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INNOVATIONS IN LOGISTICS: MODERN TRANSPORT TECHNOLOGIES AND SUPPLY MANAGEMENT

In today's world, where digitalization has become important for economic development, logistics is one of the key places in ensuring the competitiveness of enterprises. It has long gone beyond the simple delivery of goods and has become a strategic function that provides effective supply chain management, adaptation to market changes, cost optimization and customer satisfaction in the shortest possible time.

Today, enterprises are increasingly faced with the need to quickly adapt their logistics processes to changes in demand, increased competition and increased requirements for the quality of service. In this context, innovation in logistics becomes a necessity to maintain efficiency. Such innovations include automation and robotization of processes, the use of digital technologies – in particular artificial intelligence, as well as the introduction of environmental approaches, such as «green logistics». In addition, new transport solutions, for example, unmanned aerial vehicles (drones), open up new opportunities for increasing the efficiency and flexibility of the business. These logistics innovations find their application in various areas of activity, such as procurement, warehouse and transportation management, resource allocation in production, organization of production processes, inventory management, as well as in sales processes – that is, they cover all key functional areas of logistics.

That is why understanding the essence of logistics is important for the effective use of the latest technologies and processes. «Logistics is the process of planning and executing the efficient transportation and storage of goods from the point of origin to the point of consumption. The goal of logistics is to meet customer requirements in a timely, cost-effective manner» [1].

As for the definition of innovation in logistics, it is the introduction of new technologies, methods and processes aimed at improving the efficiency of supply chain management.

The most important innovative trends in the logistics industry include:

1. Automation and robotization. They consist in the use of autonomous robots in warehouses for cargo transportation, sorting and inventory

management [2, p. 2].

Modern logistics warehouses are increasingly introducing autonomous mobile robots (AMR) and automated vehicles (AGV) to optimize internal operations. With this, companies can reduce staff costs, minimize errors in sorting processes and speed up order processing. In addition to warehouses, automation also covers smart transport systems driven by artificial intelligence and providing efficient cargo routing.

2. Artificial Intelligence (AI). It allows you to automate processes, increase their accuracy and reduce costs. Thanks to the ability to analyze large amounts of data in real time, AI is actively used to predict demand for goods, which avoids both shortages and surpluses in warehouses. This, in turn, helps to effectively plan stocks and avoid unnecessary costs. In addition, artificial intelligence allows you to optimize logistics routes, taking into account road conditions, traffic congestion, weather factors and other external circumstances, which ensures faster and cheaper delivery. AI is also used to manage warehouse operations – it coordinates the work of automated systems responsible for sorting, packaging and moving goods.

3. Ecological logistics. It is becoming increasingly important in the context of growing attention to environmental problems. Its main tasks are to reduce carbon emissions, optimize routes to reduce fuel costs, use environmentally friendly transport, and introduce renewable energy sources into transport and warehousing processes [2, p. 7]. Thanks to such approaches, logistics companies not only minimize their impact on the environment, but also reduce their own costs, which makes ecological logistics an important component of their activities.

4. Unmanned aerial vehicles (drones). They are able to deliver goods quickly and accurately without direct contact with the recipient. They are especially effective at the final stage of delivery – when the cargo is sent directly to the client. The use of such technologies helps to save time, reduces dependence on land transport and facilitates the maintenance of remote or difficult to travel areas.

Leading companies such as Amazon and Walmart are actively developing infrastructure for the mass use of drones, including patenting special warehouse towers for their take-off. Ukrainian «Nova Poshta» is also considering the introduction of drones for long-distance transportation of goods, which can significantly increase the speed and efficiency of logistics operations [3, p. 2].

Consequently, innovation in logistics is a key factor in increasing the

competitiveness of enterprises in today's digital world. Thanks to the introduction of automation, artificial intelligence, environmental solutions and drones, logistics processes are becoming faster, more accurate and more efficient. This allows not only to reduce costs and optimize resources, but also to ensure a high level of customer satisfaction. Thus, innovative technologies do not just update logistics, but turn it into an advantage for many enterprises, which helps to respond faster to market changes and contributes to sustainable development.

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