WAYS OF IMPROVING THE FINANCIAL AND ECONOMIC EFFICIENCY OF THE DEVELOPMENT OF THE RAILWAY TRANSPORT NETWORK

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WAYS OF IMPROVING THE FINANCIAL AND ECONOMIC EFFICIENCY OF THE DEVELOPMENT OF THE RAILWAY TRANSPORT NETWORK

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Abstract: The article examines the possibilities and disadvantages of the financial and economic development of railway transport, studies and investigates the transit potential of the country, the existing problems in the railway system, provides calculations of freight traffic.

Keywords: country transit potential, product EXP, financial and economic efficiency, optimal routes, integration process, transport and logistics infrastructure, "from door to door", hierarchical system, positive efficiency, effective management.

Introduction

It is no secret, the development of the transport system in the integration processes day by day contributes to the development of other sectors of the economy at a high level. From this point of view, the transport system performs the main locomotive task in the stabilization of the country's economy. According to international experience, the effective development of the transport network provides an opportunity to increase the export of products. In this regard, international transportation of goods on optimal routes, the use of modern types of cargo transportation and the effective use of logistics potential are required.

Today, the share of the transport network in the gross domestic product of our country is 11 per cent. This, in turn, shows that it is an infrastructure sector that has a high level of influence on the development of its large network, other areas. Railway transport has a leading position in the transport system of our country, at the same time 93 percent of the total transported transit cargo and 98 percent of passengers correspond to its crossroads [1]. As an important factor in the integration of the country's economy and the national economy with the world economy, extensive coverage and targeted programming measures are being implemented for the quality rapid development of transport and logistics sectors.

For this purpose, the launch of Hayraton-Mazar Sharif and Angren-Pop railways and the establishment of logistics centers in our country led not only to an increase in domestic transport, but also to the improvement of transit opportunities of Uzbekistan. In the strategy of action on five priority directions of development of the Republic of Uzbekistan in 2017-2021, decrees "on increasing the level of competition between National transport Logistics Companies"[2] and PF-5647 of February 1, 2019 "On measures to radically improve the system of Public Administration in the field of transport", as well as other normative-legal acts in this case.
Analysis and results

The state and development of the Transport system is very important for the Republic of Uzbekistan, as it, along with other infrastructure sectors, provides the basic conditions for the functioning of society, serves as an important element in achieving the goals of socio-economic and foreign policy. The stable and productive activity of the general railway network is a necessary condition for ensuring a single economic space of the Republic of Uzbekistan, further development of various industrial and agricultural sectors on its territory, improvement of living conditions and the standard of living of the population of the country, increasing the mobilization of citizens of Uzbekistan.

Therefore, the study of the indicators of the functioning of the railway transport system, the stages of development of transport and logistics infrastructure, as well as the development of recommendations for the elimination of existing problems in the system are today one of the main issues. Table 1 provides data on cargo turnover and volume of cargo transportation by types of transport in 2012-2018 years.

<table>
<thead>
<tr>
<th>Types of Transport</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railway</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Including through transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car</td>
<td>1203.2</td>
<td>27.5</td>
<td>1258.3</td>
<td>29.2</td>
<td>1327.4</td>
<td>31.5</td>
<td>1399.8</td>
</tr>
<tr>
<td>Pipe</td>
<td>84,5</td>
<td>116,3</td>
<td>101,2</td>
<td>112,3</td>
<td>101,2</td>
<td>112,3</td>
<td>101,2</td>
</tr>
<tr>
<td>Weather</td>
<td>24,0</td>
<td>121,6</td>
<td>22,2</td>
<td>152,1</td>
<td>24,6</td>
<td>131,2</td>
<td>26,5</td>
</tr>
<tr>
<td>Total</td>
<td>1329.3</td>
<td>1487.1</td>
<td>1587.0</td>
<td>1727.0</td>
<td>1527.0</td>
<td>1603</td>
<td>1680</td>
</tr>
</tbody>
</table>

Evaluation of the position of the railway network in the economy of the country, determination of the prospects for the development of the network and study of its trends, carrying out research on forecasting, directly affecting the medium and long-
term strategy of the railway network, its current policy, material and technical resources, determination of the need for the development of the workforce

By rail transporti we can see that the total volume of cargo transportation for 2012-2018 years increased by 1.6 times compared to 2000, while the total volume of passenger transportation increased by 1.3 times. In general, by rail transporti in 2018 year amounted to 68,4 million rubles.the t. cargo transportation indicates that in our country this industry is developing year after year. As a result of the specified measures, the volume of cargo transportation in 2017 increased by 42% compared to 2012, including 44% by car transporti and 73% by air transporti. Total cargo turnover in 2017 66.9 mln.tonna-km.ni established. The highest share in the total load turnover corresponds to the vehicle transporti (40,11%), pipe transporti (34.96%) and railway transporti (25.5%) [4].

