DOI: https://doi.org/10.30932/1992-3252-2019-17-286-308

Improving the Mechanisms to Ensure Economic Security of the Transport System

Semenov, Maxim A., *PromSpetsKontrol LLC, Moscow, Russia*.*

Maxim A. SEMENOV

ABSTRACT

In the context of transition to an intensive and innovative type of economic development, stable functioning of the transport system is a guarantee of economic growth and maintaining the country's economic security.

The objective of the work is to develop recommendations on ensuring economic security of the transport system based on digitalization. The main research method is an updated indicator method.

The author has analyzed the dynamics of indicators of economic security conditions for the period 2000–2019 and concluded that it is currently not exposed to threat. Nevertheless, some indicators tend to decrease, which indicates a possible threat to economic security in the future.

The development of the transport system, which leads to an increase in quality of the services provided and a decrease in transportation costs, provides the transport component of national economic security. Constraints that reduce the efficiency of transport act as sectorial threats to economic security.

It is proved that for development of the transport system and prevention of threats to economic security, it is necessary to use the opportunities provided by the digitalization.

Digitalization should be carried out by creating a single digital space in which subjects and objects of the transport system will interact. It is determined that the public transport regulatory authority has created serious prerequisites for digitalization. Thanks to digitalization, it is possible to reduce costs, increase labor productivity, reliability, and security, obtain grown quality and accessibility of transport services, expand their range, increase openness and transparency of the transport services market. The transition to a qualitatively new level of development of the transport system will contribute to the growth of indicators of the economic security conditions.

This digital space should be based on the digital platform of the transport system, which will ensure its regulation and coordination.

Keywords: economic security, threats, transport system, monitoring, Transport Strategy, digitalization.

---

*Information about the author:
Semenov, Maxim A. – Assistant Business Development Manager, PromSpetsKontrol LLC, Moscow, Russia, livsh@list.ru.

Article received 02.09.2019, accepted 03.12.2019.

For the original Russian text of the article please see p. 286.

Background. Ensuring the economic security of the transport system is one of the most important priorities of the state transport policy, as it is a condition for reliable economic security at all levels and a condition for effective development of the socio-economic system.

According to some researchers, economic security means progressive development of the economic system that is resistant to external and internal threats through conversion of negative environmental conditions, causes and grounds for possible damage into growth factors that can guarantee protection of the national state interests and ensure social orientation of the policy while maintaining the internal potential of the state [1].

The transport system should be capable of fulfilling its main function within the framework of the socio-economic system which is full satisfaction of the needs for transportation of goods and passengers followed by increasing quality of transport services. It should fulfill its main function, provided that it remains highly competitive in the transport services markets, ensuring full economic and financial conditions for current activities and strategic development. The entire organization of transport production and management must ensure a high level of productivity and resource efficiency, starting with labor resources and ending with financial resources [2].

The mechanism for managing economic security in the transport industry should be based on comprehensive assessment of trends in development of economic processes in the industry, identification of threats to economic security, monitoring the actual values of selected indicators and their threshold values. Based on the monitoring results, proposals are developed for strategic development of the industry, i.e. improving its economic security and measures to neutralize existing threats to economic security [3].

The *objective* of the work is to study the current state of economic security of the transport system and develop recommendations for its strengthening based on digitalization.

Research methods. The main research method is an updated indicator method, based on a comparison of achieved values of security indicators and indicators with their threshold values. General scientific methods were also used in the study.

The empirical base of the research is constituted by the data of Rosstat [Federal State Statistics Service], the Ministry of Transport, the Analytical Center under the Government of the Russian Federation, the Higher School of Economics (Research University), consulting companies, and Internet sources.

Results.

The indicators selected for monitoring the economic security of transport should characterize the most important aspects of the country's provision with transportation services and have high information availability. These indicators include:

- transportation of goods;
- cargo turnover;
- passenger transportation;
- passenger turnover of public transport.

Forecasted values of these indicators are set in the Transport Strategy of the Russian Federation (Table 1).

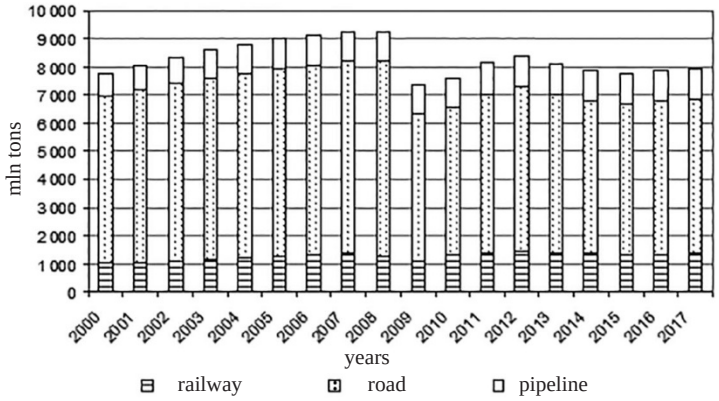
According to the basic scenario (Table 1), the total volume of cargo transportation by public transport will increase from 12,07 billion tons in 2007 to 17,1 billion tons in 2030 (by 41 %), cargo turnover will grow from 2,48 trillion tonne-kilometre up to 3,8 trillion tonne-kilometre (by 54 %).

