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CONTEMPORARY TENDENCIES OF THE MODERN LOGISTICS DEVELOPMENT

Volodymyr Reznik. "Contemporary tendencies of the modern logistics development". *Logistics is an important component of any business, which covers the processes of planning, organizing, managing and controlling the movement of resources, products and information. Its main goal is to ensure the optimal and efficient use of resources, satisfy the needs of consumers and achieve competitive advantages in the market. Logistics covers various activities related to material flows - from the purchase of raw materials to the delivery of the final product to consumers. In traditional logistics systems, the use of information technology was limited, and the main focus was on mechanical inventory management and transportation. In modern approaches, automation, information technologies, and artificial intelligence play a significant role, which allows predicting changes in demand, optimizing routes, and improving inventory management. These technologies make it possible to reduce costs, increase the accuracy and efficiency of decision-making.*

Keywords: logistics, transportation, multimodal transportation, supply chain, WMS, freight-forwarding, means of transport

Володимир Резнік. «Сучасні тенденції розвитку сучасної логістики». *Логістика є важливою складовою будь-якого бізнесу, яка охоплює процеси планування, організації, управління та контролю за переміщенням ресурсів, продукції та інформації. Її основна мета полягає в забезпеченні оптимального та ефективного використання ресурсів, задоволенні потреб споживачів і досягненні конкурентних переваг на ринку. Логістика охоплює різні види діяльності, пов'язані з матеріальними потоками – від закупівлі сировини до доставки кінцевого продукту споживачам. У традиційних логістичних системах використання інформаційних технологій було обмеженим, а основна увага приділялася механічному управлінню запасами та транспортуванню. У сучасних підходах значну роль відіграють автоматизація, інформаційні технології, а також штучний інтелект, який дозволяє передбачати зміни в попиті, оптимізувати маршрути і покращувати управління запасами. Ці технології дають змогу знижувати витрати, підвищувати точність і оперативність прийняття рішень*

Ключові слова: логістика, транспортування, мультимодальні перевезення, ланцюг поставок, WMS, експедирування, транспортні засоби.

Introduction. Logistics, as a management function, has deep historical roots dating back to antiquity. Its original

purpose was to ensure the efficient delivery of goods and resources across different territories, which facilitated the development

of trade and economic ties between different cultures. Already in Ancient Egypt, Mesopotamia and the Roman Empire, logistics played an important role in ensuring the supply of materials for construction, military campaigns and expansion of territories. Transportation of goods, construction of roads and development of navigation were important elements of the logistics processes of that time.

The purpose of the article. The main aim of the article is to provide the research of the main challenges and problems of activity of Logistics development tendencies. This article will provide the accurate information on the history and contemporary tendencies of Logistics development. Also there were researched the comparison between traditional and contemporary logistics

Presentation of the main results. In the Middle Ages, with the development of feudalism and the growth of international trade, logistics increasingly focused on the transportation of goods by sea and land. Trade routes were formed between Europe, Asia and Africa, and these routes ensured the supply of such important goods as spices, silk, metalwork and other raw materials. Simultaneously with the development of transport, the first concepts of inventory management began to take shape, as growing trade required efficient storage of goods in large volumes. Since the beginning of industrialization in the 18th and 19th centuries, logistics has acquired a new dimension. The advent of steam engines, railways and steamships significantly changed the possibilities of transporting goods. Transportation costs decreased, which made it possible to reduce the cost of goods and make them more accessible over greater distances. In addition, the development of factory production led to the need for more efficient inventory management to maintain a continuous production process. During this period, logistics began to focus on improving the processes of transportation and warehousing, as well as on the development of inventory management. Logistics

processes have already begun to be considered an important part of business [1].

In the 20th century, logistics significantly changed its functions thanks to new technologies and management concepts. In the late 1940s and 1950s, scientists and businessmen began to consider logistics as a complex activity that includes not only the transportation and storage of goods, but also the management of information and finances. An important milestone was the development of inventory management theories, such as the Just-in-Time (JIT) model, which allowed to reduce inventory holding costs and minimize overproduction risks. This concept gained popularity thanks to companies such as Toyota, which used it to optimize production processes.

The 1950s also marked the beginning of the development of integrated supply chains. The growth of enterprises and the globalization of the economy required more and more complex management not only of goods, but also of information, finance and human resources. Logistics began to include not only the company's internal processes, but also external relations with suppliers and consumers [2-4].

