

УДК 338.242.2

DOI: 10.37890/jwt.vi75.361

Modernization of the transport system in the Asian-Russian sector as the basis for global economic restructuring security

Alexander I. Gavrilov¹

Ivan I. Streltsov²

Wu Xiangyu²

¹*Russian Academy of Engineering Sciences, Moscow, Russia*

²*Volga State University of Water Transport, Nizhny Novgorod, Russia*

Abstract. The research in this article allows us to conduct a comparative assessment of the relationships between the intensification of innovative processes of development of transport, which largely determine today the main parameters of economic development efficiency of the respective regional territories and national states as a whole. The subject of the study is transport parameters of the movement of the resource component in space and time on the efficiency and competitiveness of the productive link of the regions and expanding the organization of trade relations of the subjects of the economy. Resources, the level of their territorial dispersion and dispersion with the possibility of placing productive forces and capacities, are largely determinant today in the development of the needs of the production sector and the impact of stock parameters on business efficiency and competitiveness of the economies of national states as a whole. Particular attention is paid to the development of both external interstate and internal national linear transport networks, including rail, road and water transport [1]

The relevance of this publication is confirmed by the active development of Russia's transportation corridors, including the "North-South" and "West-East" corridors, which will be of great importance in utilizing Russia's vast resource potential in the joint development of advanced corporate production facilities with national friendly states that possess modern production and human resources capabilities.

The scientific basis of this study is represented by complex analysis methods of generalization and evaluative expert assessments of the effect [2]

The main target parameters of the scientific justification of the article results are:

- Confirmation of the possibility of using the practices of advanced enterprises of developed Asian countries, which rely on the influence of freight delivery speed and minimization of commodity stocks in the manufacturing sector, on labor productivity and, as a result, on intensive growth of economic efficiency as a whole.
- Substantiation of the importance of integration processes between Russia and Asian countries through corporate participation in global innovative development of transportation routes, which will stimulate the intensification of the economy by actively developing communication between participating countries in the organization of transportation of raw materials and goods.

The scientific novelty of the study is determined by the justification for the need for comprehensive development of the transport system of Russia and Asian countries, in the current conditions of sanctions pressure and the reorientation of global markets. The hypothesis is that the modernization of transport arteries will be the basis for increasing labor productivity and forming an innovative transport support for the production potential of the country, not only through the supply of hydrocarbon raw materials to the West and Asia but through corporate participation in the development of an efficient transport infrastructure of the country in international business.

Keywords: Transport infrastructure; Corporate participation in international business; Innovative development of the regions of the country; Efficiency of the transport and production complex; Internal infrastructure potential; Labor productivity in transport; International transport cooperation; Intensification of the use of transport corridors; Innovative projects in transport; New world order.

Модернизация транспортной системы в азиатско-российском секторе как основа безопасности глобальной экономической реструктуризации

А.И. Гаврилов¹

И.И. Стрельцов²

У Сяньюй²

¹ *Нижегородский институт управления Российской академии государственной службы при Президенте РФ, Москва, Россия*

² *Волжский государственный университет водного транспорта г. Нижний Новгород, Россия*

Аннотация. Исследования в данной статье позволяют провести сравнительную оценку взаимосвязей интенсификации инновационных процессов развития транспортных перевозок, которые во многом определяют сегодня основные параметры эффективности развития экономики соответствующих региональных территорий и национальных государств. Предметом исследования выступают транспортные параметры перемещения ресурсной составляющей в пространстве и времени на эффективность и конкурентоспособность производственного звена регионов и расширения организации торговых связей субъектов экономики. Ресурсы, уровень их территориальной разбросанности и разрозненности с возможностью размещения производительных сил и мощностей, во многом являются сегодня определяющими в развитии потребностей производственного сектора и влияния параметров запасов на эффективность бизнеса и конкурентоспособность экономик национальных государств. Особое внимание при этом уделяется развитию как внешних межгосударственных, так и внутренних национальных линейных транспортных сетей включая железнодорожный, автомобильный и водный транспорт.