Table 1

Forecast of cargo transportation and cargo turnover according to the basic option of development of the transport system of Russia until 2030

	2007	2015	2018	2030
Cargo transportation, mln t*	12164,4	11973,3	13083,6	17148,2
Cargo turnover, bln tonne-kilometre*	2483,1	2880,4	3120,7	3822,2
Passenger transportation by public transport, mln people	25305	22755,5	23827,4	28200,1
Passenger turnover of public transport, bln passenger-kilometre	491,8	566,9	627,3	852,4

* without considering pipeline transport. Compiled according to the data, set in the Transport Strategy of the Russian Federation [4].



Pic. 1. Cargo transportation by modes of transport. Compiled based on the data of the Federal State Statistics Service [8].

The volume of passenger transportation by public transport according to the basic scenario (Table 1) will increase from 25,3 billion passengers in 2007 to 28,2 billion passengers (+11 %), passenger turnover will grow from 491,8 to 852,4 billion passenger-kilometre (+73 %).

These indicators are the same for all modes of transport. They are used in solving the problems of planning, coordination and interaction of transport sectors and accounting at the regional and state levels [5].

The calculation of these parameters is made as follows.

Cargo transportation (volume of cargo transportation) is number of goods in tons, transported by transport.

The volume of cargo transportation is calculated according to the following formula:

$$\sum P_n = P_1 + P_2 + \ldots + P_n,$$

where P_n is amount of cargo in tons sent or transported from 1, 2, ..., n points of the transport network for a certain period of time [6, p. 27].

The initial moment of the process of transportation of goods is reflected by the indicator «sent (or departure of) goods», the final moment by the indicator «arrived (arrival of) goods». For all modes of transport, except road, the volume of transported goods is shown at the time of departure. In road transport, the account of transported goods is carried out at the time of arrival.

Cargo turnover is volume of work of transport for transportation of goods. The unit of measure is ton-kilometer. It is calculated by summing the products of the mass of goods transported in tons to transportation distance in kilometers:

$$\sum P_n \cdot L_n = P_1 \cdot L_1 + P_2 \cdot L_2 + \ldots + P_n \cdot L_n,$$

where $P_{1,2,\ldots,n}$ is amount of cargo in tons, sent or transported from 1, 2, ..., n point of the transport network for a certain period of time;

$L_{1,2,\ldots,n}$ is distance of cargo transportation [6, p. 27].

Passenger transportation is number of passengers, transported for a certain period. The unit of observation in passenger traffic statistics is passenger travel. This indicator is calculated by the following formula:

$$\sum A_n = A_1 + A_2 + \ldots + A_n,$$

where A_n is number of passengers transported for a certain period of time.

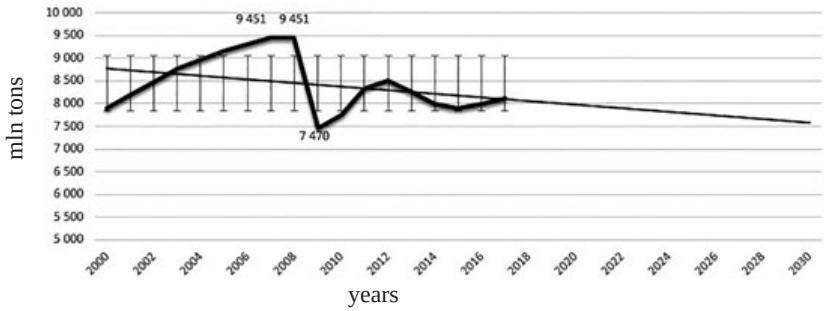
Passenger turnover characterizes transportation of passengers, taking into account the distances to which passengers are transported. The unit of measure is passenger-kilometre. It is determined by summing up the products of the number of passengers for each transportation item over the transportation distance:

$$\sum A_n \cdot L_n = A_1 \cdot L_1 + A_2 \cdot L_2 + \ldots + A_n \cdot L_n,$$

where $A_{1,2,\ldots,n}$ is number of passengers transported;

$L_{1,2,\ldots,n}$ is distance (range) of passenger transportation.

The selected indicators relate to stimulant indicators, since their growth leads to an increase in the level of economic security. Entering the range of acceptable values of indicators is interpreted as a decrease in the likelihood of a threat to economic security. A decrease in the indicator followed by going



Pic. 2. Cargo transportation by all modes of transport, mln tons. Compiled according to the data of the Federal State Statistics Service [8].

beyond the lower limit of the range indicates a threat to economic security. The fact that the indicator is outside the upper limit of the range indicates the absence of a threat to economic security at the current time [7].