If the country analyzes the existing domestic competition between types of transport, the highest share in the volume of cargo transportation corresponds to the car insurance. In the market of Transport services, it can be noted that the vehicle transporti has specific characteristics such as mobility, high-speed cargo placement and delivery of cargo "from door to door", in the precise term, relatively simplicity of the organization of the transport process and has the advantage in transporting small-volume cargo over short distances[5]. However, at the same time, it can be seen that the volume of cargo transportation by rail decreases from year to year.

It is necessary to emphasize that the railway transporti is one of the main shortcomings of the inability to provide services at the level of the car transporti in the delivery of cargo to the last point, that is, the customer. But as already mentioned above, the type of transport that competes with it in the delivery of large volumes of cargo to remote addresses at relatively low prices is not yet available.
### Figure 1. Opportunities and weaknesses of railway transport

**Source:** Author’s development.

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>High efficiency in carrying out mass transportation of cargo and passengers over long distances (it increases with increasing traffic distance and volume), especially in carrying out large-scale transportation between the sending and receiving points, places with complex conditions, delivering cargo to long-distance sales</td>
<td>The possibility of combining rail transport with the CIS countries by technical size and standards and the lack of such an opportunity for other countries</td>
</tr>
<tr>
<td>High transfer and transportation capacity of railway lines</td>
<td>The need to provide ineffective and insufficient directions of activity</td>
</tr>
<tr>
<td>For some regions, rail transport is the only land transport, and for many regions it is the most convenient mode of interregional communication.</td>
<td>The need to budget the losses incurred from cargo transportation</td>
</tr>
<tr>
<td>Low temporary costs for passengers traveling by short distances (0-200 km) by rail</td>
<td>High cost of construction and modernization of railways, large investments in the production and technical base of railway transport and relatively low return on investment capital</td>
</tr>
<tr>
<td>Regular transportation regardless of climatic conditions and lack of seasonality in activities</td>
<td>Slightly slower than air transport for long-distance (more than 200 km) freight and passenger transportation</td>
</tr>
<tr>
<td>Relatively low cost of transportation over long distances (excluding pipeline transport) compared to other modes of transport to ensure adequate loading of infrastructure</td>
<td>High share of fixed costs in the cost of transportation (up to 70%), which limits the ability to manage these costs</td>
</tr>
<tr>
<td>Ability to effectively organize loading and unloading operations</td>
<td>The need to wait for the wagon to be fully loaded when transporting small volumes of cargo</td>
</tr>
<tr>
<td>High level of safe movement and less damage to the environment</td>
<td>Impossibility of door-to-door delivery of goods as a result of placement of railway transport on certain routes and between permanent terminals</td>
</tr>
</tbody>
</table>
Taking into account the special role of railway transport in ensuring socio-economic stability and economic growth, one of the priorities is to ensure the continuous, safe and efficient operation of the network on the principles of the Government of the Republic of Uzbekistan, regional and local authorities, enterprises and railway transport enterprises. Figure 1 illustrates its advantages and disadvantages, given its competitive capabilities, technical operation and economic characteristics, compared to other modes of transport, given the increasing competition by air and road transport.

Given the growing role of Uzbekistan in the context of globalization, the country's railway network is an important political and geoeconomic resource of the country. In our opinion, in the near future the supply of international transit and export-import cargo along the railway, including the implementation of national projects to modernize the economy and social life, should be considered as an element of further involvement of the country, mainly in world economic relations.

In the transport network, railway transport is a separate system, and when we study the issues of effective management of its activities, we have a hierarchical view of the problems in the network. It is well known that according to the law of hierarchy, each stage in the system acts as a governing and controlled entity with those below and above it. Recognizing that a hierarchical approach is also the most optimal option for the effective organization of transport system management, scientific research in this area is gaining relevance today.

In terms of the performance of a specific task at each stage in a hierarchical system, it is natural that there should be functional and structural differentiation. In terms of the ability to receive, process and use large amounts of data in a system, it is desirable that it has a hierarchical structure. It provides generalized information for use at lower levels.

