

Lecture 1. Structure and functions of transport logistics systems.

Purpose of the lecture: substantiate the basic concepts, theoretical provisions and categories in the field of mechanization of handling and storage operations for operational and long-term planning of the terminal systems;

Keywords: logistics, production, system, transportation, freight.

Types of lectures: Lecture-explanation.

1.1. A systematic approach to the organization of transportation

1.2. The concept of logistics

1.3. Production and transport logistics systems

1.4. Freight Systems

1.1. A systematic approach to the organization of transportation

The general theory of systems was proposed in the 50s of the twentieth century by American scientists. The name of this theory was given by L. Bertalanffy in 1951 in the article "General theory of systems - a new approach to the unity of science". In 1956, C. Boulding developed the basic principles of this theory in his book "General theory of systems - the basis of science." Subsequently, the basic concepts, principles and methodology of the General Theory of Systems were developed by many foreign and Russian scientists and specialists.

The general theory of systems proceeds from the fact that any object or process (technical, economic, social, biological, physical) can be analyzed and created as a system, i.e. as a complex of interconnected elements, acting to achieve a single goal. To achieve its goal, the object has certain components (elements), structure (diverse inter-relationships between elements of the system), behavior (activity or functioning), interacts with the external environment and receives the result of its action, which is compared with the goal.

The purpose of the cargo transportation system is to transport the largest number of goods at the request of consumers of transport services with the lowest cost of basic resources, and therefore with the maximum profit from transportation.

The elements of the freight transportation system according to the General theory of systems are the component parts of the system, indivisible at this level of analysis.

The structure of the cargo transportation system is the numerous interconnections between elements of the system (spatial, engineering, technological, organizational, economic, administrative, financial and economic, dependency relations, legal, etc.).

The functioning of the freight transportation system (i.e. its work, action), aimed at achieving the set goal, depends on how reasonably and correctly selected and designed the elements and structure of this system.

According to the classification of the General theory of systems, systems are:

- on the device - simple and complex,
- by the nature of their functioning - deterministic (certain) and probabilistic (stochastic).

1.2. The concept of logistics

The concept of “logistics” comes from the Greek words “logos” (reason) and “logo” (to think, reason) and designates in the modern sense a system of rational organization of effective cargo flows, including planning, designing, necessary technical means, management, provision and the implementation of complex transport processes for the delivery of goods from places of manufacture to points of consumption with minimal resources.

Business logistics is a system of methodological rules, technical means and actions aimed at planning, organizing and managing effective cargo flows and implementing them with the goal that corresponds to the enterprise’s strategy and the needs of the market of goods and services of a particular sector of the economy.

Logistics can be called “business”, as it focuses on the efficient organization of cargo flows as the basis of business in various types of entrepreneurship. In this regard, the following types of business logics can be distinguished by type of business or activity:

- industrial logistics is the organization of efficient freight flows of an industrial enterprise that produces some products and therefore has technological processes of production;
- trade (commercial) logistics is the organization of efficient cargo flows of a trading enterprise that buys goods in large transport batches, converts these transport batches in its warehouses in accordance with the requirements of consumers, and sells goods in the form of these amended transport parties;
- construction logistics - this is the logistics of a construction company, which organizes efficient cargo flows of materials and components from its warehouses and from warehouses to construction sites when constructing industrial, transport or civil facilities;
- transport logistics - this is the business logistics of a transport or forwarding company that provides efficient transport services for the delivery of goods for cargo owners, shippers or consignees;
- agricultural logistics is the organization of efficient cargo transportation of agricultural products and products of their processing in the agro-industrial sector of the economy;
- military logistics is the organization of efficient cargo flows of military property, weapons, etc. military cargo.

1.3. Production and transport logistics systems

The logistics system of an industrial enterprise structurally consists of four subsystems (Fig. 1.2): supply logistics; production logistics; distribution and sales logistics; Logistics for the collection and processing of production waste.

1.4. Freight Systems

Freight transport systems of trunk transport represent a totality of transport and transshipment facilities intended for the delivery of goods from suppliers to consumers in the distribution of industrial products, industrial and consumer goods

Freight transport systems (TGS) of trunk transport can be classified according to the following main features:

- by sectors of the national economy (in mechanical engineering, in metallurgy, in light industry, food, radio engineering, electronic industry, etc.);
- by the nature of the transported goods (for containers, packaged, agricultural, perishable, grain, metal, oil and oil products, coal, timber, chemical materials, inert-building materials, mineral fertilizers, etc.);
- the physical condition of the transported goods (TGS for solid, bulk, liquid and gaseous cargo);
- by type of transportation of goods and the number of participating modes of transport (direct - by one mode of transport, multimodal - by several modes of transport);
- by mode of transport (land and water, rail, car, sea, river, rail, road, rail and sea TSG, etc.);
- in terms of traffic (rare - small in volume, medium in volume, mass - large in volume - the specific dimensions of cargo flows depend on the mode of transport and the nature of the goods);
- over the territory covered by transportation (local TGS, regional, intra-Russian, international).

Questions:

1. Describe the concept of "freight system".
2. What is the General theory of systems and how can it be applied to the organization of freight transport?
3. Give a definition of business logistics and its development history.
4. What subsystems and components are included in the logistics system?
5. Name and explain the main stages of the logistic process of additional delivery of goods.
6. How can different types of freight systems be classified?

Literature and resources

1. Zhuravlev N.P., Malikov O.B. Transport and cargo complexes: Textbook. allowance. - M.: Route, 2016.-- 232 p.
2. Boyko N.I., Cherednichenko S.P. Transport and cargo systems and warehouses: textbook / N.I. Boyko, S.P. Cherednichenko. - Rostov n / a.: Phoenix, 2007.-- 400 p.
3. Transport and cargo systems. Textbook / A.S. Balalaev, I.A. Baburova, A. Yu. Kostenko. - Khabarovsk: Publishing house of FVGUPS, 2015.-- 101 p.
4. 4. Complex mechanization and automation of loading and unloading operations: Textbook / Ed. Timoshina A.A. and Machulsky I.I.-M.: Route, 2013.- 400 p.

Internet resources:

1. Abdikerimov, G.S. Logistic management of cargo transportation and terminal and warehouse activities [Text]: A textbook for specialists / G.S. Abdikerimov, S.Yu. Eliseev, V.M. Nikolashin, A.S. Sinitsyna, O.B. Malikov // M: FGBOU "Educational-methodical / center for education in railway transport". - 2013.-- 428 p. <https://e.lanbook.com/reader/book/59016/#1>

2. Balalaev A.S., Leontiev R.G. Transport and logistics interaction in multimodal transportation: monograph. - M.: FGBOU "Educational-methodical center for education in railway transport", 2012. - 268 p. - <http://e.lanbook.com/view/book/58896/page58/>

3. Design of loading and unloading devices and warehouses: Method. instructions / compiled by V.A. Bolotin, E.K. Korovyakovsky, N.G. Yankovskaya.- SPb.: FSBEI HPE PGUPS, 2015.- 38 p.

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