

# Transport logistics and interaction of participants in the russian transport market

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**Abstract.** Logistics processes are becoming more widespread in the Russian economy. Transport logistics is an integral part of logistics. Its functions are to select the optimal routes for the movement of economic goods in the interests of all participants in these processes. The purpose of this work is to substantiate the methods of solving the main problems of transport logistics in Russian conditions. The study uses a systematic approach. Based on it, algorithms for solving transport logistics problems in the Russian economy are refined, the choice of transport mode, carrier and other logistics partners is ensured, rational delivery routes are determined, the technological unity of transport and warehouse processes is established, and the optimization of transport process parameters is achieved. The emerging flow processes must be interconnected through the integration of transport, production, supply, sales, consumption, service, financing and information. In the associated flow processes, the economic interests of all participants in the transport market (the sender, who forms the material flows, the recipient and the carrier) will be rationally coordinated with the economic interests of other participants in the logistics process. This will help overcome technical, technological, informational, economic, financial, international, environmental, and labor problems. In this case, transaction costs are reduced by all participants in logistics chains, the risks of doing business are reduced, and a synergistic effect is achieved.

**Keywords:** tasks of transport logistics, a systematic approach

## 1 Introduction

Product is not fully ready if it is not delivered to the consumer who will use it. There are two types of gaps between producers and consumers: in space and in time. Accordingly, supply logistics, in-house logistics, and distribution logistics should be complemented by transport logistics and warehouse logistics.

The concept of transport logistics originated in the second half of the twentieth century. This term was applied in 1977 by Mundy et al. [9], in 1978 by Andrews et al. [2].

The term "transport logistics" is also widely used in the twenty-first century [5, 8, 9, 15]. However, some authors believe that definitions of transport logistics are not always accurate [3].

The transport function has undergone structural changes, which are reflected in the development of transport logistics [4]. A well-developed transport system provides higher efficiency, lower operating costs, and higher quality of service for logistics systems [14]. Lai et al. [8] investigated the performance indicators of the supply chain in the context of transport logistics and built a measurement tool for evaluating the efficiency and effectiveness of the work of shippers in transport logistics, service providers and consignees.

The consideration of the main components of the logistics system, such as warehousing, inventory, packaging and information flows in addition to transport, their systematic planning and at the same time respecting the limits of the associated costs and service levels is the main task of modern logistics [11].

The heads of logistics companies have learned from their practical activities their own, often unique, understanding of transport logistics.

They give transport logistics the following definitions:

- transport logistics is the whole process of transport operations, from the raw material and up to when it is turned into a product;
- transport logistics is a subtlety of cargo movement;
- transport logistics is the door-to-door cargo transportation, as well as the processing of documents and ensuring optimal time, market and price;
- transport logistics is preparation, sorting, packaging, distribution, transportation, storage, etc.;
- transport logistics is the organization and management of all supply chains from raw materials to delivery to the place of consumption;
- transport logistics is the process of ensuring the flow of goods from the time of loading to the place of delivery;

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- transport logistics is a process in which a good, quick and thoughtful assessment of the current situation and a solution is made that provides the best possible result;

- transport logistics is a process that effectively plans a logistics chain from the initial service or point of sale to the end user.

It is necessary to bring together the positions of scientists and practitioners on the issue of the content of transport logistics.

## 2 Problem Statement

Logistics processes are becoming more widespread in the Russian economy. Russian specialists and practitioners' understanding of logistics and its components coincides with the ideas of their foreign colleagues.

However, in practice, Russian entrepreneurs often make mistakes when solving emerging problems. It is necessary to develop algorithms for solving logistics problems in the Russian economy, including transport logistics.

## 3 Research Questions

Transport logistics is an integral part of logistics. Its functions are to select the optimal routes for the movement of economic goods in the interests of all participants in these processes. The problems of transport logistics are:

- to reveal the peculiarities of transport logistics;
- to determine the logistics characteristics of different types of transport;
- to understand the logistics organization of transportation;
- to get acquainted with the solutions to the problems of choice in transport logistics.

