



BLOCKCHAIN AND CRYPTOCURRENCY TECHNOLOGIES: A NEW STAGE OF THE MODERN ECONOMY

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Abstract:

The article analyzes the essence of blockchain and cryptocurrency technologies, their principle of operation, practical application and role in the modern economy. The technological advantages and security systems of cryptocurrencies, as well as the prospects for the digital economy developing on their basis, are considered.

Keywords: Blockchain, cryptocurrency, digital economy, Bitcoin, Ethereum, smart contract, decentralization.

Introduction

BLOKCHEYN VA KRIPTOVALYUTA TEXNOLOGIYALARI: ZAMONAVIY IQTISODIYOTNING YANGI BOSQICHI

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Annotatsiya:

Maqolada blokcheyn va kriptovalyuta texnologiyalarining mohiyati, ularning ishlash prinsipi, amaliy qo'llanilishi va zamonaviy iqtisodiyotdagi o'rni tahlil qilinadi. Kriptovalyutalarning texnologik ustunliklari va xavfsizlik tizimlari, shuningdek, ular asosida rivojlanayotgan raqamli iqtisodiyotning istiqbollari ko'rib chiqiladi.

Kalit so'zlar: blokcheyn, kriptovalyuta, raqamli iqtisodiyot, Bitcoin, Ethereum, aqlli shartnoma, desentralizatsiya.

Introduction

In today's globalization and digital transformation, financial and economic systems are fundamentally changing. The integration of information technologies with the economy has given rise to new digital tools, in particular, blockchains and cryptocurrencies. Their decentralization, transparency, and reliability compared to traditional financial tools make these technologies a strategic foundation for the modern economy.

Scientific foundations of blockchain technology

Blockchain is a distributed system that stores data in the form of digital blocks in a sequential, immutable manner. Each block contains transaction information, a time stamp, and a hash code of the previous block, which makes it highly secure.

The blockchain system is decentralized, with each user acting as a node in the network. Even if all participants in the network do not trust each other, new blocks are created through algorithmic consensus and a single "truth" is stored in the network.

Advantages include:

- Immutability and data integrity;
- Transparency — all transactions are publicly traceable;
- Decentralization — no single control center;
- Cryptographic protection — data is stored encrypted.

How cryptocurrency technology works

Cryptocurrency is a digital payment instrument based on the blockchain, which performs functions similar to real money: storing, exchanging and measuring value.



Cryptocurrencies are not issued by central banks, but are created by network participants through algorithmic mining.

Mining process

Miners solve special cryptographic problems and create new blocks. In return, they receive a reward - newly created cryptocurrency units. This process ensures the operation of the network and confirms transactions.

The principle of operation in brief:

1. The user creates a transaction;
2. The transaction is verified in the network;
3. After confirmation, it is written to the block;
4. The block is distributed throughout the network and added to the chain.

Popular cryptocurrencies and their economic role

Bitcoin is the first and most popular cryptocurrency, created in 2008 by Satoshi Nakamoto. Its total supply is limited to 21 million units. It has become not only a means of payment, but also an investment asset.

Ethereum is a blockchain platform that supports smart contracts. It is used to create decentralized applications (dApps). The ETH currency serves as the platform's "fuel". Litecoin is a faster and cheaper version of Bitcoin. Dash is a system that emphasizes anonymity and operates through dual control (miner + masternode). Tether is a stable digital currency tied to the US dollar.

Blockchain is being used in the digital economy in the following areas:

- Financial technologies (FinTech): fast and secure payment systems;
- Public services: electronic voting, cadastre, document lists;
- Medicine: transparent and immutable storage of medical history;
- Education: digitization of diploma and assessment systems;
- Logistics and supply chain: tracking product movements and protection against counterfeiting.

Also, the possibility of automating economic activities through DeFi (decentralized finance), NFT (non-fungible tokens) and smart contracts is expanding.



Conclusion

Blockchain and cryptocurrency technologies are defining a new direction for the economy of the 21st century. They provide financial freedom based on reliable, transparent and decentralized technologies. Cryptocurrencies are not only a means of payment, but also an investment asset, as well as a tool for driving innovation in economic and social systems. The future of the digital economy depends on the deep integration of these technologies.

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