In traditional logistics, the main emphasis was placed on the internal operations of the company, such as inventory management, transportation and storage of goods. It was focused on ensuring smooth operation within one country or region, as well as optimizing resources within the enterprise. Instead, modern logistics is focused on global supply chains, where companies interact with numerous partners around the world, which allows to gain access to new markets, reduce costs and increase efficiency [5].

In traditional logistics systems, the use of information technology was limited, and the main focus was on mechanical inventory management and transportation. In modern approaches, automation, information technologies, and artificial intelligence play a significant role, which allows predicting changes in demand, optimizing routes, and improving inventory management. These

technologies make it possible to reduce costs, increase the accuracy and efficiency of decision-making.

In traditional approaches, interaction with partners was minimal and information was exchanged directly through paper documentation or phone calls. In modern logistics, integration with partners has reached a high level thanks to the use of electronic platforms for information exchange. This allows you to receive relevant data in real time, synchronize work with suppliers and consumers, and optimize processes throughout the supply chain.

In traditional logistics, risk management was more reactive, when companies eliminated problems after they occurred. In

modern logistics, it is important to predict risks and implement proactive management. The use of big data and analytics allows you to predict potential problems (for example, delays in supplies, changes in demand, political or economic risks) and minimize them in time, which reduces the likelihood of significant losses (Table 1).

Therefore, modern logistics not only changes operational approaches, but also makes logistics processes more global, technologically advanced and integrated. It takes into account new business requirements for speed, flexibility and accuracy, which allows companies to work effectively in the conditions of globalization and a changing market environment.

Table 1 – Comparison of traditional and modern logistics

Parameters	Traditional logistics	Contemporary logistics
Focus on	Inbound operations	Global supply chains
Technologies	It narrow spreading tendency	Automation of IT systems, artificial intelligence
Cooperation with partners	Minimal integration	High integration with partners
Working with risks(mitigation)	Reactive approach	Forecasting and proactive regulation

Developed by: Volodymyr Reznik

Thus, the evolution of logistics from the initial functions of transportation to modern high-tech and global supply and value chain management systems shows how this industry has adapted to a changing world and has become an important factor in maintaining business competitiveness in the global economy. The basis of logistics is the integration of management processes with the aim of optimizing the movement of goods, services and information. This allows businesses to reduce costs, reduce production and delivery times, and improve customer service. Logistics also ensures the rationalization of stocks, transport costs, which allows to improve the overall efficiency of business [6-7].

Thus, logistics is a complex discipline that covers not only the tactical aspects of managing material flows, but also strategic

planning that contributes to the achievement of long-term business goals. Logistics engages several main areas, each of which performs specific functions aimed at optimizing the movement of goods and services within the supply chain. Transportation logistics focuses on ensuring the delivery of goods between various supply chains, including the selection of vehicles and route planning to ensure timely and cost-effective transportation. It plays a key role in maintaining the continuous movement of goods from producers to consumers.

It promotes effective data exchange between process participants, from suppliers to end users, which allows to reduce risks, increase transparency and provide continuous control over operations in real time (Table 2).

Table 2 – Types of logistics

Type of logistics	Characteristics
Transport logistics	Ensures delivery of goods between supply chains, selection of transport, routes
Warehouse management logistics	Management of storage of goods, location of warehouses, optimization of storage places
Supply management logistics	Determining the optimal level of stocks to avoid surpluses and shortages
Purchase logistics	Responsible for the purchase of raw materials and materials
Distribution logistics	Organization of product delivery to the final consumer
Information logistics	Management of information flows, ensuring communications in supply chains

Developed by: Volodymyr Reznik

The logistics supply chain is a sequence of interconnected stages that ensure the movement of goods from suppliers of raw materials to the final consumer. The process begins with the purchase of raw materials, which are supplied by various manufacturers or suppliers. After that, the raw materials are sent to enterprises for processing and production of finished products. At the production stage, raw materials are transformed into finished goods, which are subsequently transferred to warehouses for storage.

After production, finished products are moved to warehouse facilities, where stocks are managed and prepared for further transportation. Warehouses can be located near production facilities or closer to sales markets, depending on the company's logistics strategy. At this point, the products may also undergo packaging or labeling in accordance with the requirements of customers or legislation [8].

The next stage includes the transportation of products, which can be carried out by various modes of transport (road, rail, sea or air) depending on the distance and urgency of delivery. Logistics companies choose the most optimal routes, taking into account costs, delivery time and the specifics of the goods.

The final stage of the logistics chain is the distribution of products and their delivery to the final consumer. Products may pass

through several intermediaries, such as wholesalers or retail distributors, before reaching the final customer. At this stage, it is important to ensure timely delivery, as well as to satisfy all consumer requirements regarding the quality and quantity of goods.