## 4 Purpose of the Study

The purpose of this work is to substantiate the methods of solving the main problems of transport logistics in Russian conditions.

To do this, it is necessary to study the interaction of participants in the Russian transport market in solving these tasks, which allows overcoming technical, technological, informational, economic, financial, international, environmental, and labor problems, ensuring that transaction costs are reduced by all participants in logistics chains, reducing the risks of doing business, and obtaining a synergistic effect.

## 5 Research Methods

To achieve the goal of transport logistics (delivery of goods of the required quality and quantity at a specified time in the appropriate place with optimal costs) necessary to provide a pair of flow processes was based

on the integration of transport, production, supply, sale, consumption, service, financing and information.

Transport logistics is based on rational coordination of the economic interests of the sender, who forms material flows, the recipient and the carrier with the economic interests of other participants in the logistics process. A special feature of transport logistics is the cooperative use of transport by all participants in the process of promoting material flows. To do this, the study uses an integrative approach.

## 6 Findings

Transport is a set of vehicles, communication routes, as well as structures and devices on these routes that jointly ensure the movement of goods and people from one point to another.

The following definition of transport logistics best reflects the application of an integrative approach: "Transport logistics is a crucial part in the supply chain that in its essence organizes, manages, optimizes and ultimately performs physical distribution of goods and information through the whole upstream and downstream chain in an efficient and effective manner. Its activities and functions go beyond the traditional transport function in so that they also include integration with other supply chain functions such as warehousing, accounting, marketing or customer relations, while taking into account the organizational, financial, commercial and operational aspects of the supply chain as a whole" [13].

The main elements of transport logistics are presented in table 1.

**Table 1.** Basic elements of transport logistics

The main elements of transport logistics	Specifications
Goods	Products accepted for transportation, as well as various property of individuals or legal entities
A path	The medium through which a vehicle moves to perform its function
Traction means	It means that result in the movement of rolling stock or goods
Rolling stock	Has its own characteristics depending on the type of transport
Containers and packaging	Ensure the safety of cargo, reduce time and increase convenience when performing cargo processing operations
Participants in the logistics process	The sender, the material flow generator, the recipient, and the carrier

From the point of view of the integrative approach, it seems erroneous to include Boldyreva et al. only three elements – transport links with suppliers and consumers, shipped goods – in the composition of the key elements of transport logistics [2].

In the transport logistics of Russia, as in the logistics of other emerging markets, there are diverse problems.

Financial problems are the following: lack of investments and lack of own funds for reconstruction of roads, renewal of rolling stock, signaling system, communication, improvement of service quality.

Technical problems are the following: 1) non-loading of rolling stock, in particular insufficient use of load-carrying capacity or useful internal volume of a vehicle's body; 2) the quality of transport services; 3) operational incompatibility of transport networks, in particular their exhaustive bandwidth.

Technological problems are the following: 1) the use of vehicles, which have already several times worked out their technical resources and carry out significantly higher emissions of harmful substances; 2) low quality of internal roads, which increase fuel consumption due to poor quality roads; 3) out-of-date technologies that do not meet current standards; 4) the backwardness of the transport infrastructure; low technical and technological level and level of organization of transportation management.

Information problems are the following: 1) complexity in the construction of optimal routes of traffic (transportation); 2) insufficient information support of carriers; 3) lack of information about programs that allow automation of the transportation process.

Economic problems are the following: 1) a constant increase in the cost of all types of transportation, including oil prices, fuel, lubricants, light and dark petroleum products, energy resources; 2) different conditions for payment for the use of infrastructure by carriers.

International problems are the following: 1) not predictable risks associated with changing climatic conditions; 2) the lack of a single register of vehicles; 3) failures of submission of motor vehicles in agreed dates for loading.

Environmental problems are the following: 1) pollution of the environment; 2) absence of additional charges for environmental pollution and noise.

Labor problems are the following: 1) insufficient number of skilled logistics personnel, including logistic operators; 2) insufficiently developed cooperation between commodity producers, which complicates the processes of integration and cooperation; 3) reducing the competitiveness of domestic carriers.

