

## **USE OF BLOCKCHAIN TECHNOLOGIES IN MODERN ENGINEERING PROJECTS**

In today's world, engineering is constantly being influenced by technological innovations that help to improve the efficiency, reliability and safety of engineering projects. One of these innovative technologies that has recently gained significant importance is blockchain. Blockchain, originally known as the technology behind cryptocurrencies, is now widely used in a variety of fields, including engineering. This innovation plays a critical role in ensuring the security and reliability of data in engineering projects. Due to its characteristic as a distributed system, where each block of data contains the previous hash code, blockchain becomes almost impossible to modify without changing all subsequent blocks, making it an ideal tool for storing important engineering data such as plans, specifications and test results. Improving project management efficiency is another key benefit of using blockchain in engineering projects. In addition, blockchain can reduce the cost of intermediaries and optimize production processes. This technology can reduce the number of intermediaries required in the supply chain and optimize inventory monitoring and management processes. This leads to lower operating costs and increased overall efficiency of production processes [1].

Supply chain management of materials and equipment becomes much more efficient with blockchain. Thanks to blockchain technology, all stages of the supply chain can be tracked, including production, transportation, and delivery. This reduces the time and resources typically spent on supply chain management and increases trust between supply chain participants. Maintaining logs and logistics data during construction is another area where blockchain can help optimize processes. Records of construction materials, labour, and other resources can be stored in a secure and unalterable source, ensuring that the data is reliable and accurate. It allows businesses to avoid conflicts and misunderstandings during the construction process [2].

However, implementing blockchain in engineering projects also brings its own challenges and limitations. Resilience to changes in the regulatory environment is one of the main challenges in implementing blockchain in engineering projects.

On top of that, technological innovations are evolving rapidly, and legal frameworks may not always be able to keep pace with these changes. Therefore, companies seeking to implement blockchain in their engineering projects should be prepared to adapt to changes in the regulatory environment.

The high cost of implementing and integrating the technology is another important aspect that can delay the adoption of blockchain in engineering projects. From initiation to maintenance and upgrades, blockchain systems involve high financial costs for software development, staff training, and security, which can make implementation difficult for many companies.

Data privacy and legal compliance issues can also make it difficult to implement blockchain in engineering projects. As data on the blockchain is publicly available and cannot be deleted or altered, there is a risk of data privacy and confidentiality being compromised [3].

Therefore, even with the challenges that accompany the introduction of blockchain in engineering projects, its potential to improve data management and security makes it a key tool for the future development of the engineering industry.

#### REFERENCES

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#### CRITERIA FOR SELECTING POLYMERIC MATERIALS

Polymeric materials constitute an integral part of contemporary transportation manufacturing, providing not only convenience and aesthetic appeal but also functionality to the interior coatings of moving vehicles. When selecting materials for interior treatment, transportation manufacturers must consider various criteria, including mechanical, chemical, thermal, aesthetic, ecological, and economic aspects. Let's examine each of them.