Актуальность данной публикации подтверждается поиском активного развития транспортных коридоров России «Север-юг», «Запад – восток», которые будут иметь важное значение в использовании огромного Российского ресурсного потенциала в совместном развитии корпоративных передовых производств национальных дружественных государств обладающих современными производственными и кадровыми возможностями.

Научной базой данного исследования выступают комплексные методы анализа обобщения и оценочных экспертных оценок эффекта.

Основными целевыми параметрами научного обоснования результатов статьи являются:

Подтверждение возможности использования практики передовых предприятий развитых стран Азии опирающихся на влияние скорости поставок грузов и минимизацию объемов товарных запасов в производственном секторе, на производительность труда и как следствие на интенсивный рост эффективности развития экономики регионов.

Обоснование важности интеграционных процессов России и стран Азиатского региона путем корпоративного участия в глобальном инновационном развитии путей транспортного сообщения, что будет стимулом для интенсификации экономики путем активного развития коммуникаций стран-участниц в организации перевозок сырья и товарной продукции.

Научная новизна работы определяется обоснованием необходимости комплексного корпоративного развития транспортной системы России и стран Азии, в современных условиях санкционного давления и переориентацией глобальных рынков.

Результаты исследования заключается в том, что модернизация транспортных артерий будет выступать основой повышения производительности труда и формирования инновационного корпоративного транспортного обеспечения производственного потенциала страны не только за счет поставок углеводородной составляющей сырьевых ресурсов на Запад и в Азию, а путем корпоративного участия в развитии эффективной транспортной инфраструктуры страны в международном бизнесе.

Ключевые слова: Транспортная инфраструктура; Корпоративное участие в международном бизнесе; Инновационное развитие регионов страны; Эффективность транспортно-производственного комплекса; Внутренний инфраструктурный потенциал; Производительность труда на транспорте; Международное транспортное сотрудничество; Интенсификация использования транспортных коридоров; Инновационные проекты на транспорте; Новый мировой порядок.

Introduction

Despite the modern sanctions pressure from world countries trying to bring about comprehensive disorganization of the Russian economy, with a particular emphasis on limiting the supply of hydrocarbon raw materials to the West, there are reasons to address the issue of improving the efficiency of the country's economic development through the improvement of transportation infrastructure and joint corporate participation of the country in the transport and production business of developed countries in Asia, Africa, and Latin America. It is suggested that the reliance on the fact that sanctions that affect the reduction of the trade balance of participating countries in international cooperation as well as the reduction of currency sources for budget formation will put Russia in a dead end, which is obvious and unlikely.

The reduction of global hydrocarbon reserves, as well as the burdening possibility of their extraction and supply, as well as the catastrophic reduction of global hydrocarbon reserves, requires urgent solutions to the problems of finding alternative sources for the development of economies for most countries based on the development of new directions in international business. In our view, these directions could be nuclear energy as an alternative energy source, in which Russia has elements of a monopoly, and new forms of organization of international corporate business based on the corporatization of transport and production systems with the effective use of existing international production and personnel potential. [3-5]

One of such advantageous spheres is the transportation system of Russia, which serves as a connecting link between Asia, Europe, and Africa. It is the transportation infrastructure that determines the efficiency of many production processes and national systems today, playing a significant role in creating gross domestic product.

Infrastructure innovations in the transportation sector make the production process of many countries more competitive, efficient, optimized in terms of financial costs and time.

Based on the above, it is important to note that the role of the organizational innovation component in transportation is important, specifically in attracting interested corporate clients to participate in the joint development of cross-national transportation and production systems.

The placement of modern production facilities in Asia, India, and China, as well as the availability of qualified personnel, require closer proximity to sales markets that should be territorially accessible with minimal transportation costs delivered to consumers in Europe, Russia, and the Baltic countries. In addition, this is also the basis for increasing the mobility of labor resources between participating states in transport and production corporate systems, as well as within the participating states, which will create the opportunity to increase labor productivity.

