

## DIGITALIZATION - THE MAIN TRENDS IN LOGISTICS

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**Abstract:** The article considers the main trends in the development of the transport and logistics industry. The importance of introducing information technologies in logistics is substantiated. The directions of development of the logistics industry in the near future are determined under the influence of the identified trends.

**Key words:** logistics, digitalization, online commerce, blockchain, transport, integration.

Digitalization is a global process that involves the introduction of digital technologies in various areas of life. In the process of digitalization, business management methods are changing, which also affects the logistics industry. Currently, digitalization is the main trend in logistics. The key task of logistics is to reduce delivery times. Digital technologies are changing the channels of movement of goods, delivery formats and management processes of the logistics system [1]

The progression of e-commerce has become a driver of digitalization in logistics. Online commerce has created its own requirements for delivery - multi-channel, efficiency, transparency, accuracy. These requirements become incentives to increase efficiency and introduce new technologies in the activities of retailers and logistics operators. Large manufacturers use the opportunity to sell their goods through online channels. The presence of an online store allows you to overcome barriers to entering the market and becomes an industry standard for manufacturers. Retailers are using point of sale as pickup points to ensure smooth delivery and reduce costs.

The largest companies involved in the field of online commerce are investing in logistics to improve the delivery service of their goods. For example, Amazon is developing its own delivery service and is also investing in building warehouses and order picking centers in various regions. Active online sales require solving specific problems that only logistics can handle. These problems include:

- dynamic redirection of parcels;
- change in the form of delivery;
- combining the delivery of orders made in different stores;
- automated documentation for the return of goods;
- automated delivery.

Thus, only those companies that invest in digital technologies can become industry leaders. As a result, there is a need to master current channels and delivery methods, automate processes, and implement blockchain and robots. Blockchain

technology is the exchange of information between several parties within the same network. The use of blockchain has a number of advantages:

- reliable storage of information, since in blockchain systems, participants in the supply chain have access to a single version of shipping documents that cannot be deleted or changed;

- acceleration of logistics processes: a single data storage system allows you to quickly carry out the necessary operations, reducing the time it takes to go through the supply chain;

- cost reduction: simplification of logistics operations leads to savings on the services of certain specialists, such as dispatchers, since artificial intelligence distributes orders automatically. Blockchain technology is used in such areas of the transport and logistics industry as automation of warehouse operations and workflow, tracking deliveries, identifying product authenticity, and automating payments

Another example of digitalization is the robotization of intra-warehouse logistics. The use of robots in warehouses should increase the efficiency of logistics services. Logistics processes in which robotization is being actively introduced: quality control of goods; sorting; cargo packaging; loading, unloading of goods and direct delivery. Automation allows you to effectively use the area of warehouse space by using multi-level racks. Changing the layout makes it possible to place warehouses with a large turnover in smaller areas.

The introduction of robots leads to a reduction in the number of workers, a decrease in parking spaces, and a reduction in the area of household premises. However, it should be noted that in highly automated logistics, the key problem is the use of large amounts of electricity. There is an increase in operating costs and utility bills due to an increase in electricity consumption, as the need for electricity increases both outside and inside the warehouse.

Technological transport systems that optimize and increase the efficiency of transport infrastructure are currently actively used, while dynamic growth of this segment is predicted in the future. Examples of the use of information technology in the transport infrastructure are shown in Table 1.

**Table 1**

**Examples of application of information technologies in transport infrastructure**

Direction of transport infrastructure	Application of information technology
Cargo transportation	Systems aimed at optimizing cargo transportation and collecting data in order to monitor the efficiency and condition of the fleet

Parking places	Systems using real-time data informing about the availability of parking spaces, which provides convenient transport links
Information about traffic flows	The ability to collect large amounts of data for the analysis of traffic flows, traffic load, in order to quickly respond to unforeseen situations on the road
Traffic on the roads	Systems that ensure the efficiency of transport networks and real-time data exchange, which allows you to synchronize traffic lights and allocate street space in a timely manner
Payment collection systems	Automatic collection of tolls from vehicles for travel on toll roads, which saves time
Public transport	Control systems that collect and analyze data, adjust traffic according to needs, improve the efficiency of the traffic flow

From a business development perspective, new transport channels will enable trade agreements to offer a wider range of services, as well as increased interest in businesses that were previously untapped due to high logistical costs. New transport routes should increase the availability of products and goods from foreign markets, while reducing delivery times. The increased flow of goods from emerging markets will stimulate the development of market competition, creating a wide offer in various product categories.

In the current market conditions during the economic downturn and the spread of the coronavirus infection, which blocked the activities of many business areas, it is difficult to predict the behavior of a particular industry. At the same time, it cannot be denied that the opening of new sales markets due to the expansion of international cooperation, as well as the further development of transport technologies, from robotization of warehouses to high-speed railways, will improve the transport and logistics industry, reducing delivery time and costs.

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