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Reduction of economic risks of the region based on digital technologies of developing the innovative potential of transport services

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***Abstract* — The article is devoted to the analysis of the innovative potential of transport services enterprises and the possibilities of development based on digital technologies. The purpose of the article is to identify opportunities to reduce the economic risks of the region based on the digitization of the transport services sector, sustainable growth of financial and economic indicators due to the digitization of the innovation process. Methods: modeling of socio-economic processes, systemic and situational approaches. The article considers the peculiarities of the enterprises of the sphere of transport services, their groups depending on the directions of their activities. The author describes the tasks and factors of stimulating innovation activity of the type of economic activity under consideration, the main strategies for the development of innovation activity. The study examines the performance of the enterprises of transport services of the Perm Region, identifies the main problems of the development of their innovative potential. The author proposes a set of measures to develop the innovation potential of enterprises providing transport services and justifies a positive impact on the economy of the region.**

Keywords* — *digital technologies, economic risks, innovative potential, transport services, regional economy.

I. INTRODUCTION

At present, market relations are developing at a heightened pace in the service sector by stimulating innovative processes in enterprises of various types of economic activity. The status of an innovative product or service is obtained if they are new and unique in the market. The innovation sphere is developing unevenly in various subjects in Russia, especially in remote regions and small cities. This negatively affects the state of the service sector enterprises as a whole. Transport services have a significant impact on the socio-economic development of regions. It is advisable to consider the factors and prospects for the formation of the innovative potential of enterprises in this sphere, which are elements of complex systems.

The development of the transport and logistics system of the Russian Federation, both in general and in the regions in particular, is accompanied by a continuous process of the formation of new control systems for the movement of goods, structures, and organizations involved in logistics services. The existing market of transport and logistics services, it should be noted, does not contribute to a rational assessment of the potential of regional logistics, obtaining information about the current state of the warehouse system in real time, and research into the directions and extent of transport flows due to the fragmentation of their subjects. It is necessary to create an interaction of objects and subjects of transport and logistics systems. It would allow accelerating the adaptation to territorial conditions, to raise the level of quality of services, to focus not only on the local market but also on the foreign one.

The concepts of the transport and logistics network and the transport and logistics system have significant differences: the first concept is broader and includes systems and clusters since it can extend to other territories and regions. The network structure is the union of several enterprises, interconnected by common goals, objectives, development of transport services.

Transport and logistics network - a set of economic agents, united by the production, sale, and promotion of services related partnerships and coordinating joint activities. May include an indefinite number of transport and logistics systems and clusters united by a single business process. Enterprises can form various forms of interaction within the transport and logistics network: strategic alliances, associations, etc.

The transport and logistics system is a competitive transport service system consisting of several participants who set themselves the goals of obtaining the most effective overall result of their activities with the maximum degree of satisfaction of the needs of consignees and consignors. Transport and logistics clusters are specific service clusters, which are based on the principles of common interests of potential cluster participants and a high degree of concentration of location of objects when establishing close relationships between themselves [13].

The transport services enterprise is a part of the transport and logistics system. The main purpose of the system is to organize the movement (delivery) of inventory from the starting point to the end of the most optimal route.

II. MATERIALS AND METHODS (MODEL)

Research methods: systemic and situational approaches, the modeling of socio-economic processes.

III. Results and Discussion

Enterprises in the sphere of transport services are divided into the following groups [8]:

1) Transport enterprises - provide transportation services for consumers;

2) Expeditionary enterprises - provide services for the preparation and implementation of freight transport by various modes of transport, as well as the design of various types of documentation. Intermediary organizations;

3) Logistics enterprises - provide various services related to transportation, storage, management, and other movements of raw materials and finished products;

4) Information and intermediary enterprises - provide communication services to enterprises and carriers. Dispatch organizations;

5) Service enterprises - provide various types of services.

The most widespread on the territory of the Russian Federation received enterprises of mixed types, such as freight forwarding. They are most relevant to the needs of the market, as they provide a wide range of different services [6].

