

Seminar 14

Topic: Transport logistics. Essence, role of transport logistics, types of transport.

Questions on the topic of the lesson:

1. The essence of transport logistics
2. Tasks of transport logistics
3. Selecting the type of transport when organizing transportation
4. What is the difference between unimodal, intermodal, combined and multimodal modes of transportation?
5. Organization of work of an intermodal operator

Question 1. The essence of transport logistics

Transport logistics is the optimization of cargo transportation management, i.e. the execution of operations for the movement and storage of raw materials, semi-finished products, unfinished production items, finished products from places of origin to places of consumption using vehicles.

Transport is a branch of material production. The peculiarity of transport is that it does not process raw materials and does not create material products, and the result of its activity is services.

Transport services are performed by specialized transport companies or manufacturing enterprises, wholesale and retail trade enterprises when implementing centralized delivery of goods to consumers of the material flow.

A distinction is made between public transport and non-public transport. *However, public transport should not be equated with public transport, since not every public transport is public transport that is intended for the carriage of passengers.*

Public transport includes urban transport and transport of commercial organizations providing paid services. Non-public transport is a component of manufacturing or trading enterprises and does not provide services to external organizations.

The main requirements that consumers place on the services of transport organizations:

- ✓ minimum delivery time;
- ✓ ensuring the safety of cargo during delivery;
- ✓ ensuring convenience in the acceptance and delivery of goods;

- ✓ availability of additional services (customs clearance, cargo escort, intermediate storage of containers);
- ✓ adaptability to customer requirements or flexibility of service;
- ✓ a well-established system of information and documentation;
- ✓ organization of door-to-door cargo delivery;
- ✓ reasonable cost of transportation.

From the seller's or transport organization's side, which carries out the delivery of goods, rational organization of transportation leads to the following advantages:

- ✓ to reduce overall transportation costs;
- ✓ reducing the duration of the customer order fulfillment cycle in the supply – production – sales – distribution logistics chain;
- ✓ reducing the negative impact of transport on the environment.

2. To achieve optimal results during transportation, the following **logistics tasks are solved.**

Task 1. Creation of transport systems, including multimodal systems, transport corridors and transport chains.

A transport corridor is “a part of a national or international transport system that provides significant international freight and passenger transportation between individual geographic areas, includes rolling stock and stationary devices of different types of transport operating in a given direction, as well as a set of technological, organizational and legal conditions for these transportations.”

A transport chain is a series of stages in the transportation of goods over a certain distance, over a certain period of time, using one or more modes of transport.

Recently, the term “transport axes” has begun to be used in international practice.

Task 2. Joint planning of transport processes on different modes of transport in the case of mixed transportation.

Task 3. Ensuring technological unity of the transport and warehouse process.

Task 4. Selecting the type of transport (car, sea, etc.).

Task 5. Selection of transportation method (*unimodal, intermodal, combined, multimodal*).

Task 6. Selection of carriers and logistics providers.

Task 7. Optimization of the transport process.

Task 8. Determining rational delivery routes.

The main goal of transport logistics, as well as logistics in general, is to reduce the costs of physical movement of goods. This goal is achieved by adhering to the following fundamental principles:

- ✓ maximum utilization of the carrying capacity or cargo capacity of vehicles, *which is achieved through a combination of light and heavy cargo in a container* ;
- ✓ organization of cargo delivery without warehouses (*using cross-docking technology*) ;
- ✓ the multiple of the transport unit of cargo to the units of order, dispatch and storage (for example, the use of a container);
- ✓ container standardization;
- ✓ savings from the scale and distance of cargo transportation, since in this case the costs per 1 ton-kilometer are minimal;
- ✓ concentration of freight flows on individual distribution channels and abandonment of uneconomical channels;
- ✓ delivery of goods using just-in-time technology.

The implementation of these principles in practice allows achieving maximum economic efficiency for a transport, manufacturing or trading enterprise.

Question 3. Selecting the type of transport when organizing transportation

The choice of the type of transport is decided in conjunction with such logistics tasks as: creation and maintenance of an optimal level of stock in the warehouse; selection of the type of transport container; preparation of routes for the movement of vehicles, etc.