The range of acceptable values of each indicator of the state of economic security is calculated on the basis of available statistical information, after which its upper and lower boundaries are evaluated.

Cargo transportation in Russia, as can be seen from Pic. 1 are carried out mainly by road. According to the Federal State Statistics Service, in 2017 it accounted for 67 % of the total transportation volume. In second place is railway transport (17 %), in third – pipeline (14 %) [8].

As Pic. 1 shows, in 2009 there was a sharp decline in the volume of cargo transportation by all modes of transport, except sea. In 2013, there was the second, less noticeable decline, caused by the growing economic crisis. Cargo transportation was negatively affected, that caused a sharp decrease in investments, exports, industrial and agricultural production [9].

The volume of road transportation over the past eight years has been recovering slowly. The rapid growth in railway and pipeline transportation in 2010 gave way to stagnation. The main reason for these dynamics in the volume of cargo transportation is a slowdown in economic growth.

To verify the adequacy of the calculations for determining the ranges of acceptable values of indicators of the state of economic security, such descriptive statistics parameters are used as the average value of the indicator for the entire analyzed period (calculated as the arithmetic average for the entire observation period), the median value (the middle of the sample of numbers, when half of the values are greater than this numbers, and the other half is less), standard deviation (is the basic calculated number when determining the upper one (it is added to the mean) and lower (subtracted from the mean) limit of the range of acceptable values index).

A graphical interpretation of the calculation results is presented in Pic. 2.

In Pic. 2, a solid line represents the actual values of the indicator for the period 2000–2017. A thin line shows the trend line, which shows the likely behavior of the analyzed indicator in the future until 2030.

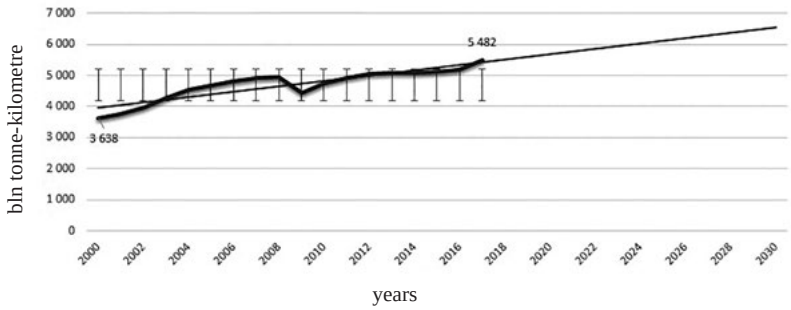
Vertical segments indicate the boundaries of the range of permissible values of the indicator, determined on the basis of the results of descriptive statistics. The minimum and maximum values of the indicator «Value for the observation period» are indicated.

It should be noted that the actual value of the indicator in 2009 was outside the range of acceptable values, which indicates a threat to the economic security of the country, since it is associated with the financial and economic crisis of 2008–2010. Now the indicator is within the range of acceptable values, which indicates the absence of a threat to economic security at the current time.

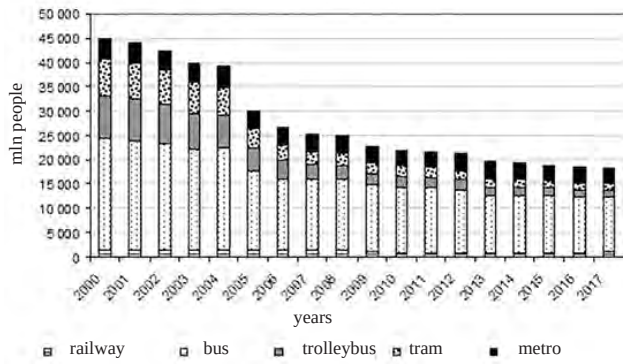
Thus, the main recommendation regarding monitoring the indicator «Cargo transportation by all means of transport, mln tons» is the need to monitor its dynamics in order to timely record the fact that the threat to economic security is growing as the actual values approach the lower limit of the range of acceptable values.

Most of *cargo turnover* and *passenger turnover* falls on railway transport.

The dominant position of railway transport in cargo turnover with its relatively low share in cargo transportation is explained by the fact that public railway transport is mainly operated



Pic. 3. Cargo turnover by all modes of transport, bln tonne-kilometre. Compiled according to the data of the Federal State Statistics Service [8].



Pic. 4. Passenger transportation by modes of public transport. Compiled according to the data of the Federal State Statistics Service [8].

for transportation of raw materials of goods over long distances. The reason for this is the geographical and climatic features of Russia, the large carrying capacity and the immunity of railway transport to weather conditions.

The small proportion of road cargo transportation in Russia can be partially explained by the low population density in the northern regions of the European part of Russia, Siberia and the Far East, as well as the large distances between settlements, transportation between which is more efficiently carried out by railway transportation.

