

$$P_{profit} = (R_{comm.st.} + R_{budg.st.}) - C_{sp}, \quad (1)$$

where $R_{comm.st.}$ – receipts from commercial students; $R_{budg.st.}$ – receipts from the budgetary students; C_{sp} – costs of specialty.

$$\text{Profitability of educational services} = \frac{P_{profit}}{C_{sp}} \cdot 100\%. \quad (2)$$

However, it is necessary to consider that profit and profitability of educational services according to Yarygina N. A. pay off on specialty, instead of as the whole of a higher education institution [7, p. 123].

Thus, in education, higher education in particular, most part of expenses are expected to be covered by the state. However, in higher education institutions the analysis of a financial state which would reflect efficiency of use both budgetary funds, and extrabudgetary funds, and also the means received from commercial activity (rent, payment of educational services, publishing, etc.) has not been carried out. Therefore, in our opinion, in the country the system of the indicators reflecting financial situations of higher education institutions has to be developed.

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ORGANIZATION OF INTERNATIONAL CARGO TRANSPORTATION AND BASIC WAYS OF IMPROVEMENT TRANSPORTATION

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This article describes and provides methods of management, organization, and improving international cargo transportation. The process of international cargo transportation and the main criteria for assessing the quality of transport service were observed. An algorithm of modeling the international transport network was suggested.

In market conditions, an important requirement for transport-service is timely and quality delivery of cargo. Fulfillment of specific conditions is possible with the use of logistics, that is a specific control algorithm, which uses a variety of economic and mathematical methods to optimize the performance of individual elements

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of the transport process and integrate these elements into a single system. In Belarus lack of development of advanced transport logistics and technological transport systems leads to an increase in transport costs, and as a consequence the loss in the market.

First, it is necessary to understand what the process of organization of international cargo transportation is. This process includes several specific procedures (Fig. 1).

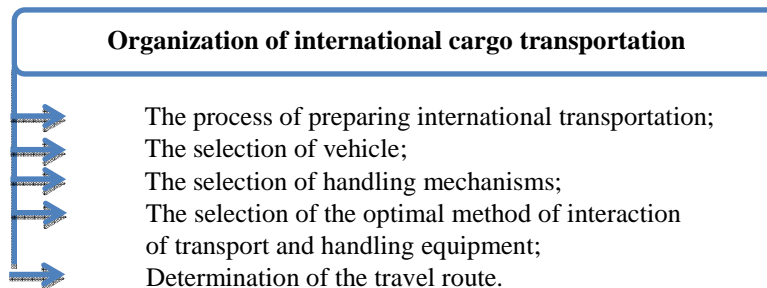


Fig. 1. The process of organizing international transportation (my own research)

Besides, the organization of transportation includes planning of cargo transportation, operational management, payments for transportation, accounting and transportation control.

Thus, the organization of international freight - is a very complicated and multi-step process that does not only consist of handling mechanisms. Special skills and knowledge requires an uninterrupted process of organization of cargo transportation.

To make a decision we should take into account both quantitative and qualitative factors of the organization. The main criteria for assessing the quality of transport service are presented in Fig. 2.

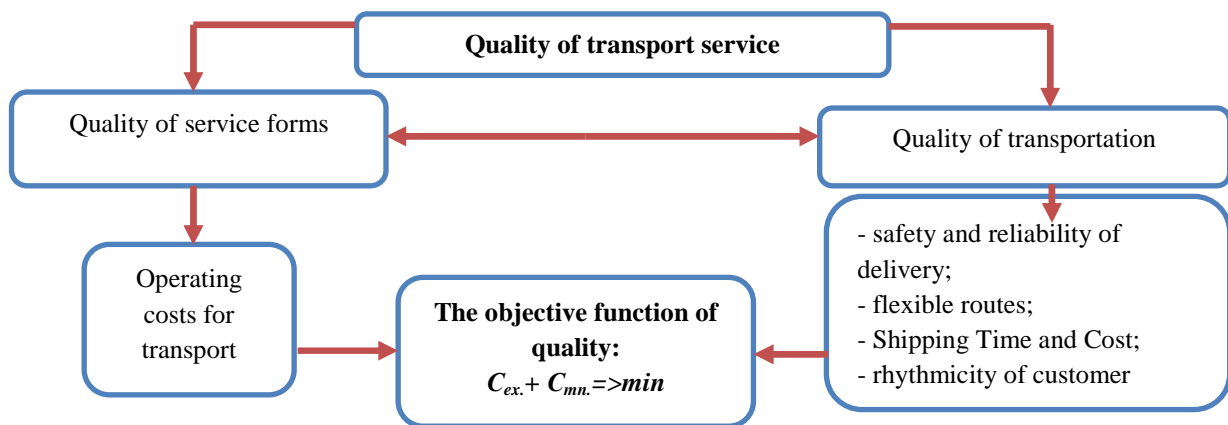


Fig. 2. Criteria for assessing the quality of vehicle servicing (my own research)