Transport enterprises have several distinctive features [9]:

1) A large number of branches of enterprises contributes to the establishment of strong relationships with various groups of clients in different regions of the country. This speeds up the workflow process, helps to quickly and effectively attract vehicles for reverse loads, which reduces the cost of returning and downtime of the vehicle fleet;

2) Reducing the negative impact of the seasonal risk factor is achieved by increasing production capacity in order to prevent transport downtime;

3) The absence of a cycle of shipments at the request of customers contributes to the redistribution of transport in the period of activity or reduce the flow of customers;

4) A small planning horizon implies that most transactions take place without the prior filing of applications for transportation by customers. Search for third-party carriers is carried out with prior requests.

Innovations in the enterprises of the sphere of transport services are an element of the strategy for the development and modernization of a separate enterprise and the industry as a whole. Innovation contributes to the creation and preservation of competitive advantages in technology and technical support over a long period of time. The use of such benefits further helps to improve the financial and economic indicators of the enterprise, including raising profits and minimizing costs as much as possible [6].

The innovative potential of a transport enterprise is a combination of financial, material, intellectual, infrastructural, labor, and information resources [3]. The development of innovative potential affects the efficiency of management processes of enterprises in the sphere of transport services, contributes to the intensive growth of the industry, ensures Russia's stable competitive position in the global market for transport services. The concept of innovative potential was considered by various authors (table 1).

TABLE 1. CONCEPT OF “INNOVATION POTENTIAL” IN SCIENTIFIC LITERATURE

Author	Definition
Krayukhin G.A., Shabaykova L.F. [5]	Innovation potential is a set of material, human, financial, and information resources that are serviced by the appropriate infrastructure introduced for the implementation of innovations.
Ivantsov Ya.I. [3]	Innovation potential is a strategy of behavior of a business entity in relation to the innovation process.
Vodachek L., Vodachkova O.[1]	Innovation potential is the proposed or already realized resources and organizational mechanism (organizational structure and technology of activity) aimed at achieving the innovation goal (strategy).
Gerasimov M.V., Minina, L.S.[2]	Innovation potential is a system that includes capital, own innovations, borrowed innovations, and projects, the interaction of which is aimed at the effective development of technology and technology of the production system.
Lisin K. B., Fridlyanov V.N. [12]	Innovation potential is a combination of scientific, technical, technological, infrastructural, legal, financial, socio-cultural, and other opportunities that can ensure the implementation of innovations.

The development of innovative potential in transport enterprises is aimed at solving two main tasks:

1) Reducing the volume of costs in the provision of transport services;

2) Ensuring a high level of quality of transport services provided by the company. It includes the speed of delivery of passengers and goods, a high degree of cargo safety, comfortable conditions for passenger transportation and their safety [7].

Effective management of internal potential and processes contribute to the successful coordination of innovation in the transport enterprise. Evaluation of competitive prices, the cost of production and production, all risks, is carried out by analyzing these factors. Flexible adaptation to the external environment increases the possibilities for the development of innovative potential [7].

One of the main goals of increasing the innovation potential of enterprises in the sphere of transport services is to select the most effective innovation development strategy. This process involves the analysis of all factors affecting the company's innovation. The growth strategies of an innovative enterprise in the sphere of transport services are divided into 2 types (according to one of the classifications) [15]:

1) Adaptation innovation strategy - this strategy is to implement measures to modernize the procedure for the provision of transport services within the existing organizational structure and activities. Innovations in the program of adaptation strategy are a response to the dynamics of the external environment of the company in order to preserve and further increase own market share. Adaptation strategy is ineffective in the conditions of instability of market relations;

2) Creative innovation strategy - based on the improvement of the new innovation that has emerged in the market recently (or now). The manufacturer of such an innovation is an imitator [14].

The following classification implies a division into 3 strategies:

1) Transfer Strategy. The basis is borrowed achievements already released on the market by domestic or

foreign manufacturers. For example, the purchase of new technics. Used when updating a fleet of vehicles;

2) Borrowing strategy. Based on cheap labor; uses the capabilities of existing scientific and industrial institutions to create their own innovative products and services;

3) Growth strategy. Based on stimulating the maximum realization of the production potential of transport organizations, attracting foreign personnel, and also introducing the results of the activities of innovation departments into production and management processes [6].

