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Strategic directions of transport and logistics to ensure the implementation of new industrialization processes

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Abstract. Ensuring the processes of industrialization of the modern economy requires the formation of an efficient transport and logistics infrastructure. The solution of this task is carried out using the tools of strategic management, in particular the formation of strategic goals. The article presents the strategic goals and the corresponding strategic measures in the field of ensuring the availability and quality of transport and logistics services in the field of freight traffic at the level of the needs of the development of the economy of the Sverdlovsk region

1. Introduction

The need to study the state and development strategies of the transport and logistics of industrialization is relevant for the economy of the Sverdlovsk region, because the task of transition to effective innovative economic growth requires the provision of appropriate infrastructure conditions.

On the other hand, the volume of investments in infrastructure industries is limited because first of all, investments are aimed at creating innovative products, that is, directly into the industrial sector, which ultimately inhibits the diffusion of innovations and exacerbates territorial inequality even within one region.

2. Theoretical approaches to research

The formation of the transport and logistics system in the region is now widely represented in the works of Russian authors, the use of which to some extent can be effective for solving the problem posed in the paper. A substantive analysis of the base of theoretical work allowed us to identify three approaches that emphasize differently on regional peculiarities in the process of forming the transport and logistics system.

The traditional approach presented in [1 - 4] implements successively two stages: descriptive research and induction generalization. If the first stage is widely represented in applied works that reflect the activities of individual links of the transport and logistics system with specific territorial or functional aspects, the second stage, devoted to the synthesis of components of the transport and



logistics system, usually violates the principle of consistency of goals and objectives of individual elements of the system. This situation does not allow to optimize the flow processes at the level of a particular region, not to mention the scale of the country and the world. Within this approach, considerable attention is paid to the description of regional features of the transport and logistics system, which can be used as a basis for further theoretical synthesis and creation of universal strategies for the development of the transport and logistics system in accordance with the main typologies of the regions. The traditional approach to the formation of the transport and logistics system in the region allows for the realization of the goals and objectives of individual participants in the logistics process and can be fragmentarily used [5].

Benchmarking approach to the formation of the transport and logistics system of the region involves the transfer of the finished model, which has proved its effectiveness in testing at similar facilities, in particular, this approach is justified in [6]. So in [7] it was proposed to borrow the "star" construction of the transport and logistics system of the region, which proved its efficiency on the example of air transportation. The central element of this model is the introduction between the consignors and the consignees of the intermediate structure accumulating flow processes, which creates additional benefits due to the effect of scale. Within the framework of this approach, methods for adapting ready-made models to specific regional conditions are not expressed, which may be due to the insignificant period of implementation of such concepts in Russia, since the focus on developing adaptation methods is part of the overall benchmarking methodology. The emergence of large-scale works on the comparative analysis of the regional conditions for the formation of the transport and logistics system will make it possible to successfully implement ready-made models after passing through the appropriate adaptation procedures.

The methodology of the system approach in the implementation of the construction of the transport and logistics system of the region is presented in [8], [9] and involves the formulation of a target component, elemental, structural and functional design and a description of integration mechanisms. A significant advantage of using a systems approach is to ensure the consistency of the goals and objectives of the individual elements of the transport and logistics system; the integrative mechanism is the flow. Essential characteristics of flows are primary to determining the composition of flow processes, respectively, a detailed analysis of their characteristics and the definition of regional features allows us to solve the problem of forming an efficient transport and logistics system in the region [10].

In order to identify the features of the flow processes in the region, it is necessary to determine the composition of the indicators, which allow a comparative analysis of the flow processes of the regions of different specialization. A number of authors have proposed the study of flow processes in the context of the following areas: temporal, spatial, quantitative and qualitative [11]. Indicators adapted with a modern system of statistical observation are presented in figure 1.

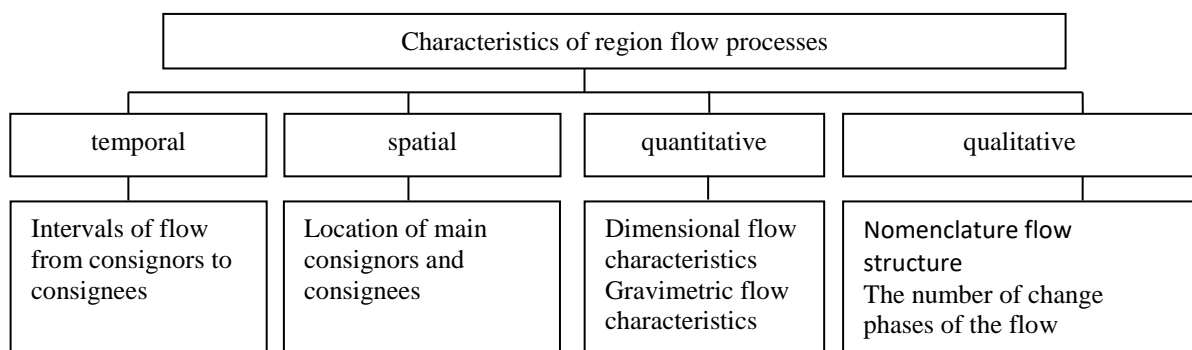


Figure 1. The system of indicators for assessing regional flow processes.