Thus, when evaluation of quality of transport services happens it is expedient to take into account such factors as quality of cargo transportation (shipping, flexibility routes, etc.) and quality of service forms.

Quality of transport is a specific set of system properties, that determine its ability to meet the needs of organizations in the transport service at the lowest cost. If the quality of the forms of organization of the transport service in the form of the objective function must be reflected, then it will look as follows (Formula 1):

$$C = C_{op.} + C_{pr.} => min, \tag{1}$$

where $C_{op.}$ – operating costs associated with the acquisition and operation of rolling stock, thousands; C_{pr} – Costs associated with primary production downtime due to lack of transport, thousands.

Cargo transportation is a challenging and complicated process, that requires professional approach and organization skills. To get a good quality service you should consider a number of specific points that would avoid negative results.

Transport is one of the most important objects in the application of economic-mathematical methods and computer equipment. The nature and conditions of work of organizations engaged in cargo transportation has radically changed with the emergence of market relations. The work of freight forwarding organizations gets extensive development.

Application of economic-mathematical methods and computer equipment for the planning of cargo transportation by automobile transport or the other way of transportation is currently not widely developed in Belarus.

The most commonly accepted solution of the following tasks:

- Consolidation of consignees for senders (consumers for suppliers) to reduce transport activity in tonne-kilometers;
- Consolidation of automobile transport customers (clients) for vehicle organizations to reduce zero runs;
- Planning of rational transport routes for bulk cargo by linking oncoming cargo flows to reduce empty runs;
- The distribution of rolling stock and handling mechanisms on routes in order to reduce waiting times and waiting times under loading-unloading;
- Payment of shift-day shipping transportation plan for hourly charts in the construction of the method of "mounting with wheels" with the aim of reducing the total distance;
- Determination of the shortest distances and routes to reduce the total distance [1].

Transportation planning with the help of economic-mathematical methods and computer technology, implementation of the results of calculations in the practice of automobile transport organizations provides reduction of the run of rolling stock. This means that the economic effect is achieved by reducing variable costs. Besides run, reduction of transport work in tonne-kilometers is achieved when rationally consumers are consolidated for suppliers, i.e. reduced and labor costs have been attained. All this leads to considerable reductions in transport costs.

When planning transport it is necessary to determine the values of the distances between a large number of senders and consignees, as well as between these points and road transport organizations. Most common are two ways of determining the distances:

- Direct measurement in the terrain speedometer when driving along the route;
- Measurement of distances on a map (plan) city or area manually using curvimeter.

The advantage of the first method lies in high precision measurement (from gate to gate), the disadvantages are all in large material and labor costs, as well as the need to adjust the speedometer depending on tire wear, tire pressure and so on. The second method was the most widely used due to the small time for one measurement of distance with sufficient accuracy of results, simplicity and security in the use of simple devices and tools.

However, both of them have a serious drawback – the lack of guarantees that the selected measurement performer route between the given points is the shortest. This lack is significant if there are multiple options of the route between two points, it is possible in determining the distance between the rather distant points in the dense road network of modern cities.

Scientific basis for solving such problems allows us to give a mathematical graph theory which proves that the choice of the route of movement, especially in areas with a dense network of roads, streets and highways, is a multiple-choice task, having a set of feasible solutions, but only one optimal [2].

The set of all driveways (streets, alleys, avenues, embankments, etc.) make up the city road network. In the same transport network based on many of such passages that have significant value for transport, the most suitable routes (in terms of width of the carriageway, pavement quality, etc.) and business traffic must be taken into account. The model of the network is represented in the following graph. At the top of it is the situation in the city, where it is of high importance to determine distances or routes for vehicles. Usually at the top of deciding of the transport networking and routes lie settlements. In the model transport network links edges, as those are called, display drives or segments that are subject to a direct link between the points selected as vertices. Technological process modeling the transport network and the programming of calculations with electronic devices is shown in Fig. 3 [3].

