

Alla Kapiton,
Doctor of Pedagogical Sciences,
Professor,
National University «Yuri Kondratyuk Poltava Polytechnic»

INFORMATION SUPPORT OF THE PERSONNEL MANAGEMENT SYSTEM |

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Blockchain is a registry of decentralized data exchanged through secure channels. Blockchain technology allows a group of selected participants to exchange data. Blockchain cloud services make it easy to collect, integrate and share transaction data from multiple sources. The data is broken down into common blocks that are linked to each other by means of unique identifiers in the form of cryptographic hash functions. Blockchain provides data integrity with a single source of trusted information, eliminating data duplication and increasing data security. In the blockchain system, fraud and data manipulation are impossible, since they can only be changed with the permission of the quorum of the parties. The blockchain registry can be exchanged, but it cannot be changed. If someone tries to make changes to the data, all participants will be notified about this and will know who it was [1]-[3].

Blockchain is the technology of processing, collecting information and identifying clients. Literally, from the English blockchain (blockchain) is translated as “block lance”, and the technology itself was propagated in 2008 by Satoshi Nakamoto (pseudonym of people or groups of people). Blockchain is a little developed topic for riches, but this technology is rapidly penetrating into all spheres of our life, and the pioneers of blockchain systems have already earned millions [4], [5], [6, p.77].

Key features of blockchain technology:

visibility - in the blockchain, data is stored about all the operations carried out for the entire history of the system (cryptocurrency) creation;

stability - you cannot see or replace the information "backdating", but only create a new favor;

independence - information is collected not on one central server, but on anonymous computers of participants in the network.

The operation of the blockchain can be compared to Torrent - the system functions in P2P mode (peer to peer - a computer network where all participants are equal). When we download a movie from the tracker, the central server is not used. The file is downloaded directly from the computer of the same torrent participant as you. Similarly in blockchain. All transactions are conducted between network members directly. And they are carried out due to the fact that their computers are connected to one network - the blockchain.

It is known, three types of blockchain:

public Blockchain (a public (or inclusive) blockchain is a network in which anyone can become a member without any restrictions. A public blockchain governed by rules or consensus algorithms is used by most cryptocurrencies);

exclusive (or private) blockchain (an exclusive (or private) blockchain allows companies to control who can access blockchain data. Only users who have been granted the appropriate permissions can access certain datasets. The Oracle Blockchain Platform is an exclusive blockchain);

federated Blockchain (a blockchain network in which the consensus process (mining process) is controlled by a selected set of nodes or stakeholders).

For the first time, blockchain technology was used in 2009 when creating the cryptocurrency "Bitcoin" and gained wide popularity for the development of other cryptocurrencies, for example, Ethereum), Ripple and Litecoin. The positive qualities of the system contributed to its further penetration into the economy, and now blockchain is used in banking, public administration, jurisprudence and other areas[1], [3].

In practice, in blockchain networks at some point in time, several transactions must be registered at once, for example, transactions with bitcoins, which are formed by the system into one block (block). A sequence of several such blocks is called a chain, and such a chain is continuous and unbreakable, as each block has a link to the previous one. Transactions also cannot be deleted or changed - only new ones can be added. Therefore, you can always see information about the transfer of ownership rights to an asset from the moment of its creation.

Blockchain systems are decentralized. This means that transactions are processed by a large number of special system participants - miners. As a rule, anyone who has the appropriate hardware and software can become them. Functions of miners in blockchain systems: store copies of data, which protects the system from data loss and information falsification; confirm transactions in the system; check operations carried out by other miners.

What motivates miners to help blockchain systems register and conduct transactions? After all, mining equipment is not cheap. Usually, the motivation is a reward from the system for conducting a transaction, as well as commissions paid to miners by participants in the agreement for processing the transaction.

It is worth noting that buying equipment and connecting to the blockchain in order to earn from mining is not enough. It is still necessary to carry out the transaction faster than everyone else, because only the first person who offers the encryption code of the operation, that is, creates a new block in the chain, can receive a reward. These lucky ones become those miners who have the most powerful equipment to process operations, while other network participants "stay idle."

To carry out transactions in the blockchain network, you need to have special wallets for storing data, for example, information about purchased cryptocurrency. They are online, desktop and mobile, as well as hardware. An online blockchain wallet can be opened in a few minutes by registering on specialized financial portals. Desktop ones involve installing the program on a PC, and mobile ones - on a communicator. A

hardware wallet is a flash drive for data storage, they are more reliable than others, because they do not have constant access to the Internet, and therefore cannot be hacked by hackers. However, in order to carry out transactions, you will constantly have to move cryptocurrency from hardware to other wallets and vice versa.

Information about wallets and transactions with them are protected by encryption. The buyer and seller of the asset confirm the transaction using cryptographic keys - special unique digital codes. But still, there were cases when online blockchain wallets were hacked by hackers, so it is better to store data offline on a flash drive. As a rule, blockchain wallets assume anonymity, that is, it is impossible to establish who is carrying out the operation. This will help protect your assets from prying eyes, but also carries additional risks - because if you forget your wallet access details, you will lose your assets.

The use of blockchain technology is expected to expand significantly over the next few years. The game-changing technology is considered innovative and revolutionary as blockchain will change existing business processes, bringing increased efficiency, reliability and security. Blockchain technology provides companies with certain business benefits that help them: establish trust between parties doing business with each other by providing reliable, shared data; eliminate data fragmentation by integrating them into a single system using a distributed ledger located on the network, to which authorized parties have access; provide a high level of data security; refuse the services of third-party intermediaries; generate real-time tamper-proof records that all participants have access to; guarantee the authenticity and integrity of products in commercial circulation; clearly track and control goods and services throughout the supply chain.

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