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PROBLEMS OF BLOCKCHAIN TECHNOLOGIES INTRODUCTION IN COMMERCIAL ENTERPRISE'S LOGISTICS

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As more and more global logistics market participants become concerned about increasing the transparency and reliability of logistics chains, leading IT companies are advancing the idea of using Blockchain technology for this purpose.

The most well-known program for the application of Blockchain technology in logistics is associated with Maersk and IBM. They focused on creating a digital distributed register where all documents related to shipment could be placed [1].

The technology will help to measure so the location as the temperature, humidity and state of power supply in real time.

With this in mind, the basic principles of logistics such as systematic, reliability, timeliness, safety and efficiency can be followed (Table).

Table
 Advantages and prospects of Blockchain technologies using in compliance with the principles of logistics

<i>Principles of logistics</i>	<i>Advantages</i>	<i>Prospects</i>
Systematic	Creation of integrated management structures	Всі файли інтегруються в єдину систему
	Availability of information	All bills of lading, invoices, declarations, certificates, etc., regardless of who is the owner and holds the relevant positions, may be publicly available
	Unification of documentation	The whole range of cargo and transport documentation is in one format. Possibility of clearer system planning of business processes
Reliability	Improving the reliability of document management	Creating a distributed register of all approved documents Ensuring data preservation Protect the storage of documents from burglary Impossibility to change the information about the course of transportation
	Improving the quality of the logistics product	Registration of changes in the environment that are crucial for a particular type of product
Timeliness	Real-time data update for all parts of the logistics chain	Synchronization of all contractors and improving the accuracy of forecasting and planning, which will reduce the cost of goods
	Reduce order processing time	Eliminate multiple data records in the system Ability to integrate automatic triggers and use data from IoT sensors
Safety	Reduction of logistical risks	Impossibility of falsification or loss of documentation Absence of corruption risks, influence of the human factor Prevention of incorrect labeling of goods Prevention of smuggling and illegal goods
Efficiency	Reduce logistics costs	Reduce the number of intermediaries and procedures related to analog interactions Reduce time spent on information processing Reduction of customs duties

Source: developed by the author

For commercial enterprises, the use of Blockchain technologies in logistics has many potential benefits. Ultimately, this enables these companies to increase logistics efficiency by automating processes, reducing controlling and insurance costs, and making supply chains safer, as proof of origin and authenticity of products is automated.

The main basic characteristics of Blockchain technologies [2] are the following:

–Distributed register, according to which each participant in the logistics chain of a commercial enterprise in real time has a complete copy of all data, which eliminates the need for constant verification and coordination of logistics business processes.

–Cryptographic records, which maintain the integrity and security of data on logistics operations, and all updates and changes are displayed with the exact time of their execution.

–Consensus - all changes to updates and transactions must be confirmed by all participants, which eliminates the need for centralized control, forms a rating of participants in the logistics chain and creates an atmosphere of trust.

–Smart contracts - when consensus is reached, a computer program performs standard logistics operations on its own without human intervention. This applies to repetitive and formalized operations in commercial and logistics processes.

Thus, in theory, the application of Blockchain technologies in logistics seems to be a potential solution to some problems, there is already experience in their use. The question arises: why only a small proportion of commercial enterprises use these technologies?

Based on the existing realities, we can identify the following problems of implementing Blockchain technologies in the logistics of commercial enterprises, which prevent the breakthrough of this type of innovation in logistics chains.

1. Lack of trust in Blockchain technologies in commercial companies, as data exchange takes place on open platforms, although these technologies, in fact, contribute to building trust between participants.

2. Limited practice of using Blockchain technologies by advanced commercial firms, which have become a benchmark for Blockchain-based logistics management.

3. Underestimation by the commercial enterprise`s management of the using Blockchain technologies benefits for logistics flows due to greater attention of managers to automation and optimization of processes.

4. Lack of knowledge and lack of managers awareness – the top-management of a lot of businesses does not understand, or understands only superficially, what Blockchain technology is and what potential it have.

5. Limited number of qualified contractors for the development, implementation and operation of Blockchain technologies.

6. Compatibility with other programs and applications - there are problems of integration of logistics solutions based on Blockchain technologies due to the high degree of software customization of each commercial enterprise. Since there is no standard solution, the use of this technology requires significant costs.

7. Lack of a clear legal framework for regulating transactions based on Blockchain technologies.

Actually, there is no unified standard for the Blockchain technologies implementation in the logistics activities of commercial formations. Logistics solutions in the R&D market are quite fragmentary. Many businesses are committed to standardized and integrated accounts in existing accounting standards, which will operate on the Blockchain basis, as well as to regulate legislation in this regard. In our opinion, logistics solutions of large international corporations, which will be based on Blockchain technologies, can become drivers of development.

References

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