In Pic. 3, a solid line represents the actual values of cargo turnover for the period 2000–2017. A thin line shows the trend line, which shows the likely behavior of the analyzed indicator in the future until 2030.

In 2017, the indicator was outside the upper limit of the range, which indicates the absence of a threat to economic security at the current time.

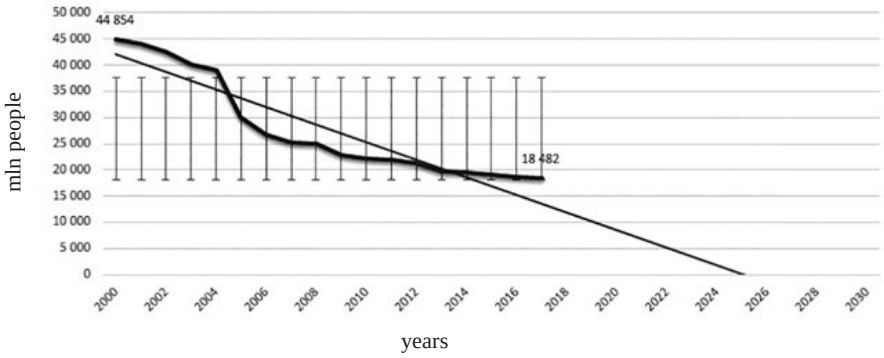
Thus, the main recommendation regarding monitoring the indicator «Cargo turnover for all modes of transport, bln tonne-kilometre» is the need to monitor its dynamics in order to timely record the occurrence of a threat to economic security in the form of a trend change and entering the range of acceptable values, which will indicate about increasing the likelihood of a threat to economic security.

Passenger transportation can be performed by public, departmental and personal transport. Public transport services are provided by public transport.

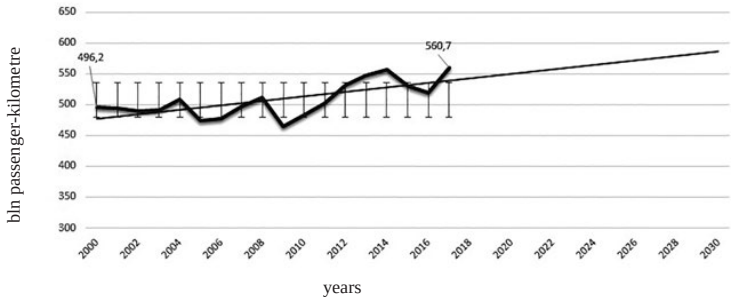
As can be seen from Pic. 4, the key type of public transport in Russia is bus transport.

When assessing the number of passenger trips, it is necessary to take into account that at present reliable statistics are available only for air and long-distance railway transport. Statistics on other modes of transport underestimate a significant number of passengers, and the general indicators of transport mobility of the population of the Russian Federation look very underestimated. So, in a number of regions the share of shadow passenger flow by bus in some directions amounts to 50–55 % [9].

The number of passengers for the period under review has a pronounced downward trend. In 2005, a sharp decline in this indicator



Pic. 5. Passenger transportation, mln people. Compiled by the authors according to the data of the Federal State Statistics Service [8].



Pic. 6. Passenger turnover, bln passenger-kilometre. Compiled by the authors according to the data of the Federal State Statistics Service [8].

was noted, which is explained by an increase in prices for travel in public transport. In recent years, a decrease in real incomes has a negative effect on the number of passengers carried.

The fastest pace of decline is observed in bus, trolleybus and tram transport. The number of air transport passengers, by contrast, is growing rapidly. This is explained by the fact that an increase in the pace of life of people leads to an increase in the requirements that they set for transport. An increasing proportion of the population is paying attention not only to price, but also to speed of movement and comfort [10].

In Pic. 5, a solid line represents the actual values of the indicator «Passenger transportation, million people» for the period 2000–2017. A thin line shows the trend line, which shows the likely behavior of the analyzed indicator in the future until 2030.

Over the past few years, the indicator has been decreasing and has already approached the lower limit of the range, which indicates an increase in the likelihood of a threat to economic security.

Therefore, it is necessary to take measures to increase the role of passenger transport.

In Pic. 6, a solid line shows the actual values of the indicator «Passenger turnover, billion passenger-kilometre» for all types of public transport for the period 2000–2017. A thin line shows the trend line, which shows the likely behavior of the analyzed indicator in the future until 2030.

It should be noted that in 2005 the indicator went beyond the lower limit of the range, which indicates a threat to economic security and is associated with an increase in prices for travel in public transport. A similar situation was observed in 2009, due to the financial and economic crisis. As a result of the crisis, the amount of available funds in the population decreased, respectively, a large proportion of the population refused long-distance travel related to recreation.

In 2017, the indicator went beyond the upper limit of the range, which indicates the absence of a threat to economic security at the current time.

