UDC 330.341.1

CURRENT TRENDS IN THE IMPLEMENTATION OF INNOVATIVE TECHNOLOGIES IN LOGISTICS OPERATIONS

Nelipovych L., Basanez S., Poberezhna Z.M.
National Aviation University

Abstract. *The main innovative technologies that are transforming logistics operations is including the use of the Internet of Things (IoT), the introduction of artificial intelligence (AI), and the use of blockchain technology. Innovative technologies in logistics operations allow businesses to increase efficiency, improve functionality, increase production quality, and optimize all processes. They ensure the smooth running of logistics operations, compliance with supply chains on time, and the development of this area in order to improve business, increase customer satisfaction and economic growth.*

Logistics is a key element of modern business, as it determines the efficiency and competitiveness of a company in a rapidly changing world. Increasing globalisation, rapidly evolving technologies and consumer demands are posing significant challenges to companies in the logistics sector. Today, more than ever, it is important to be at the forefront and implement innovative technologies to optimise logistics operations.

The logistics industry combines high technology, rapid change and a constant drive for innovation. Sustained success means not only responding to changes, but also actively innovating and rethinking traditional methods. That is why the introduction of innovative technologies in logistics operations is becoming increasingly important.

The current business environment encourages businesses to introduce innovations that transform logistics operations, including the use of the Internet of Things (IoT), the introduction of artificial intelligence (AI) and the use of blockchain technology. These technologies impact logistics processes, increase efficiency and reduce costs, and address social issues.

The modern service market is characterised by dynamic changes that have been shaped by scientific and technological progress in both the economy and business. These innovations serve as an impetus for the development of not only paths or routes, but also process management technologies. Taking into account the innovation in the logistics aspect, its role is crucial for ensuring the optimal use of all logistics functions and focus on the final result.

The introduction of innovations in the company's logistics activities is a prerequisite for speeding up the supply process. The classification of innovations in logistics activities, which corresponds to each process in the supply chain, includes the following stages: procurement, transportation, production, storage, distribution, logistics management and inventory management [1, p.18].

The role of logistics at all levels of company management determines the efficiency and speed of innovation in logistics processes. This system is supported by information, material and financial flows of the company and is adjusted through their optimisation.

There are certain difficulties on the way to implementing innovative technologies in logistics operations. First and foremost, it is the lack of experience in innovation and the limited ability to borrow this practice from other domestic or foreign companies. The next obstacle is the lack of funding for these innovations, as well as the fear of switching to a new format due to distrust of novelty. The impetus for overcoming this problem is a successful transition from conventional and outdated management to more progressive and modern management.

Undoubtedly, information technology is a key element of innovative technologies. Logistics communications are the linking element in supply chains, connecting a company with an intermediary and the end consumer. The most well-known information technologies include Enterprise Resource Planning (ERP) software systems, the Warehouse Management System (WMS) and the Transport Management System (TMS).

Analysing a warehouse management system (WMS), you can identify a number of advantages that allow you to improve the actual use of warehouse space, storage of goods and cost savings, accuracy in calculations, and automation of the process without human intervention. The computerisation of a warehouse system combines order picking technology and conveyor lines.

Radio Frequency Identification (RFID) is one of the most innovative technologies in logistics operations. With its help, the company has the ability to automatically enter data, access to full control over the location and movement of warehouse products, and the ability to take inventory and manage stocks. In practice, the RFID system is beginning to take a leading role in obtaining data on a particular type of cargo. This technology is used quite widely in maritime transport, where each container is equipped with a sensor with a radio frequency tag that transmits all information to the owner about the location of the goods.

As part of the industrial revolution, the Internet of Things (IoT) technology has found its way into the logistics sector. IoT is a smart

technology that allows for the optimal and rational use of resources such as time, costs, information transparency and, of course, production automation.

The next innovative technology is cloud computing, which can be used in managing logistics business processes at an enterprise for inventory management. They are involved in storing data on the quantity of stocks and tracking their movement through the logistics network. This helps to identify possible problems and risks in logistics operations and provides protection against the loss of valuable information due to unforeseen situations.

Another innovative technology used in logistics is blockchain, which serves to ensure the security and reliability of data in the supply chain. Blockchain helps to track the location of goods in real time and check their condition.

In transport technology, it helps to optimise supply chain processes, integrate logistics data systems, adapt export and import policies, and simplify the logistics operation.

In logistics, blockchain is an innovative tool for supply chain control that contains data on all supply chain records that can be managed and viewed by its participants. This technology is accelerating the flow of information in logistics operations every day, which saves time and money.

One of the most important innovative technologies is the use of artificial intelligence, which, in turn, is a branch of computer science that develops intelligent machines capable of performing tasks that usually require human intelligence [2].

Artificial intelligence is used for inventory management, demand forecasting and supply chain planning, as well as solving transportation problems. Thus, the introduction of innovative technologies in logistics operations enables businesses to increase their efficiency, improve functionality, production quality, and optimise all processes. Artificial intelligence, Internet of Things, and blockchain technologies ensure the smooth flow of logistics operations, compliance with supply chains in time, and the development and improvement of business, increasing customer satisfaction and economic growth in general

.

References

1. Boldyreva L. M. Innovations in logistics: theoretical, methodological and practical aspects. Economika. 2011. №. 1 (34). P. 18–23.

2. Hlybovets M.M., Oletskyi O.V. Artificial Intelligence. Kyiv: "Kyiv-Mohylanska Academiya", 2002. 364 p.

3. Dudar T.G. Innovative management.K.: Center of Educational Literature, 2009. 256 p.

4. Shumsky A.V. Management of innovative development of agro-industrial production: status and development prospects. Innovative economy. 2012. №. 5. 24-29