The formation of the innovation strategy of the transport company occurs in several stages:

1) At the first stage, the determination of the duration of the formation of an innovation strategy takes place. This interval is determined on the basis of the parameter of predictability of the vector of development of the economy and the structure of the segments of the transport services market;

2) The second stage includes the analysis and monitoring of external factors capable of affecting the innovative potential of the enterprise, the conjuncture of the transport services market, the achievements of science. This may be the design of optimal economic and legal conditions for the innovative activity of the company, directions and technologies for their improvement in the future;

3) The third stage is to identify and assess the strengths and weaknesses of the transport enterprise, which determine the features of the formation and development of innovative potential;

4) At the fourth stage, a general assessment of the company's strategic innovation policy is carried out. It is aimed at overcoming internal constraints and flexible adaptation to external conditions for the development of innovative potential [14].

The main task of the Transport Strategy of the Russian Federation for the period up to 2030 is the development of innovative technologies in the field of reconstruction, construction, and maintenance of the entire transport infrastructure [10]. This task is implemented in the implementation of the system of interaction of industry, educational, scientific and industrial institutions. This provides the necessary level of training of qualified and competent specialists as the main factor stimulating R&D in transport enterprises [4].

Benefits from the development of innovative potential are distributed among enterprises in the sphere of transport services, consumers, and the state. Participants in the development of innovative capacity are:

1) Transport enterprises;

2) Scientific and technical organizations whose main activity is the development and maintenance of innovation;

3) Providers of financial, labor, and material resources that influence the price and quality of transport services [7].

It is necessary to consider the main indicators of the transport services market in order to assess the impact of the development of the innovation potential of transport services enterprises. Table 2 presents the indicator of the share of public roads, which does not comply with regulatory requirements (for regions of the Russian Federation).

Perm Region, which belongs to the Volga Federal District (VFD), is located in the depths of the country and represents an industrialized region. Regions are characterized by an approximately equal level of indicators by the degree of urbanization and the share of small cities in the total number of cities. In terms of population density, the Perm Region is significantly inferior to the regions of the Central Federal District (Table 2).

TABLE 2 ECONOMIC INDICATORS OF THE REGIONS OF RUSSIA [11]

Indicator	Vladimir region	Tula region	Perm region
GRP 2015, mln. Rub.	357 913	476 649	1,048,018
GDP growth for 2010-2015 (%)	59%	101%	68%
Industrial Specialization	Metallurgy, machine building, machine tool building, glass industry	Machine building, metallurgy, chemical industry	Petrochemical industry, metallurgy, machine building, forest-industrial complex
Key export-partner countries	Kazakhstan, India, Belarus, Algeria, Ukraine	Algeria, USA, Iraq, India, Ethiopia	China, Brazil, Netherlands, Belgium, France
Key import-partner countries	China, Germany, Italy, Turkey, Netherlands	Germany, China, Indonesia, Japan, Italy	Germany, China, Belarus, Austria, Ukraine
Transportation costs, thousand Rub.	315 390	740,712	2,578,999
Largest share of transportation costs for railway transport	Glass industry (57%)	Chemical production (58%)	Chemical production (39%)

In the Perm Region published data on the volume of road transport. They are twice the volume of the Tula region. From the industrial specialization of the region in the petrochemical and metallurgical industries, we can assume a significant amount of rail transportation for export to foreign countries or to regions with access to the port infrastructure. This assumption is confirmed by the high costs of railway services, 3,5 times higher than the costs of the Tula region. Table 3 shows the main indicators of transport services in the Perm Region.

Traditional means and methods of agricultural activity are relevant today. This allows consistently improving production results: economical agricultural machinery; productive plant varieties; effective fertilizers; rationalization of agrotechnological techniques. However, their potential is almost exhausted. Therefore, the pace of application of digital technologies and innovations based on a program-oriented approach at the level of federal and regional programs and developments is consistently growing in agriculture. Some types of technologies that are introduced into the production process of agriculture in the regions of Russia (Table 1).