The main recommendation regarding monitoring the indicator «Passenger turnover, billion passenger-kilometre» is the need to monitor its dynamics in order to timely record

Table 2

Intensity of the use of digital technologies in 2016 (specific weight of organizations, using digital technologies, in the total number of organizations, percentage)

	Entrepreneurial sector – total	Transport
Internet access	85,7	77,6
Broadband Internet access	80,5	72,8
«Cloud» services	20,5	16,5
ERP-systems	17,3	14,4
Presence of a web-site	43,4	31,8
Technologies of electronic exchange of data between own and external information systems	61,6	52,4
Systems of electronic document turnover	62,3	60,8
Software tools to carry out financial calculations in electronic form	55,4	51,6
Software tools to manage automated production and/or separate technological processes	20,9	28,0

Compiled according to the data of NRU HSE [12].

Table 3

Indicators of introduction of digital technologies in the transport system

Indicator	2018	2019 (plan)
Share of cargo, tracking of whose transportation along the territory of the Russian Federation is carried out in electronic form according to current normative-legal acts (in the sphere of cargo transportation), %	0	3
Share of electronic tickets, available for formation in «single order» mode (in the sphere of passenger transportation), %	0,01	2
Range of inland waterways, equipped with the tools of automated navigation support of ships («e-Navigation»), km	200	200
Share of systems of the transport system, using unmanned technologies and artificial intelligence technologies, %	–	5

Compiled according to the data of the Ministry of Transport [13].

the fact of increasing the likelihood of a threat to economic security as it falls into the range of acceptable values.

Thus, the financial and economic crisis of 2008–2010 had a strong negative impact on the transport security of economic security. The beginning of economic growth contributed to the increase of key indicators. Currently, all indicators are within or even above the permissible range, which indicates the absence of a threat to economic security. Nevertheless, some indicators tend to decrease, which indicates a possible threat to economic security in the future.

Positive changes in the country's economy require an adequate development of the transport system, which implies availability and high quality of the services provided, reducing the cost of transporting passengers and goods. The solution to these problems provides the transport component of national economic security [11].

Limitations that reduce the efficiency of transport functioning act as industry threats to economic security. Among the main threats in the field of transportation activities is a decrease in efficiency of organization and management of the transportation process due to insufficient implementation of elements of a dominant technological structure, primarily modern information technologies [11].

The digitalization level of Russian transport is lower than the digitalization level of other sectors of the economy (manufacturing, etc.) and lower than the average level in the business sector (Table 2).

Russian companies are not sufficiently using the capabilities of digital technology. The share of transport system organizations using various types of digital technologies should aim at 100 %. In fact, it is much lower (Table 2).

The indicators of introduction of digital technologies in the transport system, established by the Ministry of Transport of the Russian Federation as indicators of digital transformation of the transport system, were at a minimum level in 2018 (Table 3).

The transport system refers to areas where digitalization will drastically reduce existing

areas of inefficiency, say experts of Boston Consulting Group [14].

So, railway transportation in Russia today is characterized by a number of pain points.

The common for sectors B2B and B2C are:

• lack or limited functionality of digital channels for interaction between carriers, shippers and passengers;

• limited ability to forecast demand for cargo and passenger transportation;

• low efficiency and high cost of repairs, lack of repairs as they are.

In the sphere B2B: limited access to cargo transportation for small and medium business, mainly due to lack of digital channels of interaction.

In B2C sphere: need to improve client experience:

• improving convenience of multimodal transportation, including not only the possibility of route planning, but also purchase of tickets «door to door»;

• providing access to communications during transportation;

• simplifying the system of booking tickets via web-sites and mobile applications [15].

Digitalization provides solutions to all these issues.

The issue of modernization of the transport sector occupies quite serious positions in many foreign strategies for development of the digital economy [16].

International experience shows that standardization of information exchange, introduction of electronic transport and logistics documents and digital platforms of transport and logistics activities can significantly reduce time for execution of transportation documents and the cost of their implementation.

Thus, introduction of a digital platform for transportation and transport management allowed AGCO Corporation, one of the world's largest producers and distributors of agricultural machinery and agricultural equipment, to reduce transportation costs by 25 %, while increasing the timeliness of cargo delivery by 10 % [18].

Carrefour SA, the largest retailer in Europe, due to introduction of a warehouse management system (WMS) from Generix Group company was able to reduce transportation costs for transportation of goods from small suppliers by 40 %, and the cost of processing goods in warehouses by 30 % [19].

A significant role in development of transport can be played by digital technologies that provide the least capital-intensive infrastructure improvements and improve quality of transport services. The concept of transporting passengers and cargo is radically transformed by the technology of unmanned vehicles. Rosavtodor is currently implementing the «Caravan» project, during which it is planned to equip federal roads entering international transport corridors by 2035 with infrastructure for using unmanned vehicles [20].

Finally, over the next decade, fundamentally new types of linear transport infrastructure, such as hyperloops, may appear in the world.