The choice of transport will be influenced by the following conditions:

- ✓ nature of cargo (*weight, volume, consistency*) ;
- ✓ number of shipments;
- ✓ urgency of delivery of cargo to the customer;
- ✓ location of departure and destination points taking into account weather, climate and seasonal conditions;
- ✓ the distance over which the cargo is transported;
- ✓ value of cargo;
- ✓ proximity of dispatch and delivery points to transport communications.

The basis for choosing the optimal type of transport for a specific shipment is information about the characteristic features of various types of transport (*road, rail, sea, inland water, air and pipeline, conveyor*) .

When determining the main mode of transport when organizing mixed transportation, six main factors are distinguished: delivery time; transportation costs; reliability of compliance with the cargo delivery schedule; frequency of shipments; the ability to transport different cargoes; the ability to deliver cargo to any point in the territory.

The correctness of the choice made must be confirmed by technical and economic calculations taking into account all costs for different types of transport.

4. Difference between unimodal, intermodal, combined, multimodal modes of transportation

According to the number of types of transport, delivery systems or methods of transporting goods are divided into single-type or unimodal, multi-type (*multimodal, intermodal*) and combined.

Multimodal transportation is transportation by two or more modes of transport within a country or in international traffic. Multimodality as a concept refers to transport infrastructure, types of transport vehicles and cargo units.

The multimodal transportation system as a transport infrastructure is in a state of waiting for orders from consumers of transport services and fulfills these orders upon receipt of requests from clients. The basis for the functioning of such a system is the accumulation of a reserve of production capacity for the uninterrupted provision of services.

In each specific multimodal transportation, the combination of modes of transport will be different depending on the territorial location of the transport companies relative to the consignor and consignee. For example, there are rail-road, rail-road-air, road-sea and other transportation systems.

Multimodal transport systems can use a logistics approach that allows connecting all parts of the system into a single whole to eliminate excessive downtime and losses. The main direction for eliminating deficiencies in transport systems is intermodal (non-reloading) technology. The main feature of intermodality is non-reloading or transportation of cargo in one transport container along the entire route and under one transport document (bill of lading) under the responsibility of one person (intermodal operator).

This technology is used in multimodal communication, is located within the transport system between different modes of transport and connects them together.

The use of **intermodal technology** helps to reduce the time cargo spends in transit and reduce cargo losses at loading and unloading (transshipment) points, reduce labor costs and expenses for handling operations, reduce the need for handling mechanisms, and improve the interaction of modes of transport.

When using **combined transportation**, one vehicle is transported with cargo in another vehicle (ferry crossings, piggyback transportation, freighter transportation).

Question 5. Organization of work of the intermodal operator

An important feature of organizing cargo delivery in multimodal communication is the need for a single operator monitoring the entire transport process from the point of view of cargo safety, delivery security, coordination of various types of transport, and transshipment from one type of transport to another. The presence of a single operator ensures the integrity of the local transport system.

The intermodal transport operator is the representative of the consignor or consignee, depending on the terms and conditions stipulated in the sales contract between the seller and the consignee. In most cases, the seller or buyer is only interested in the route of the cargo, the total cost of transportation and is not interested in the terms of the contract between the intermodal transport operator and the carriers.

An intermodal transport operator is a person who, on his own behalf or through another person acting on his behalf, or on behalf of the consignee or carriers participating in intermodal transport operations, concludes a contract of carriage and acts as a party to the contract, accepting responsibility for the performance of the contract .

Based on the client's instructions, on his behalf and at his expense, the intermodal operator performs the following actions:

- ✓ selection of participants in the transportation and handling of cargo;
- ✓ concluding contracts for transportation and planning the allocation of necessary vehicles or reserving space on a vehicle;
- ✓ organization and control of the entire transportation process;
- ✓ assessment of the cost-effectiveness of cargo delivery to the destination;
- ✓ selection of efficient transport schemes with integrated use of transport modes, taking into account the possibility of economic compromises.

The main requirements from clients to the operator are the following: minimum through rate; minimum transit time; maximum reliability, i.e. no unexpected expenses and cargo delays en route.

Cargo delivery operations may be carried out by the operator partially independently through its subsidiaries and branches or on the basis of a contract with other specialized transport companies.

