

**Natalia Tubaltseva, Candidate of Economic Sciences,  
Associate Professor**  
*Admiral Makarov National University of Shipbuilding  
Mykolaiv, Ukraine*

**Natalia Hryshyna, Candidate of Economic Sciences,  
Associate Professor**  
*Admiral Makarov National University of Shipbuilding  
Mykolaiv, Ukraine*

**Vladyslava Bronska, Master's Student**  
*Admiral Makarov National University of Shipbuilding  
Mykolaiv, Ukraine*

DOI: <https://doi.org/10.30525/978-9934-26-552-5-27>

## **BLOCKCHAIN AS A DRIVER OF INNOVATIVE DEVELOPMENT**

The main value of innovation lies in decentralization, which allows you to create a system protected from any manipulation. Therefore, blockchain is recognized as the best technology in the field of cybersecurity. Blockchain is a distributed database shared by nodes in a computer network. It is best known for its key role in cryptocurrency systems to maintain a secure and decentralized record of transactions, but it is not limited to the use of cryptocurrency [1].

Since the introduction of Bitcoin in 2009, blockchain usage has exploded with the creation of a variety of cryptocurrencies, decentralized finance (DeFi) applications, non-fungible tokens (NFTs), and smart contracts. The size of the Bitcoin blockchain files, which contain all transactions and records on the network, has continued to grow significantly. By August 2014, it had reached 20 gigabytes, and by early 2020, it had exceeded 200 gigabytes [2].

A blockchain is a database into which information is entered and stored. But the key difference between a traditional database or spreadsheet and a blockchain is how the data is structured and accessed. A blockchain allows the data in a database to be distributed across multiple network nodes – computers or devices running blockchain software – in different locations. This not only creates redundancy but also maintains the accuracy of the data. For example, if someone tries to change a record in one instance of

the database, other nodes will prevent it. This means that no single node in the network can change the information stored in it.

Blockchain technology promises to improve the way businesses are run. It impacts various sectors, from finance to manufacturing, as well as education. In 2009, Satoshi Nakamoto published a famous white paper about the technology [3]. In the paper, he provided details of how the technology was well-equipped to increase digital trust, given the decentralization aspect that meant that no one person would ever control anything. Since Satoshi Nakamoto stepped down from the scene and handed over the development of Bitcoin to other major application developers, the digital ledger technology has evolved, leading to new applications that make up the history of blockchain.

The global blockchain industry is expected to experience tremendous growth, expanding the market size to US\$265.01 billion by 2028. This surge is estimated at a compound annual growth rate (CAGR) of 69.9%, driven by digitalization, government support, and widespread adoption worldwide [4].

Blockchain technology is attractive for its ability to streamline processes, making them more accessible and efficient than traditional methods. Smart contracts eliminate intermediaries and ensure that contracts are not vulnerable to modification or tampering, reducing fraud and risk. The technology also provides transparency in monitoring ownership and asset transfers.

Many companies are exploring the possibilities of applying blockchain technology everywhere – from finance to manufacturing. Let's consider some of them:

Microsoft Corporation is developing Blockchain-as-a-Service (BaaS) applications on its Azure cloud platform.

- IBM has launched its own BaaS offering; it is planned to integrate it with other products of the company, such as the IBM z Systems computing network, the Watson artificial intelligence system for the Internet of Things, etc.

- Blockchain Foundry focuses on blockchain-based services for prototyping and manufacturing.

- Bigchain DB offers scalable blockchain services.

- Chain advertises a blockchain platform for financial services.

- IBM and Samsung are working on the ADEPT concept, in which blockchain technology will be used to form the basis of a decentralized network of devices – the Internet of Things. The blockchain is planned to

be used to register billions of devices that will autonomously broadcast transactions in a system with a three-tier architecture.

The European Commission has played a significant role in promoting blockchain, launching the EU Blockchain Observatory in partnership with blockchain startup ConsenSys [5].

Thus, blockchain is a revolutionary technology that, thanks to its decentralized nature and increased security, is transforming modern processes of data storage, transaction processing, and contract automation. It opens up many opportunities for improving business, education, finance, and technology, eliminating intermediaries and reducing the risks of fraud. Forecasts of the rapid growth of the global blockchain industry prove its potential and importance for the future. This innovative solution not only changes existing models but also contributes to the creation of new areas of activity, making blockchain technology a key element of the digital age.

### **References:**

1. Binance Academy. Available at: <https://bit.ly/3DLyDqB> (accessed 15.03.25)
2. Glassnode Studio. (2022). Bitcoin: Block Height. Available at: <https://studio.glassnode.com/charts/blockchain.BlockHeight?a=BTC&category=&s=1230508800&u=1659484800&zoom=> (accessed 15.03.25)
3. Satoshi Nakamoto. Bitcoin: A Peer-to-Peer Electronic Cash System. Available at: <https://bitcoin.org/bitcoin.pdf> (accessed 10.03.25)
4. Nosov V. The future has already arrived: blockchain technologies in the global economy and everyday life. Opinions. 2024. Available at <https://en.thepage.ua/experts/how-blockchain-technologies-affect-the-global-economy> (accessed 12.03.25)
5. Blockchain. IT enterprise. Available at: <https://www.it.ua/knowledge-base/technology-innovation/blockchain> (accessed 10.03.25)