In this case, a relatively inexpensive type of transport that connects the territories of countries is international and domestic road, rail, and water transport, which have received a new impetus for development in recent years. In addition, the southern and northern sea routes, as well as the planned alternative transport corridor to the "Silk Road" through the Caspian with the Mediterranean by constructing the Caspian-Black Sea canal, are also important.

To achieve these goals, the possibility of year-round use of water and rail transport is ensured, using innovative types of icebreakers and modern hovercraft.

To achieve the stated goal, the authors have identified the following tasks:

1. Defining an assessment methodological framework for establishing complex dependencies between the transportation of resources to their processing location and the logistical costs of transportation systems in promoting goods to markets.
2. Studying the dynamics of intergovernmental commercial cooperation in relation to the dynamics of the development of logistics systems and the transportation support of mutual supplies of a wide range of consumer goods.
3. Determination of the volume of international transportation between China and Russia by all types of transport over the last reporting period, some of which serve as a potential benchmark for the development of the transportation network between friendly countries in Asia and the Russian Federation.
4. Determination of the possibility of a comprehensive expert assessment of the pace of economic development of the countries participating in the corporate development of transportation systems.

The concept of innovations in transportation has been studied by the authors in previous scientific works [6] and is defined as an innovative vision or evaluative novelty based on the use of corporate formation of transnational logistics systems with new information and communication technologies for the documentation and tracking of goods using modern technical solutions that allow both to increase the efficiency of business processes and to improve the economic and time parameters of providing quality transportation services.

In addition, the authors substantiate the possibility of obtaining a multiplicative effect in the development of roadside infrastructure for both small towns and public-private partnerships as a result of the implementation of large-scale transport development projects in participating countries [7].

Studying foreign sources gives reason to believe that they consider the Asian-European transport support of goods deliveries through the formation of a large-tonnage maritime container transport complex, which actively affects transactional transportation costs. However, in recent times, increasing scientific attention has been focused on high-speed modes of transportation such as rail, road, and river transport, which include complex use of logistics advantages created by direct transportation corridors between Asia and Europe, involving several states included in the network to ensure the operation of newly created transport corporate systems.

The authors primarily consider transport logistics systems and innovations in the transport sector as a tool for increasing economic security [8-9-10], including in terms of efficiency in utilizing geographical and communicative opportunities, as well as corporate financing in forming transport systems [11].

The issues and prospects of developing corporate transport systems will expand opportunities for external and internal labor migration, which is currently one of the limiting factors for ensuring expanded reproduction in Russia due to a shortage of highly skilled personnel for high-tech production. These aspects are extensively studied by both domestic scientists [12], and foreign ones [13], usually from the perspective of replenishing the missing workforce in large cities and the corresponding demographic decline in the periphery.

It is no secret that the issue of the effectiveness of innovation implementation in the transportation sector as a factor in the efficient use of labor resources in Asian and Russian countries remains poorly researched, and there are no clear justifications or research in the direction of investment in human capital and labor productivity growth in the economy. At the same time, the opportunity for effective access to high-tech jobs located in industrial centers for labor resources residing in remote settlements eliminates the problem of the loss of working-age population on the periphery of Russia, since providing mobility for labor resources through the development of innovative transportation systems and transport corridors allows for the use of labor force without changing the place of residence, as it

increases the speed of movement of labor resources over a relatively long distance between their place of residence and place of work [13].

Therefore, the authors argue for the direct dependence of the growth of territorial labor productivity on the implementation of innovations specifically in the transportation sector.

Material and methods

The authors used various methods of analysis, statistical observation, as well as methods of abstraction, generalization, scientific assumption, and mathematical modeling as scientific tools for the study.

Data analysis sources for the indicators under study included the websites of Rosstat (rosstat.gov.ru), the State Report of China, and the Ministry of Transport of the Russian Federation (mintrans.gov.ru).

