

Даля, вип. 4 (280), 2023, с. 41-46, <https://doi.org/10.33216/1998-7927-2023-280-4-41-46>, <https://journals.snu.edu.ua/index.php/VisnikSNU/issue/archive>

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UDC 658.7:004.9:005.591.6

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INNOVATIVE TECHNOLOGIES IN LOGISTICS PROCESS MANAGEMENT

Innovative technologies in modern conditions have become a determining factor in the transformation of logistics processes, since it is logistics that today forms the basis for the continuity of economic relations, the stability of supply and the efficiency of the functioning of enterprises. In a globalized economy, the speed of movement of goods, the accuracy of coordination of operations and the ability to respond promptly to market changes directly affect the competitiveness of business. This necessitates the transition from traditional approaches to logistics management to digitally integrated systems that can operate in real time and provide a high level of adaptability.

Modern logistics is gradually ceasing to be only a functional component of the enterprise, associated with the transportation and storage of products. It is transformed into a comprehensive system for managing resource flows, information and interaction between all participants in the supply chain. That is why innovative technologies play not an auxiliary, but a strategic role, changing the principles of organizing logistics processes and mechanisms for making managerial decisions [1, 2].

One of the most important areas of technological transformation is the

digitalization of logistics. Supply chain management information systems provide integration of manufacturers, suppliers, carriers, warehouse complexes and consumers into a single digital network. This allows to significantly reduce the time spent on information exchange, minimize errors and ensure transparency of all logistics operations. Logistics management becomes more dynamic and is based on constant data updating.

The use of big data and analytical technologies is of particular importance. Logistics systems generate significant amounts of information that can be used to forecast demand, analyze transport flows, optimize routes and plan inventories. Based on analytics, enterprises are able not only to assess the current state of logistics processes, but also to model future development scenarios. This creates the prerequisites for the transition from reactive to predictive and analytical management [2].

Artificial intelligence and machine learning algorithms significantly expand the possibilities of automating logistics solutions. The systems are able to independently analyze large amounts of information, determine optimal delivery routes, predict the risks of delays and adjust logistics schemes depending on changes in the external environment. As a result, the influence of the human factor is reduced, the accuracy of operations is increased and management costs are reduced.

The Internet of Things technology forms a fundamentally new level of control over logistics processes. Sensors, RFID tags, GPS systems and other digital devices provide constant monitoring of the movement of goods, the technical condition of transport and storage conditions of products. This is especially important for the transportation of perishable goods, pharmaceutical products and cargo sensitive to temperature conditions. Constant access to up-to-date information allows you to quickly respond to any deviations and increases the overall reliability of the logistics system.

Warehouse logistics is also undergoing significant changes. Automated warehouse complexes, robotic sorting systems, autonomous equipment and digital inventory management provide a high level of productivity and reduce operating costs. The modern warehouse is turning into an intelligent center for managing the flow of goods, where most processes are carried out without direct human intervention.

Blockchain technologies play an important role in the innovative development of logistics. Their use ensures transparency and security of information about the movement of goods in the supply chain. Each operation is recorded in a digital register, which minimizes the risks of data falsification, increases the level of trust between market participants and simplifies control over logistics processes.

Innovative technologies are also changing the approach to ensuring the sustainability of logistics systems. Disruptions in global supply chains, economic instability and geopolitical risks require enterprises to have a high level of flexibility. Digital solutions allow you to quickly restructure routes, change suppliers, predict resource shortages and maintain continuity of supply even in crisis conditions.

Thus, innovative technologies are forming a new paradigm for managing logistics processes, in which digital integration, analytics, automation and adaptability become key characteristics. Their implementation not only ensures increased efficiency of logistics operations, but also creates the basis for the formation of sustainable, flexible and competitive logistics systems capable of functioning in conditions of constant economic and technological changes.

Literature

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