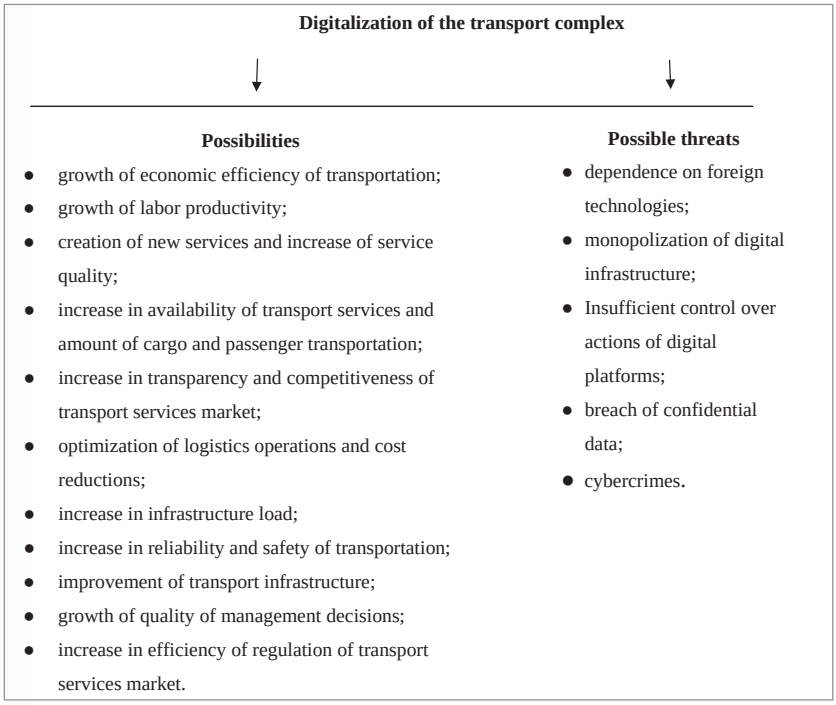
In terms of information systems of the state regulator of the transport system, serious prerequisites for digitalization have been created. A lot of work has been done at the Ministry of Transport of the Russian Federation to consolidate information systems and resources of state bodies of the transport system, to introduce certain modern information technologies and world practices in the field of digitalization. The Ministry has created and successfully operates large federal state information systems: the Unified State Information System for Transport Security (EGIS OTB), the State Automated Information System «ERA-GLONASS», the information-analytical system of the state regulator of the automated control system of ACS TK, the «Platon» system. These systems create serious prerequisites for digitalizing the activities of the state regulator; they are already practically introducing separate digital technologies.

Digitalization of transport and logistics activities allows to switch to an innovative option for development of the transport system and provide solutions to the following problems:

• creation of fundamentally new solutions and services that are impossible without modern information and communication technologies;

• development of a competitive transport services market, increasing its openness and transparency;

• expanding the range and improving quality of transport services through the use of modern transport, logistics and information and telecommunication technologies, development of new forms of organization of



Pic. 7. Possibilities and threats of digitalization of the transport system.

the transport process and interaction between modes of transport;

• increasing economic efficiency at all levels and labor productivity;

• cost reduction in logistics supply chains, including multimodal transportation and on international transport corridors passing through the territory of the Russian Federation;

• increased loading of transport infrastructure, including loading of international transport corridors of the Russian Federation;

• increasing availability of transport services for business and the population;

• ensuring the reliability and safety of functioning of the transport system, including on the basis of increasing the level of intellectualization of infrastructure by creating and developing intelligent transport systems, smart roads, transport hubs, etc.;

• creation and application of effective mechanisms for monitoring transport processes, managing the functioning and development of transport.

The transition to a qualitatively new level of development of the transport system will contribute to an increase in the volume of transportation of goods and passengers, indicators of cargo turnover and passenger turnover.

At the same time, digitalization carries with it new risks that should be predicted and minimized.

The possibilities and possible threats of digitalization of the transport system are shown in Pic. 7.

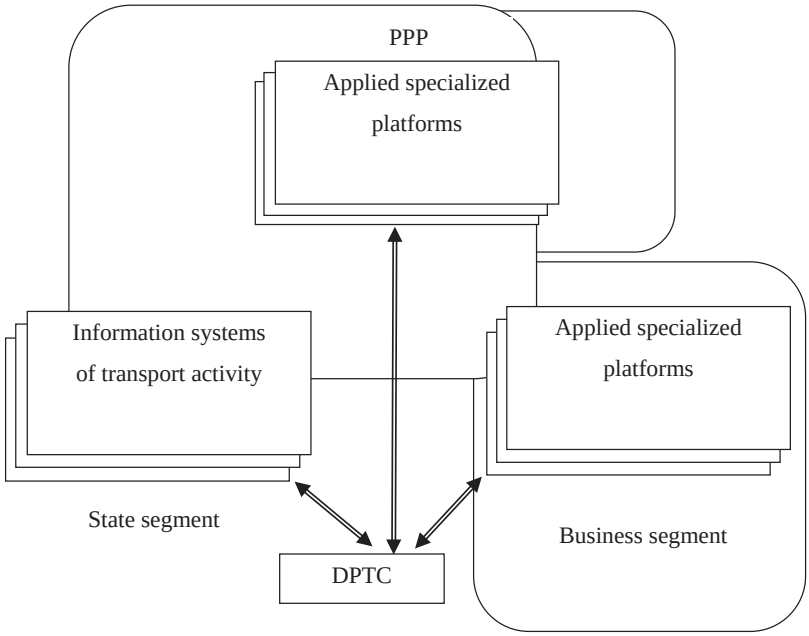
It should be noted that the positive aspects of digitalization outweigh all the threats and losses that are possible with the most negative scenarios for implementation of these threats.