Analysis of the aforementioned statistical data shows that there is a mismatch between the territorial economic needs for labor resources and the production potential in certain regions of Russia, which is not observed in modern China. Moreover, the labor resources with the required qualifications are scattered geographically, which creates a discrepancy with the production factors and needs.

For example, the imbalance between production and resource potential that requires organizing internal labor migration between the subjects of the Russian Federation can be assessed using the graph shown in Fig. №1.

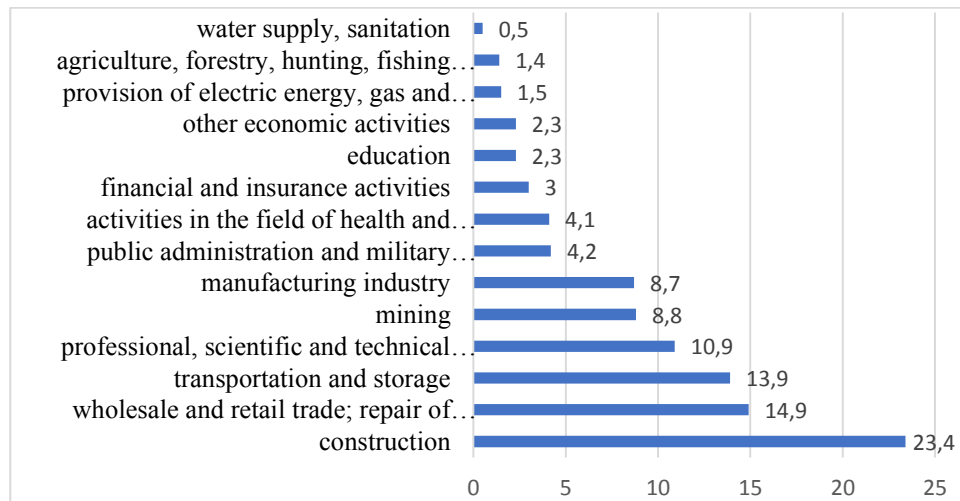


Fig. №1. Structure of internal labor migration by economic sectors (types of economic activities).

Meanwhile, the number and percentage of missing skilled labor, required to fill vacant positions among the total workforce as of December 31, 2022, is shown in Table 1.

Table 1

List of Employees and Organizational Needs for Vacant Job Positions by Professional Groups as of December 31, 2022.

Total by the surveyed types of activity			
	List number of employees - total, people	The need for employees to fill vacant jobs, people	The specific weight of the need for workers to fill vacant jobs in the total number of

			<i>jobs, in %</i>
Total specialists	26445178	1029853	3,5
Managers	22775337	49057	2,0
Specialists of the highest qualification level (in the field of science and technology, healthcare, education, administration, culture, sports, information and telecommunication technologies, etc.)	74056977	254088	3,1
Mid-level specialists (in the field of science and technology, healthcare, education, administration, culture, sports, information and telecommunication technologies, etc.)	3058066	119078	3,5
Employees engaged in the preparation and execution of documentation, accounting and maintenance	1256548	45185	3,3
Employees of the service and trade sector, protection of citizens and property	2439278	136671	5,5
Qualified workers of agriculture and forestry, fish farming and fishing	186015	9373	4,5
Skilled workers in industry, construction, transport and related occupations	3634299	179268	4,8
Including in the field of construction	740862	52979	6,4
in the field of metalworking and mechanical engineering	1630398	60331	3,5
in the field of electrical engineering and electronics	668342	32818	4,7
in the field of food, woodworking, textile and clothing industries and workers of related occupations	550131	31665	5,3
Operators of production plants and machines, assemblers and drivers	3423438	124359	3,6
Unskilled workers	2764635	112748	4,9

The analysis shows that the overall demand for personnel throughout the country is more than 1 million people, with an average proportion of job vacancies of over 3.8%. The highest demand for qualified workers is observed in the industrial sector (in particular, in the field of mechanical engineering and metalworking), construction, and transportation, which amounts to 179,000 people and determines the proportion of demand in the total number of job vacancies at around 5.0%.