TABLE 3 INDICATORS OF TRANSPORT SERVICES, PERM REGION [11]

Indicator	2013	2015	2016	2017

Percentage of public roads that do not meet regulatory requirements.	26,4	45,1	43,3	39,0
Freight turnover by types of transport (mln. T / km)				
Transportation - total	4 847,0	3 736,0	3 312,0	4 091,0
from this car::	3 876,0	3 307,0	3 174,0	3 806,0
Passenger traffic (mln. people)				
Transportation - total	447,7	364,1	338,9	332,5
from this car:	384,5	303,8	284,6	283 ,6

The share of public roads that do not meet regulatory requirements in the Perm Region is lower than that in Russia - only 39% in 2017. The number of shipments decreased due to the negative effects of the economic crisis of 2014. However, then it increased - pre-crisis indicators were practically achieved in 2017. As for the indicators of passenger traffic, transport companies have not recovered from the effects of the crisis. Some indicators continue to decline, which indicates the need for growth of innovative potential in the enterprises of the sphere of transport services.

IV. Conclusion

The problems of the development of innovative potential at transport enterprises in Russia are: a high degree of wear and tear of the material and technical base of the infrastructure of the vehicle fleet (measures are needed to reform the country's transport complex); inefficient forecasting, transport design, which can be improved through the introduction of new programs for the development of the transport system; insufficient level of competence of the transport complex personnel.

Such methods are used to increase the innovation potential of transport services enterprises:

1) Implementation of logistics approaches to planning, controlling, managing, and regulating the movement of passenger, informational, material, and cash flows;

2) The use of logistic life cycle management of innovative products and services;

3) The choice of modular approaches to the maintenance of cargo flows in general and cargo in particular;

4) Management of innovative potential of transport companies of a logistical orientation.

The development of innovative capacity in the enterprises of the sphere of transport services is associated with the optimization of operating costs for transportation and with the reduction of costs in the operation of vehicles. Innovative strategies and stages of their implementation must be consistent; correspond to real and achievable goals taking into account the socio-economic level of development of the region. A significant problem is the remote cities and enterprises from transport and logistics routes. Many small cities of the Perm Region possess high industrial and tourist-recreational potential. However, it is difficult to effectively use because of the underdevelopment of transport infrastructure.

We can single out the following areas for solving the problem of developing the innovation potential of transport services enterprises: training specialists with higher and secondary professional education on the basis of relevant programs of universities and secondary specialized educational institutions with pronounced departmental specificities; implementation of interaction between industry scientific, industrial, and educational institutions through the use of the existing material and technical base as a system of industry research and educational centers; effective allocation of funds for R&D of transport enterprises in the field of science and technology.

The development of the innovation potential of enterprises in the sphere of transport services will positively affect the economy of the country's regions. Integration into transport and logistics networks is the main development path for remote areas of the Perm Region since the main production facilities are located in regional centers or in fairly large cities (with a population of about 100 thousand people). The implementation of support functions such as the activities of warehouse and distribution centers at a certain stage of the production process can be carried out on the basis of network cooperation or outsourcing.

The development of transport and logistics capacity can increase the mobility of product distribution, the average speed of delivery, and optimize the existing route network in the municipalities of the Perm Region. The creation of logistics centers not only contributes to attracting cargo traffic but also increases the investment attractiveness in small cities. This has a beneficial effect on the development of related industries based on integration into the regional and interregional transport network.

Strengthening the position of the region can also occur on the basis of cultural and historical heritage through the development of tourism services. The economic growth of small cities can have a beneficial effect on the well-being of small-town residents and contribute to regional economic development.

The presence of transport corridors improves the possibilities of trade and economic cooperation and is an important factor of investment attractiveness. Integration into the transport and logistics network through the development of distribution logistics hubs and the introduction into production chains based on the implementation of separate production stages with value-added can strengthen the competitiveness of regions in the national economy.

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