The logistics approach in the economy, including in transport, allows us to successfully solve emerging problems. First, the application of this approach eliminates a number of market failures, such as the tendency to establish monopoly control over the market, the uneven distribution of information in the market environment. Outsider companies overcome these dips after being included in the supply chain. Second, market actors involved in supply chains significantly reduce individual and overall transaction costs. Third, these subjects find themselves in the legal field and they have no interest in leaving from it.

Specialists justify the directions of solving the problems of transport logistics.

The directions of solving financial problems are as follows: 1) development of programs for the purchase of fixed assets and rolling stock in leasing; 2) development of targeted financing and investment programs, modernization, reconstruction and updating of rolling stock.

The directions of solving technical problems are as follows: 1) an effective renovation of the car park, capable of problems providing sufficient transport services of adequate quality and satisfaction; 2) optimization of the transportation process itself by collecting consolidated cargo from several senders, compiling optimal routes of routing, connecting a more efficient mode of transport on a certain route.

The directions of solving technological problems are as follows: 1) search for new products and technologies; 2) integration into the pan-European transport system; 3) increasing the level of transport security; 4) implementation of SAP software; 5) change of approaches to management of all economic processes; 6) to create a network of automated traffic management, with the reduction of reloading operations.

The directions of solving information problems are as follows: 1) the application of the latest computer technologies problems in transport and logistics for the processing of large amounts of information, the exchange of data in real time with minimal cost.

The directions of solving economic problems are as follows: 1) the return to the methodology for calculating the problems cost of transportation and taking into account not the market price per 1 km, but the individual profitability of each transportation; 2) comprehensive accounting of logistics costs; 3) refusal of cross-financing of passenger transportation.

The directions of solving international problems are as follows: 1) adaptation of the national legal framework to problems international conventions, agreements; 2) cooperation with foreign countries in the creation of transnational axes.

The directions of solving environmental problems are as follows: 1) reduction of atmospheric air and soil pollution; 2) reducing traffic noise.

The directions of solving labor problems are as follows: 1) improvement of transport legislation; 2) «erosion» of the borders with foreign countries, which will ensure the attractiveness of the transportation sector; 3) increase of transport operators, increase internal competition and promote tariff crash; 4) increase of wages of drivers.

The problem of choosing a carrier in logistics is solved by various methods (with concept of the primary connection between the choice of the carrier and the goods as the subject of transportation):

- the method of analyzing the costs and results of cargo delivery [6];
- the matrix method (on the criterion of minimum cost);
- the cost estimation method;
- the abstract carrier method;
- the method of accounting for technological parameters.

Many of these parameters relate more to the product than to the company's performance.

To ensure the technological unity of the transport and storage process and optimize the parameters of the transport process (increase the speed of transportation, reduce costs), it is necessary to significantly accelerate the introduction of information technologies and systems. However, experts note the insufficient implementation of information computer technologies and systems in logistics processes in the Russian economy [12].

## 7 Conclusion

The main tasks of transport logistics should be solved in a complex, with the mandatory application of an integrative approach. The logistics approach in the economy, including in transport, allows us to successfully solve emerging problems. The application of this approach eliminates a number of market failures, such as the tendency to establish monopoly control over the market, the uneven distribution of information in the market environment. Market actors involved in supply chains significantly reduce individual and overall transaction costs. These subjects find themselves in the legal field and they have no interest in leaving it. This will help overcome technical, technological, informational, economic, financial, international, environmental, and labor problems. In this case, individual and overall costs are reduced by all participants in logistics chains, the risks of doing business are reduced, and a synergistic effect is achieved. It is necessary to ensure that the understanding of transport logistics as an essential part of the supply chain, which inherently organizes, manages, optimizes and ultimately performs the physical distribution of goods and information throughout the upstream and downstream chain in an efficient and effective manner, is disseminated not only in the scientific field, but also among the managers of companies involved in logistics processes.

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