The statistical data confirms the problems of imbalance in Russia concerning the territorial mismatch between production capacities and labor resources, which leads to underutilization of productive forces and capacities, having a tremendous impact on the slowdown of territorial development due to low labor productivity.

A strategic evaluation of the possibility of creating a new transport route "North-South" and a possible creation of a comprehensive Trans-Asian-Iranian-Caspian canal, including eastern and western branches, will significantly increase the competitiveness of transportation in the macroeconomic space. The western branch, through the Iranian-Azerbaijani vector, provides for the inclusion of a branch of transportation by road through the city of Resht. The vector of the eastern direction of the transportation system includes a canal route from China and India through Kazakhstan and Turkmenistan, with railway transportation included in the logistics complex providing water transportation from Russia to Iran. Such a logistics route, including the Iranian component of the route, involves the port of Bandar Abbas. In the current condition of the restructuring of the global order limiting the dominance of Euro-American relations, this route can become a crucial component of cargo transportation from Europe. This route is shorter when competing with cargo transportation from India and Latin America to the European part.

The Transport Development Strategy of the Russian Federation until 2030 includes measures aimed at increasing the dynamics of development of the unified transport system of the European part of the Russian Federation. Innovative organizational solutions and measures to increase labor productivity, which are the basis for the intensive development of transportation, implementation of which would lead to an increase in transport volumes in European basins by 2.2 times by 2030 compared to 2010, including transit goods via the "North-South" international transport corridor. However, the volume of freight transportation and the volume of their processing in logistics centers and water transport ports after 2010, as shown by the analysis, has a tendency to decrease. For example, its share in the total volume of transportation in 2022 was only 1.7%.

The Federal project "Internal Waterways" was developed and approved, and it was planned to increase the capacity of the inland waterways by 36.6 and 19 million tons, respectively, solely through the construction of the Volga and Don (Nizhny Novgorod and Bogayevsk) low-head hydropower plants. However, the construction of the hydropower plants has been postponed to the strategic perspective of transport routes development in accordance with the implementation of transnational projects carried out by China and Russia.

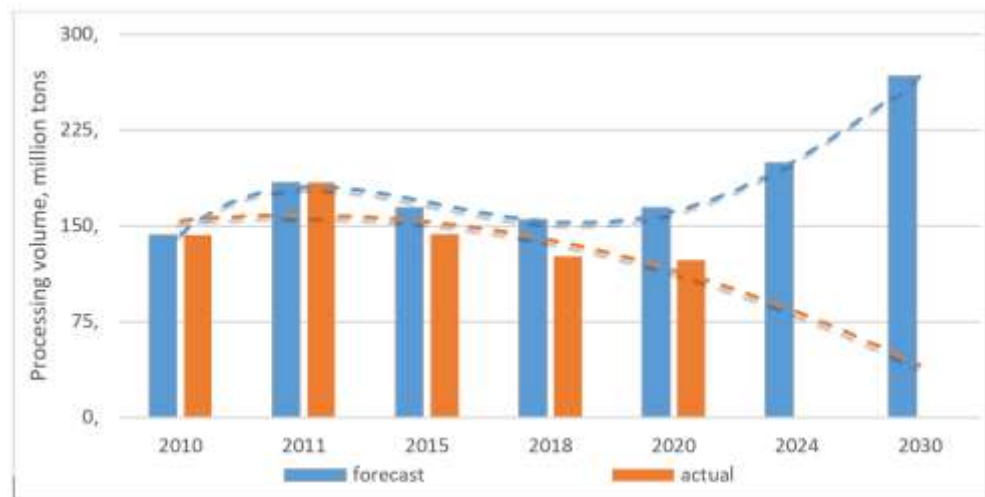


Fig 2. Forecast of the volume of transportation and processing in ports by inland water transport according to the basic strategy and its implementation.

