain technology. For better insight, algorithms were analyzed to reach a consensus, which provides the entire blockchain system reliability.

Conclusions. This paper shows that information and communication technologies, particularly the digital economy, reveal a huge range of opportunities. It was noted that its strengths, the reducing costs, increasing the level of security, and transparency of transactions drew the attention of various economic sectors. In this regard, for a clear and definite understanding of the problems under consideration, the author's definition of the digital economy, digital technologies in the economy, and "end-to-end" digital technologies in the economy were introduced.

The approach proposed by the authors allowed concluding that the digital economy is distinguished by several subtleties associated with insufficient knowledge, understanding of technical implementation, and flexibility.

Nevertheless, the indisputable fact is that the digital approach can transform its internal structure. However, for the digital economy to become widespread in various fields, it must address legal legitimacy, regulation, technical viability, standardization, and widespread adoption.

The paper highlights the most intensively developing main components of the digital economy: distributed ledger technologies (blockchain) and real option

technologies. Research has shown that blockchain technology is one of the main directions for the digital economy development. As a decentralized data registry, the paper shows that blockchain technology is the most discussed and relevant topic in the digital economy. Its strengths are analyzed, such as cost reduction, high security, and transaction transparency applicable to various economic sectors. The main mechanisms of contradictions, arrangement, and implementation of blockchain technology are detailed with the author's approach to eliminating the identified contradictions.

References

1. Centralized Decision Making Helps Kill Bad Products. (2021, August 31). Harvard Business Review. <https://hbr.org/2016/10/centralized-decision-making-helps-kill-bad-products>
2. Campbell, A., Kunisch, S., & Müller-Stewens, G. (2021, March 1). To centralize or not to centralize? McKinsey & Company. <https://www.mckinsey.com/business-functions/people-and-organizational-performance/our-insights/to-centralize-or-not-to-centralize>.
3. Nick, A., & Hoenig, L. (2020, May 7). Consensus Mechanisms in Blockchain Technology Lexology. <https://www.lexology.com/library/detail.aspx?g=e30e7d54-3c7f-4ca0-8a22-478227a9b5ec>
4. The Truth About Blockchain. (2019, August 21). Harvard Business Review. <https://hbr.org/2017/01/the-truth-about-blockchain>
5. Cain, D. (2019, July 10). Big Data Synchronization: 5 Ways to Ensure Big Data Accuracy. Medium. <https://towardsdatascience.com/big-data-synchronization-5-ways-to-ensure-big-data-accuracy-4c4801b021ad>