The result of the process of modeling the transport network and the programming of calculations should be the object matrix of national territories, so it is necessary to develop two packs of programs – a transport modeling program and a simulation program for traffic:

- Analysis of traffic on the roads in the country, constructions alongside traffic, traffic simulation;
- Analysis of the geographical location of traffic routes - places crossings, technical capabilities, limitations, and intensity of use;

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- Creation of a computer model to carry out simulation of traffic to test different situations in the study area;
- The calculation of the data traffic flow must consider the impact of the traffic on environment and land use.

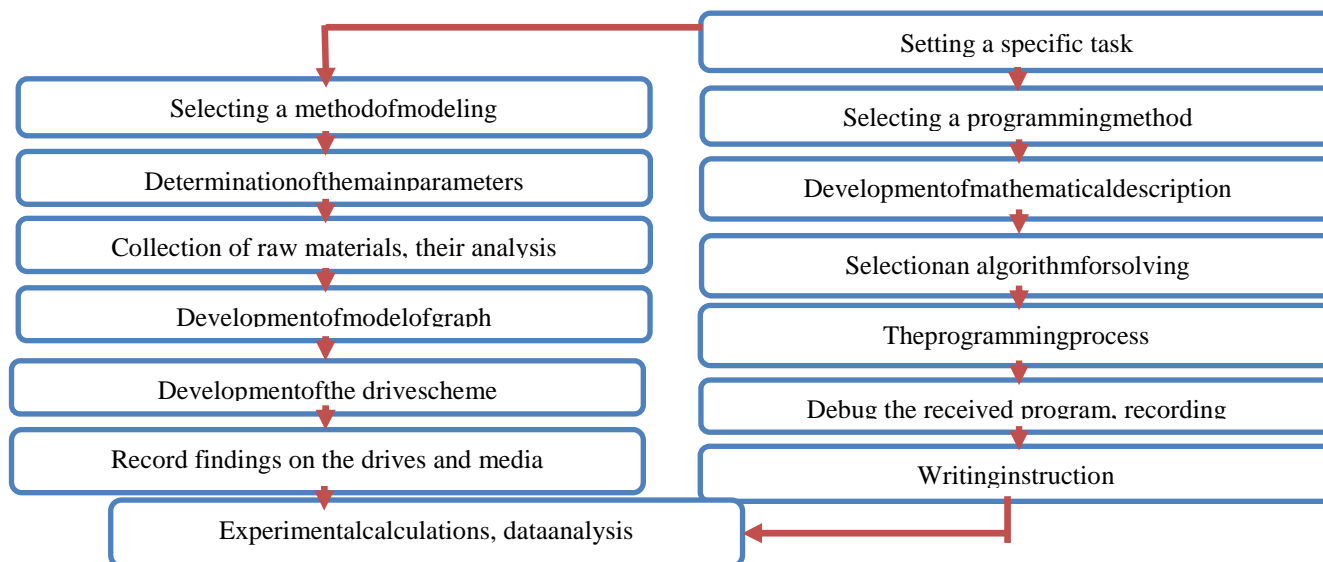


Fig. 3. The process of modeling the transport network (my own research)

Implementation tables of the shortest distances in the practice of transport organizations and the use of these data tables for transport planning, rational routes, allowing run cars, payroll contributes to a sufficiently large reduction in the total mileage and costs as a consequence.

The difficult economic situation in Belarus requires immediate actions by the government, solutions of many problems related to international freight traffic, and identification of ways of improving the industry. Efficient economic decisions is the key to successful development of the national transport system at the global level.

Development of international cargo transportation depends on the transport and logistics infrastructure, not only in Belarus, but also on the border with the neighboring countries, as well as cross-border cooperation between them. In this connection such issues of the national transport system such as:

- transport policy development of cross-border freight traffic;
- estimate cross-border cooperation in the development of freight transport;
- development of transport and logistics infrastructure on the border with Poland, Lithuania and Latvia, should be considered.

Development and modernization of the transport system in Belarus requires foreign investment. But the problem will still not be solved, because investors do not want to invest in the economy because of its unpredictability, due to the unpredictability of the national legislation. Investments require a good technical condition of roads, well-developed infrastructure, etc. Measures should be taken to develop transport and transport systems. Lower taxes to the carriers need to be introduced to maintain roads in good condition, technically equip the transport sector, attract investments into the Belarusian economy, the development of transport. The state of economy depends on how the government will treat the problem of transport.

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