Source: based on information from the statistical bulletin "Transport of Russia" and of all the strategic government documents in the field of transportation, the most important in relation to the international

project "North-South" is the "Strategy for the Development of Russian Seaports in the Caspian Basin, Railway and Road Approaches to Them for the Period up to 2030." Fig2. [14]

The document notes that cooperation between Russia and Asian countries, including India and China, in the Caspian-Black Sea territorial sector could be more effective and create the necessary conditions for increasing the throughput of freight flows through Russia.

Despite the development of trade between Russia, China, and Iran, the share of the "Asian tigers" in Russia's trade remains only about 3%. At the same time, Russia's raw material exports exceed imports from China and Iran by more than four times. The problem of China and India's participation in the transport corridor is that their main trading partners remain China, the United States, the UAE, and European countries. They account for about 40% of all external trade of India and China. Russia's share in the external trade of India and China, as well as India's share in Russia's external trade, remains at the level of 1-2%.

In order to increase trade turnover, in perspective, it is planned to deliver hydrocarbon raw materials, timber, and food resources including agricultural products from the grain and livestock farming of the South of Russia and the North Caucasus Federal District as return cargo to the ports of India, China, and Iran.

The implementation of the planned measures has become the basis for the development of Black Sea grain and oil loading terminals and the construction of new deep-water seaports, including a new port in the city of Kaspiysk by 2025. To achieve this, a complete overhaul of the supporting infrastructure, including railway and road access and storage facilities, is planned.

The financing of the construction of the ports of "Kavkaz" in Taman and the Kerch port complex enhances the role of developing a prospective trade corridor with Turkey, the Mediterranean, Latin American countries including African states with which Russia actively establishes trade relations today.

References

1. S.A. Vladimirov. On the main directions of development of the world transport system and logistics. "Transport on alternative fuel" No. 1 (49) / 2016, pp. 34 - 45.
2. Gavrilov A.I. Formation of an effective mechanism for managing the transport services in the region. N.Novgorod. Monograph: Publishing House "Dialogue of Cultures" - 2017. - 284p. A.I. Gavrilov. Regulation of the development of industrial business in Russia in the context of the deepening economic crisis. Management of economic systems. (VAK) -2016. №7
3. Gavrilov A.I. The mechanism of innovative management of the economy. — 2nd ed., corrected. and additional - Nizhny Novgorod: Publishing house of the Volga-Vyatka Academy of Public Administration, 2000. - 237 p.
4. Gavrilov A.I. Integral assessment of the level of economic security of the region. Monograph / - N. Novgorod, Publisher: "Dyatlovy Gory" N. Novgorod. 2017. 188s.
5. Glazyev S.Yu. Theory of long-term technical and economic development. - M., 1993.
6. Gavrilov A.I. Organizational foundations of integration processes in the modern economy (textbook). N. Novgorod: Publishing House of the Volga-Vyatka Academy of Public Administration, 2007. - 338p.;
7. Gavrilov A.I. Corporate governance: fundamentals of theory and organization. Nizhny Novgorod: Publishing House of Sarov City Printing House LLC, 2007.- 284p..
8. Gavrilov A.I. Methodical aspects of corporate management. N. Novgorod: VGIPU, 2009. - 269p.
9. N. Pumbasova, E. Upadysheva. The Factor of Innovation in the System of Assessing the Quality of Transport Services (2022) Lecture Notes in Networks and Systems, 403 LNNS, pp. 827-836.
10. Otorbay N., Akilova P.O. Analysis of the transport services market. Economic Bulletin, 3, 4, 2020, pp. 15 – 19.
11. Kushlin V.I. Russia and the New Economic Order of the 21st Century // The Economist. - 1997. - No 12.

12. M.A. Miroshnichenko, A.V. Kovtun, K.A. Kuznetsova. Quality management and human capital management based on lean innovation. *Natural-Humanitarian Studies* No. 26(4), 2019, pp. 142 - 147.
13. Klimenko V.E., Grechushkin D.O. Innovations in transport systems. In the collection: *Institutions and mechanisms of innovative development: world experience and Russian practice. collection of articles of the 12th International Scientific and Practical Conference. Kursk branch of the Financial University under the Government of the Russian Federation. Kursk, 2022, pp. 127-131.*
14. Strategy for the development of inland water transport of the Russian Federation for the period up to 2030.