In 2018, within the framework of the state program for development of transport, the Ministry of Transport prepared a departmental project «Digital Transport and Logistics». One of the main objectives of the project is creation and development of a single multimodal digital transport and logistics space in Russia[*].

At the end of 2018, the Ministry of Transport came up with a proposal to create a digital platform for the transport system (DPTC). This platform will be based on domestic solutions and software. The industrial operation of DPTC is planned to begin in 2024[**].

Due to creation of a single trusted digital space of the transport system, availability and quality of transport services will increase, speed and quality of management decisions will increase, costs will be reduced, and transporta-

[*] See, e.g. http://government.ru/news/38653/.
[**] See, e.g. https://www.mintrans.gov.ru/documents/8/10143.



Pic. 8. Digital space of the transport system.

tion safety will improve. The introduction of new standards and means of electronic design of transport and logistics processes will ensure the sovereign integration of the domestic transport system in the global digital space.

The digital space of the transport system, one of the main elements of which will be DPTC, should provide a unified and trusted information interaction between participants, regulators and users of the transport system.

The subjects of the digital space of the transport system and the mechanisms of interaction between them are presented in Pic. 8.

In a generalized form, the digital space of the transport system consists of DPTC, which is the core that defines the standards and rules of the transport system, and of application platforms.

The digitalization of state functions and tasks should be provided by the state segment, the production processes of transport and logistics activities – by the business segment.

The key elements of the business segment will be applied digital platforms, such as, for example, a digital platform for organizing railway cargo transportation.

DPTC will become the basis of the state segment and will implement technological tasks in the interests of digital transformation of the transport system. It will provide mechanisms for public administration and coordination of transport and logistics activities using technologies and means of the digital economy, as well as implementation of a «single counter» of digital interaction between the state, business and citizens.

The main directions of development of the transport system in the digitalization process should be:

1) Transforming cargo transportation through digital technology and platform solutions.

2) Transforming passenger transportation through introduction of digital technology and platform solutions.

3) Transforming transport infrastructure management through introduction of digital technologies and platform solutions.

4) Ensuring coordination and interaction of digital platform solutions of the transport system, their integration into the global transport space and realization of the country's transit potential through introduction of digital technologies.

5) Improving safety, reliability and stability of the transport system and its information infrastructure.

The implementation of these areas will lead to an increase in the main indicators of the state of economic security of the transport system: transportation of goods and passengers, cargo, and passenger turnover.

Conclusions. As the analysis of the main indicators of the state of transport support of economic security showed, at present there is no threat to economic security. Nevertheless, some indicators have negative dynamics, which indicates a possible threat to economic security in the future.

The most important strategic factors for enhancing economic security and developing the transport sector of Russia in the long term are increasing the availability and quality of transport services, reducing costs, improving transportation safety and increasing the competitiveness of the domestic transport system in the world market.

The most important condition for development of the transport system and strengthening of economic security is digitalization. On the one hand, digitalization provides a wide range of opportunities for obtaining an economic effect; on the other hand, it creates security threats that must be predicted and minimized.

Further implementation of the course on digitalization of the transport system of Russia should be carried out by creating a single digital space in which the subjects and objects of the transport system will interact. The basis of this digital space should be the digital platform of the transport system, which will ensure its regulation and coordination.

REFERENCES

1. Dronov, R. V., Pavlov, A. V. Criteria of economic security of the Russian Federation in the field of water transport [*Kriterii ekonomicheskoi bezopasnosti Rossiiskoi Federatsii v sfere vodnogo transporta*]. *Upravlencheskoe konsultirovanie*, 2017, Iss. 7, pp. 70–81.

2. Mikhnenko, O. E., Ilyin, V. V. Reform of the transport complex: economic security and cost optimization [*Reformirovanie transportnogo kompleksa: ekonomicheskaya bezopasnost' i optimizatsiya zatrat*]. *Natsionalnie interesy: prioritety i bezopasnost'*, 2012, Iss. 7, pp. 42–48.

3. Babkina, T. V., Buravova, A. A., Trembach, K. I. Specificity and relationship of economic security and the country's transport complex [*Spetsifika i vzaimosvyaz' ekonomicheskoi bezopasnosti i transportnogo kompleksa strany*]. *Internet journal Naukovedenie*, 2015, Iss. 5, p. 5.