3. Results of the study

The analysis of the traffic flow structure is presented in figure 2.

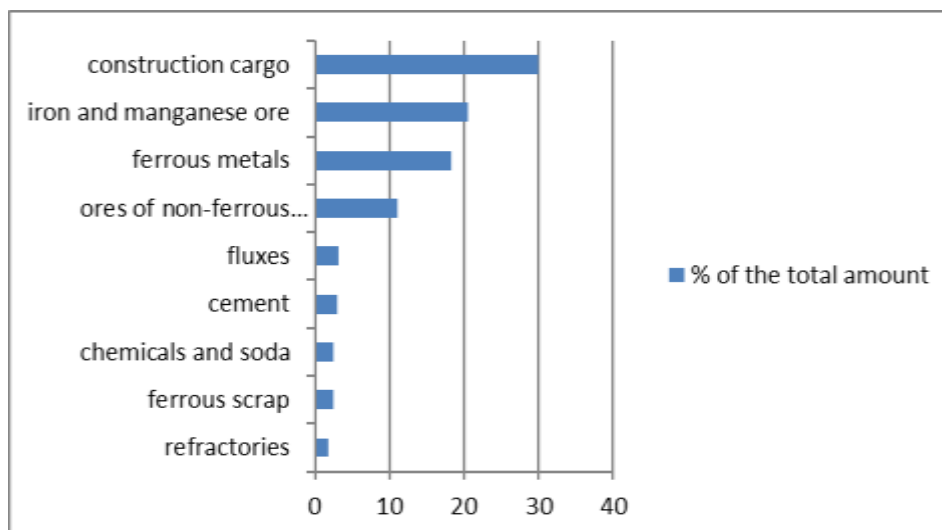


Figure 2. Flow structure of the Sverdlovsk region.

Analysis of the flow structure showed that enterprises of the metallurgical complex (52 percent), the construction complex (32 percent) and the fuel and energy complex (18.8 percent), and other industrial complexes 5 percent play the prevailing role.

The distribution of cargo traffic by type of transport is presented in the table.

Table 1. Flow distribution by types of transport %.

Integrated industry complexes	Railway transport	Automobile transport	Air Transport	Water transport	Pipeline transport
Agro-industrial complex	17	12	77	5	0
Wood processing complex	6	29	2	65	0
Metallurgical complex	34	9	2	7	0
Building complex	36	38	7	8	0
Chemical complex	7	12	12	15	100

It can be stated that the main role of rail transport in the implementation of freight traffic in the territory of the Greater Urals. Describing the structure of transportation, it can be said that nine types of cargo are prevailing, which accounted for 90.8% of the total volume.

The demand for road transport is generated to the greatest extent by the enterprises of the building complex, and in much lower volumes from the agricultural and forestry complexes, as well as transport and logistics companies and enterprises of the machine-building complex. According to the results of the analysis of the volume flow dynamics, it is necessary to note the growth in the volume of shipments of products of the metallurgical and chemical complex and a decrease in the number of shipments for refractories, cement, construction materials and fluxes.

When analyzing the localization of consignors and consignees, it can be seen that Kurgan, Kemerovo, Chelyabinsk, Omsk and Orenburg regions, as well as the Komi Republic, Perm Krai, the Republic of Bashkortostan, Primorsky Krai, Khanty-Mansky Autonomous District, which account for more than half of the volume of goods on arrival. It is worth noting that a large proportion of the flow

comes in transit through the Kurgan region from the territory of the Republic of Kazakhstan (mainly coal from the Ekibastuz deposit).

3.1. The results of the analysis in the field of railway transport

In the area of railway infrastructure development, there is a limited capacity on sections with a total length of 18 km, in the medium term - 320 km. In the long term, a decrease in the competitiveness of rail passenger traffic is projected in long-distance compared with air transport due to significantly lower message speeds and comparable price levels at comparable levels of travel comfort.

Analysis of the problems of the suburban railway service reveals the difficulty in organizing high-quality transport services for the Yekaterinburg agglomeration due to the infrastructure constraints of the Yekaterinburg transport hub and the high size of the railway transit through the city.

These problems result in low route speeds (43 km / h) due to infrastructure constraints, primarily in the Yekaterinburg hub, and the presence of a large number of sparsely populated stopping points and reduced traffic volumes due to the reduction in the size of commuter trains. The main problems in the development of rail passenger services in long-distance traffic are weak positions in competition with air transport at a price (other than a reserved seat) and speed of communication.

3.2. The results of the analysis in the field of automobile transport

In the road sector, there are restrictions on the carrying capacity of federal highways at the entrances to Yekaterinburg and when passing through the settlements of the Sverdlovsk region and, as a result, significant losses in travel time due to a mismatch of actual average speeds (75.4 km / h) settlement (100-120 km / h) on federal highways.

