

УДК 004.738.5-056.5

Kateryna Chakmazova¹, Nataliia Zhukova²

¹ student of group CST-124 NU “Zaporizhzhia Polytechnic”

² PhD (Philology), Associate Professor NU “Zaporizhzhia Polytechnic”

BLOCKCHAIN: ADVANTAGES, DISADVANTAGES, AND HOW IT IS CHANGING THE WORLD

Blockchain is a technology that uses cryptography to store and verify information securely. It operates by placing each piece of data into a block, which, once saved, cannot be changed. Then, the next block is connected to the previous one by a link. If anyone tries to change previous blocks, it will ruin the formed chain of links [1].

This information preservation format makes Blockchain resilient to fraud, secure, and trustworthy. It is also not controlled by big corporations like Google or Apple because it is not an app but a technology. Moreover, it reduces paper usage and makes accessing needed information much quicker [2; 3].

However, there are drawbacks to the Blockchain. Because of its increasing popularity, users can face slow processing of operations. High energy consumption, which is caused by the Proof of Work mechanism, also became a cause for worry for ecology activists. In addition, this technology lacks standardization. To solve these problems, specialists suggest using the Proof of Stake mechanism instead and implementing cross-chain solutions. The key difference between these two is that Proof of Work (PoW) requires solving complex math problems to confirm your actions. At the same time, Proof of Stake (PoS) selects participants based on their reputation and beneficial actions on the service [1; 3].

Currently, Blockchain is mainly used in cryptocurrency transactions. It has several benefits in this area, such as operating year-round and lower fees than traditional banks. However, its applications extend far beyond that. Retailers utilize it to provide luxury and exclusive products. In healthcare, it can keep all medical records easily accessible and secure. Web3, a model of the internet that any big corporation does not control, is built on a blockchain system [3].

Moreover, Blockchain can help solve ethical problems, such as child labour. Despite the efforts of many global companies to enforce fair policies, approximately 160 million children are still involved in international supply chains. By tracking every stage of production and transportation, blockchain technology could help ensure that no child labor is involved [4].

Additionally, blockchain can combat food fraud, such as product mislabeling or cheaper substitutes for original ingredients, which can harm consumers' and companies' reputations. With this technology, consumers can easily trace the origins of their food [5].

To summarise, Blockchain is a modern technology that is already changing the world. Although blockchain still faces challenges, ongoing advancements are steadily addressing its limitations. As technology evolves, new applications and improvements will further enhance its impact on various industries.

REFERENCES

1. What is a blockchain? [Electronic resource]. – Access mode : <https://www.coinbase.com/learn/crypto-basics/what-is-a-blockchain/> (accessed: 03.03.2025). – Title from the monitor.
2. Shalamai A. Blockchain Technology: Pros, Cons and Top Use Cases [Electronic resource] / A. Shalamai. – Access mode : <https://kindgeek.com/blog/post/what-you-need-to-know-about-blockchain-pros-and-cons/> (accessed: 2025.03.04). – Title from the monitor.
3. Feger A. Blockchain technology: What it is, benefits, and its cross-industry applications [Electronic resource] / A. Feger. – Access mode : <https://www.emarketer.com/learningcenter/guides/blockchain-technology-applications-use-cases/> (accessed: 2025.03.04). – Title from the monitor.
4. Choksy U. How blockchain technology could help to prevent child labour in global supply chains [Electronic resource] / U. Choksy. – Access mode : <https://theconversation.com/how-blockchain-technology-could-help-to-prevent-child-labour-in-global-supply-chains-232280/> (accessed: 2025.03.07). – Title from the monitor.
5. Gepp A. Food fraud is a growing economic and health issue, but AI and blockchain technology can help combat it [Electronic resource] / A. Gepp, M. Tiwari. – Access mode : <https://theconversation.com/food-fraud-is-a-growing->

economic-and-health-issue-but-ai-and-blockchain-technology-can-help-combat-it-224449/ (accessed: 2025.03.07). – Title from the monitor.