4. Order of the Government of the Russian Federation of November 22, 2008 No. 1734-r «On approval of the Transport Strategy of the Russian Federation for the period until 2030» (as amended on May 12, 2018) [*Rasporyazhenie Pravitelstva RF ot 22.11.2008 № 1734-r «Ob utverzhdenii Transportno strategii Rossiiskoi Federatsii na period do 2030 goda» (s izmeneniyami na 12 maya 2018 goda)*].

5. Denisova, A. S., Konovalova, T. V., Nadiryan, S. L. Models of transport services for industrial enterprises [*Modeli transportnogo obsluzhivaniya proizvodstvennykh predpriyatii*]. *Nauka. Tekhnika. Tekhnologii (politekhnicheskiy vestnik)*, 2018, Iss. 2, pp. 223–227.

6. Kovalev, R. N., Demidov, D. V., Boyarsky, S. N. Logistic management of transport systems: Study guide [*Logisticheskoe upravlenie transportnymi sistemami: Ucheb. posobie*]. Yekaterinbug, Ural State Forestry Technician University, 2008, 166 p.

7. Raevsky, S. V., Belyaevskaya-Plotnik, L. A., Sorokina, N. Yu. Methodological approach to assessing the ranges of acceptable values of indicators of the state of economic security of the Russian Federation [*Metodicheskiy podkhod k otsenke diapazonov dopustimykh znechenii pokazatelei sostoyaniya ekonomicheskoi bezopasnosti Rossiiskoi Federatsii*]. *Ekonomika i upravlenie: problemy, resheniya*, 2018, Iss. 7, pp. 19–26.

8. Federal State Statistics Service: The main results of the work of transport. 1995–2019. [Electronic resource]: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/enterprise/transport/#. Last accessed 02.09.2019.

9. Latypova, R. R., Yushkova, V. V., Kirillov, A. N. Analysis of the current state of entrepreneurship in the transport sector [*Analiz sovremennogo sostoyaniya razvitiya predprinimatelstva v transportnom komplekse*]. *News of St. Petersburg State University of Economics*, 2017, Iss. 3 (105), pp. 167–174.

10. Center for Strategic Research. Bulletin «Integrated Transport System». [Electronic resource]: https://www.csr.ru/wp-content/uploads/2018/05/Report-Traffic-Infrastructure-2.0.pdf. Last accessed 02.09.2019.

11. Analytical Center under the Government of the Russian Federation: Official website. Bulletin of the socio-economic crisis in Russia. November 2015. [Electronic resource]: http://ac.gov.ru/files/publication/a/7059.pdf. Last accessed 02.09.2019.

12. Senchagov, V. K. How to ensure the economic security of Russia [*Kak obespechit' ekonomicheskuyu bezopasnost' Rossii*]. *Rossiiskaya Federatsiya segodnya*, 2007, Iss. 6, pp. 36–37.

13. Indicators of the digital economy: 2018: Statistical digest. Ed. G. I. Abdrakhmanova, K. O. Vishnevsky, G. L. Volkova, L. M. Gokhberg [*et al*]. [*Indikatory tsifrovoi ekonomiki: 2018. Statisticheskiy sbornik*]. Moscow, NRU HSE, 2018, 268 p.

14. Ministry of Transport of the Russian Federation. Official website. [Electronic resource]: https://www.mintrans.ru. Last accessed 02.09.2019.

15. Boston Consulting Group. Russia-online: Four Priorities for a Breakthrough in the Digital Economy. [Electronic resource]: http://image-src.bcg.com/Images/Russia-Online_tcm27–178074.pdf. Last accessed 02.09.2019.

16. Boston Consulting Group. Russia-online: Catching up cannot be left behind [Electronic resource]: http://image-src.bcg.com/Images/BCG-Russia-Online_tcm27–152058.pdf. Last accessed 02.09.2019.

17. Dimitrov, I. D. Influence of the digital economy on development of the transport industry in Russia [*Vliyanie tsifrovoi ekonomiki na razvitie transportnoi otrasli v Rossii*]. *Transport Rossiiskoi Federatsii. Zhurnal o nauke, praktikem ekonomike*, 2017, Iss. 6, pp. 50–53.

18. Alpega Group. AGCO success story. [Electronic resource]: https://na.alpegagroup.com/wp-content/uploads/2019/10/Alpega_AGCO-Case-Study.pdf. Last accessed 02.09.2019.

19. Generix Group. Carrefour consolidates its small suppliers' stocks and makes 40 % savings on transport costs of flows handled in this way. [Electronic resource]: https://www.generixgroup.com/en/cas-client/carrefour. Last accessed 02.09.2019.

20. Rosavtodor. The activities of Rosavtodor 2004–2019. [Electronic resource]: http://www.rosavtodor.ru/about/upravlenie-fda. Last accessed 02.09.2019.