Existing problems in the railway transport system are among the factors hindering the growth of the country's economy. Therefore, it is advisable to consider these issues separately:

- to fully meet the growing needs in line with the expansion of the economy and the growing population;
- providing high quality services to meet the needs of consumers;
- development of measures to minimize transportation costs in the cost of production;
- Achieving high efficiency of the transport system

Based on the above considerations, in this study on the effective management of the railway network, the author proposed the following areas:

- Establishment of scientific and technical capabilities and efficient use of production resources;
- Improving the system of vehicle maintenance on the basis of modern technologies;
- the constant increase in expenditures for modern infrastructure and the search for new sources of revenue to meet this demand;
- The interaction between the participants in the market of railway transport leads to a decrease in economic and technological efficiency, resulting in increased costs of freight transportation by rail across the network;
- Facing crises in the economy and the reduction of the established level and amount of fees and tariffs for the use of infrastructure services, may require additional government subsidies;
- Improving the system of public administration and discipline, with an increase in regulatory areas and facilities, including the legal use of infrastructure services;
- the division of responsibilities and tasks between the transport companies and the infrastructure in terms of technology and operation between the economy and the system of transport safety.

There is a need to carry out deep structural structural changes in the global transport market on the basis of modern logistics approaches. Today, according to local and foreign experience, there is a need to create a single transport system with a combined control center, as well as an integrated control center, from competition to mixed transportation [6]. Delivery times by modes of transport are determined according to the formulas given in Table 2.

<table>
<thead>
<tr>
<th>Types of transport</th>
<th>Delivery time calculation formulas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railway</td>
<td>( T_T = T_{bt} + \frac{l}{V_{y^j}} + t_{qosh}^j; \quad T_M + \frac{l}{V_{tij}} ) (1)</td>
</tr>
<tr>
<td>Pipe</td>
<td>( V_{tij} = \frac{l}{V_{y^j} + \frac{2\alpha D}{M} + t_{qosh}^m} ) (2)</td>
</tr>
<tr>
<td>Air transport</td>
<td>( T_x = t_{bt} + \frac{l}{V_{p^k}} + t_{qosh}^p ) (3)</td>
</tr>
<tr>
<td>Car</td>
<td>( T_a = t_{bt} + \frac{l}{V_{ek}} ) (4)</td>
</tr>
</tbody>
</table>

Here:
- \( t_{bt} \) - time, day for start-end operations. (k);
- \( l \) - transportation distance, km;
- \( V_{y^j}, V_{p^k} \) - norm of the distance traveled by vehicles per day, km;
- \( t_{qosh}^j, t_{qosh}^m, t_{qosh}^p \) - time, day spent on additional operations in railway, road and air transport;
- \( V_{ek} \) - operating speed, km / s;
- \( V_{tij} \) - commercial speed, km / day;
- \( V_{day} \) - operating speed of vehicles operating in this corridor, km / day;
- \( a \) - load capacity utilization factor;

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D_r- load capacity of wagons, railways;  
M is the average daily rate of additional operations at the port of departure and arrival, t / day;  
t- time, day for collection, storage and shipment.  
A comparative analysis of freight costs by modes of transport is presented (Table 3).

### Table 3

| Cost of transportation of 20 tons of cargo per 1 km by car (on the example of textile products) |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| Uzbekistan                     | Kazakhstan     | Kyrgyzstan     | Tajikistan     | Turkmenistan   |
| $                               | $              | $              | $              | $              |

| Cost of transportation of 1 standard wagon cargo per 1 km (up to 100 km) |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|
| Uzbekistan                     | Kazakhstan     | Kyrgyzstan     | Tajikistan     | Turkmenistan   |
| $                               | $              | $              | $              | $              |

Number of procedural documents required for export and import

Source: compiled by author.

The wide range of transport and logistics services and their wide range of variables in terms of quality, their impact on the competitiveness of services and cost, as well as other factors make it necessary for the company to have a clear, specific strategy in the field of logistics services to consumers requires [7].

According to the results of the analysis, the principles of setting tariffs and the gradual transition to a new tariff system, reducing the number of correction factors, reducing the types of financing of rail transport, the establishment of private companies for rail transport with their own locomotives and wagons to create a competitive environment in the field of rail freight through the creation of conditions for, increase the speed and reliability of the transport and logistics system, increase the share of electricity-supplied railways to 55% by 2030. To do this, it is necessary to provide an average of 168 km of railways annually with electricity, and the volume of investments is 5.34 billion dollars. 1.2 billion to upgrade locomotives and wagons by 2030 it is necessary to increase the transportation in containers by 25-30% in order to reduce the cost of transportation of goods transported in containers by 10%.

**Conclusions and recommendations**

In short, the above-mentioned problems are integrated to ensure the efficiency of multimodal transport, harmonization of the regulatory and legal framework, technical and technological regulations and standards, logistics centers, transport and forwarding activities in accordance with international standards. establishment of an information system, formation of a national network of customs logistics centers,
ensuring that transport and logistics operations are at least 3PL. Thus, the effective management of the integrated transport and logistics system will lead to the saving of all production and material resources, the acceleration of production, the reduction of transport costs and the development of sectors of the economy.

References

1. Data of the State Committee for Motor Roads of Uzbekistan for 2018.