All this requires active management of information flows at each stage to ensure accurate accounting of goods, coordination of actions between chain participants and control over the efficiency of logistics operations (Fig. 1).

A number of scientists claim that the process of strategic logistics management can be considered as a sequence of five key stages, each of which has a significant impact on the formation of an effective logistics system. The first stage, according to the researchers, is the analysis of the logistics chain, which includes a detailed study of all elements and processes related to the movement of goods. As the authors note, this stage involves evaluating suppliers, transportation routes, warehouses, and distribution channels to identify weaknesses and opportunities for improvement. The researchers indicate that a detailed analysis of the logistics chain allows to identify those aspects of logistics activities that need to be optimized to increase the overall efficiency of the system. This approach, according to scientists, makes it possible to get a complete picture of how the company's logistics

network functions, as well as to identify key areas for improvement [9].

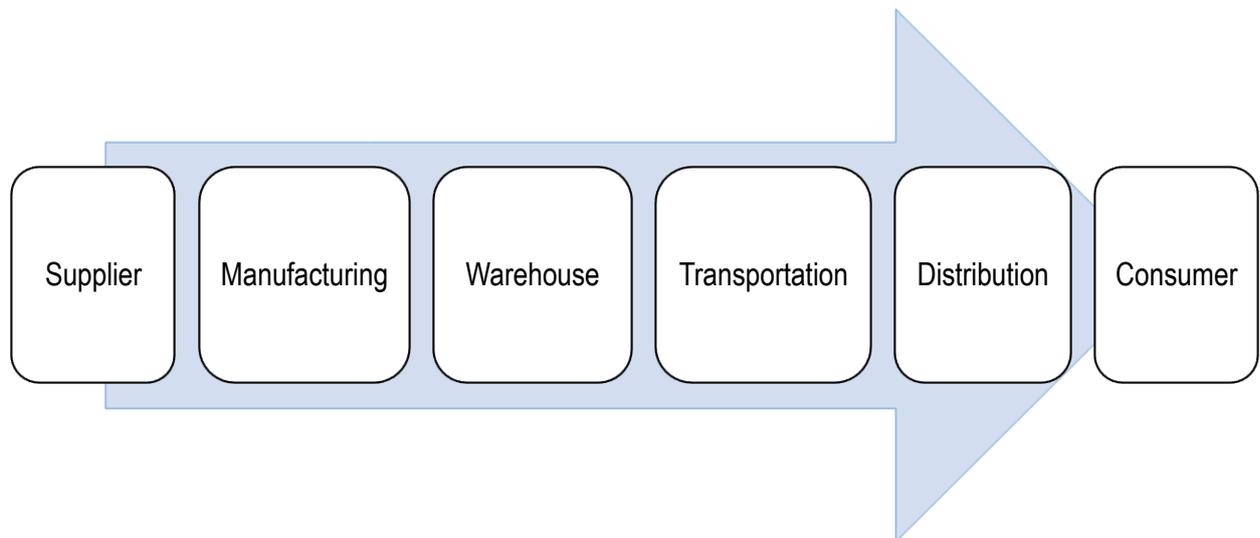


Figure 1 – Logistics supply chain

Some specialists, such as L.M. Achkasova T.O., Vodolajzka (2022), O.M. Tymoshchuk (2018) and others. emphasize that supplier relationship management (SRM) is critical to ensuring uninterrupted supply of raw materials, components or finished products. As scientists note, the use of SRM systems helps companies achieve transparency in procurement processes, reduce the risks of supply interruptions, and quickly respond to changing market needs. Researchers emphasize that SRM systems allow to analyze the performance of suppliers, estimate the cost of supply and manage risks, which contributes to the optimization of procurement processes [10-11].

Conclusions. Also, many scientists, in particular N.B. Ilchenko (2016) and others emphasize the importance of coordination between suppliers and customers. They indicate that transparent information exchange between all participants in the

supply chain is key to agreeing delivery times, order volumes and adapting to changes in demand. Some researchers believe that logistics today is a strategic tool for coordinating the interests of suppliers, companies and customers [13].

In addition, as stated by O.M. Kryvoruchko (2022), effective management of relations with suppliers and customers allows to reduce the risks arising in the process of supplying goods or services. Early detection of potential problems and joint discussion of solutions between partners, according to scientists, helps to avoid crisis situations in supply chains [14].

Therefore, the scientific community agrees that the integration of modern technologies, such as SRM and CRM, is an important factor in increasing transparency, predictability of risks and maintaining a high level of service, which is critical for achieving competitive advantages in today's market.

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