The development of automobile transport is characterized by the formation of a sustainable habit of using a personal car by the population to the detriment of public transport in the city of Yekaterinburg and Nizhny Tagil. The second aspect is the growth of the shady transportation sector and the decline in the share of large and medium-sized enterprises that are able to fully ensure the safety and quality of transport services.

The low level of state support for public road transport is not comparable to the level of developed countries (the target level is 60 percent) and does not allow the bus to withstand competition from the fixed-route taxi. The cost of carriage by road in the Sverdlovsk region is 76 rubles / 10 tkm., Which is 55 percent higher than the similar value in Russia as a whole and 80.9 percent higher than in the neighboring Chelyabinsk region. The mass discrepancy between cars and basic environmental requirements ("Euro-2"), which is 37.8 percent for passenger cars; for trucks - 67 percent; for commercial vehicles (including minibuses) - 51.2 percent, for buses - 52.2 percent.

Another problem is the low level of use of alternative fuels, including liquefied and compressed gas: the share of vehicles using gas-engine fuel owned by legal entities does not exceed 6 percent for buses and 5.2 percent for trucks.

The characteristic of urban electric transport allows us to talk about outdated rolling stock, since the share of the park with 100 percent wear and tear is more than 70 percent by bus, the trolleybus fleet is almost 100% worn out.

Low actual traffic speeds in Yekaterinburg: 9.6 km / h for a trolleybus and 13.7 km / h for a tram, which is significantly lower than planned due to traffic congestion and constant traffic jams. For the same reasons, there are serious violations in the regularity of movement: the regularity of the movement of trams was 93.2 percent, trolley buses - 87.4 percent.

The capacity of the tram lines is limited by traffic control cycles at intersections, the reserves of the tram's capacity have been exhausted, the increase in traffic intensity on the most popular lines is impossible without the implementation of the priority public transport system.

The second problem is the underfunding of the road sector and the misalignment of the allocations of the road fund of the Sverdlovsk region towards providing subsidies to municipal budgets (30.5 percent of the road fund with a minimum standard of 8.2 percent) to the detriment of inter-municipal significance (43.8 percent of the road fund).

4. Discussion and conclusions

Summing up, we can say that the transport infrastructure plays a major role in the implementation of freight in the Sverdlovsk region, most of which is produced by rail. In addition to measures to overcome the infrastructural limitations of the above, there is a need to form a balanced, efficient transport infrastructure of the Sverdlovsk region as part of a single transport space of Russia.

The balanced development of an integrated infrastructure of transport communications of all types of transport envisages the creation of a regional subsystem of a unified system and information environment of multimodal technological interaction of various types of transport envisages the creation of an automated system for managing the region's transport complex, creating a regional intelligent transport system (ITS) providing traffic management, ground and urban traffic, commuter passenger automobile transport, objects of parking spaces, to inform passengers and road users.

Integration of the regional transport system into the global transport space and the realization of the transit potential of the Sverdlovsk region' provides for the solution of the following tasks:

- in the period 2021–2030, the development of the West-East international automobile corridor will enhance the attractiveness of the Sverdlovsk region as a center for processing and distribution of commodity flows for the Tyumen region, the Republic of Bashkortostan, and extend the region's influence to the Volga Federal District, including the Samara region Saratov and Ulyanovsk regions.
- in the innovative variant of the implementation of the strategy in the implementation of large investment projects Belkomur, Ural Severny - Ural Polar, it becomes possible to form new directions of flow of goods to the northern seaports.

As a result, the competitiveness of export products of the Sverdlovsk region, in particular, of its cargo-intensive part, will significantly increase.

The development of the transit potential of the Sverdlovsk region should be accompanied by an up-to-date renewal and build-up of the fleet of freight rolling stock of the Sverdlovsk region, aimed at securing the region as a transport and distribution hub. Government policy should include motivating transport enterprises to renew (reduce the age) of rolling stock, including by keeping the transport tax on new energy-efficient heavy vehicles at a level lower than in neighboring regions, providing state guarantees on loans for updating rolling stock for enterprises transport and logistics complex under public-private partnership.

When integrating the Sverdlovsk region into the international transport space in order to avoid discrimination of domestic carriers, separate attention should be paid to establishing parity in international road transport. The task is accomplished by reducing the share of carriers of third countries that are not members of the Eurasian Transport Union, for which it provides for:

- organizing the monitoring of parity of international freight transport by road;
- assistance in establishing the parity of international freight transport by road;
- allocation of services for international transport in competitive procedures in public procurement at the municipal and regional levels;
- reflection of preferences to domestic carriers in competitive procedures for government procurement of international road transport services at the municipal and regional levels.

The mechanism for the implementation of measures is the interaction of the executive authorities of the Sverdlovsk region with associations and individual organizations of domestic and foreign international carriers.

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