The following companies may act as contractors: ship-owning, railway, motor transport, aviation, and inland water transport.

When transporting cargo, there is a need to perform a whole range of additional related operations, which are called "transport and forwarding services". They are performed by independent enterprises that act as a link between the intermodal operator and transport enterprises at the places of cargo transshipment. For example, container terminals, i.e. enterprises that rent or own specialized port or railway terminals; port forwarding enterprises that deal with customs clearance of cargo and the execution of accompanying documents; specialized warehouses that ensure the storage of cargo and its processing (for example, repair and replacement of containers, assembly of shipments, marking, etc.).

The intermodal operator is responsible for organizing cargo operations, although it may not perform them itself, prepares the necessary transport and shipping documents, ensures customs transit and customs clearance of cargo, and makes settlements with carriers. If necessary, the intermodal operator can involve leasing, surveying and auditing companies.

The intermodal transport organiser concludes a separate contract with each contractor on the basis of international conventions and national laws. However, the terms of these contracts do not affect the intermodal operator's obligation to the consignor under the concluded contract.

Using sea transport, the intermodal operator can accept the consignor's cargo at its warehouse, at the container terminal in the port of the country of departure, or at the berth of the port of loading. Similarly, the contract may provide for the transfer of the cargo to the consignee at its warehouse, at the container terminal, or at the berth in the port of destination. Delivery options determine the costs of transporting the cargo, the limits of liability of the participants in the transport process for the cargo, and the rate of freight.

Delivery of cargo under an intermodal transportation contract must be provided for already at the conclusion of the contract of sale between the seller and the buyer of the goods. In this case, in the contract of sale, the obligations for delivery may be assigned either to the seller or to the buyer. Accordingly, the contractual relationship with the intermodal operator is entered into by the party to the contract responsible for the delivery of the cargo.

The main **principles of operation The intermodal operators** in macrologistics systems are as follows.

Principle 1. Working with large shippers and buyers of goods, the export and import of which is carried out stably.

Principle 2. Maximum equalization of export and import volumes. This condition attracts large carriers, as it guarantees that after unloading of imported goods, containers will be loaded

with export goods. This approach ensures stable operation of transport organizations even with serious fluctuations in demand.

Principle 3. Provision of a full range of transport and forwarding services – the one-stop-shop principle.

Principle 4. Guarantee of cargo safety, agreed delivery times and absence of additional costs.

Principle 5. Use of new logistics technologies for transportation and cargo handling.

Principle 6. Minimum price level with high quality of services and guarantee of fulfillment of all terms of the contract.

Principle 7. Preservation of the client's commercial secrets.

Principle 8. Timely notification of any potentially dangerous situations related to the movement, handling, storage of goods, or the performance of customs or other formalities.

Principle 9. Offering the client all possible options for cargo delivery, optimizing transport delivery schemes.

Principle 10. Observation by representatives at shippers' enterprises, ports, and railway terminals, who control the suitability of vehicles, the quality of loading/unloading and securing, and monitor the movement of goods along the route.

Thus, the status of an intermodal transport organizer allows you to reduce costs in the logistics chain when transporting goods internationally and reduce commercial, customs and transport risks.

Conclusions

1. A significant part of logistics operations in the process of movement of material flow from the primary source of raw materials to the final consumer is carried out using various transport means. Transport is the main conductor of material flow in logistics systems.

2. Transport logistics is the optimization of cargo transportation management, i.e. the execution of operations for the movement and storage of raw materials, semi-finished products, unfinished production items, finished products from places of origin to places of consumption using vehicles. The main goal of transport logistics is to reduce the costs of physical movement of goods.

3. The choice of the optimal type of transport for a specific shipment is determined by information about the characteristic features of its various types. First of all, attention is paid to three factors - reliability of the delivery schedule, delivery time and delivery cost. To select the main type of transport, technical and economic calculations are used, taking into account the costs of all types of transport.

4. The process of selecting a transport service provider consists of such stages as collecting information about transport companies, evaluating transport companies using criteria, integrally evaluating transport companies, and selecting the most suitable transport service provider based on rating assessments and expert opinions.

5. Intermodality – integrated use of different types of transport in one transport system. One of the signs of intermodality is the presence of an operator that carries out transportation from the initial to the final point of the route.