Список литературы

1. С.А. Владимиров. Об основных направлениях развития мировой транспортной системы и логистики. «Транспорт на альтернативном топливе» № 1 (49) / 2016 г. С. 34 – 45.
2. Гаврилов А.И. Формирование эффективного механизма управления сферой транспортных услуг региона. Н.Новгород. Монография: Издательский дом «Диалог Культур» - 2017. - 284с. А.И.Гаврилов. Регулирование развития промышленного бизнеса России в условиях углубления экономического кризиса. Управление экономическими системами.(ВАК) –2016. №7
3. Гаврилов А.И. Механизм инновационного управления экономикой. — 2-е изд., испр. и доп. — Нижний Новгород: Издательство Волго-Вятской академии государственной службы, 2000. — 237 с.
4. Гаврилов А.И. Интегральная оценка уровня экономической безопасности региона. Монография/- Н. Новгород, Издательство:«Дятловы горы» Н. Новгород. 2017. 188с.
5. Глазьев С.Ю. Теория долгосрочного технико-экономического развития. – М., 1993.
6. Гаврилов А.И. Организационные основы интеграционных процессов в современной экономике (учебник). Н. Новгород: Изд-во Волго-Вятской академии государственной службы, 2007. – 338с.;
7. Гаврилов А.И. Корпоративное управление: основы теории и организации. Н. Новгород: Изд-во ООО «Саровская Городская Типография», 2007.- 284с..
8. Гаврилов А.И. Методические аспекты корпоративного менеджмента. Н. Новгород: ВГИПУ, 2009. – 269с.
9. N. Pumbasova, E.Upadysheva. The Factor of Innovation in the System of Assessing the Quality of Transport Services (2022) *Lecture Notes in Networks and Systems*, 403 LNNS, pp. 827-836.
10. Оторбай Н., Акилова П.О. Анализ рынка транспортных услуг. *Экономический вестник*, 3, 4, 2020 г. С. 15 – 19.
11. Кушлин В.И. Россия и новый экономический порядок XXI века// *Экономист*. – 1997. – №12. 4.
12. М.А. Мирошниченко, А.В. Ковтун, К.А. Кузнецова. Менеджмент качества и управление человеческим капиталом на основе бережливых инноваций. *Естественно-гуманитарные исследования* №26(4), 2019, С. 142 – 147.
13. Клименко В.Е., Гречушкин Д.О. Инновации в транспортных системах. В сборнике: *Институты и механизмы инновационного развития: мировой опыт и российская практика. сборник статей 12-й Международной научно-практической конференции. Курский филиал Финансового университета при Правительстве РФ. Курск, 2022. С. 127-131.*
14. Стратегия развития внутреннего водного транспорта Российской Федерации на период до 2030 год.

ИНФОРМАЦИЯ ОБ АВТОРАХ / INFORMATION ABOUT THE AUTHORS

Гаврилов Александр Иванович, доктор экономических наук, профессор кафедры Государственного управления и менеджмента Нижегородского института управления Российской академии государственной службы при Президенте РФ, академик РАЕН, Советник Минобрнауки РФ, Gai53@list.ru

Alexander I. Gavrilov, Doctor of Economics, Professor of the Department of Public Administration and Management of the Nizhny Novgorod Institute of Management of the Russian Academy of Public Administration under the President of the Russian Federation, Academician of the Russian Academy of Natural Sciences, Counselor of the Ministry of Education and Science of the Russian Federation, Gai53@list.ru

Стрельцов Иван Иванович, аспирант кафедры экономики и менеджмента Волжского государственного университета водного транспорта istreltsov@yandex.ru

Ivan I. Streltsov, postgraduate student of the Department of Economics and Management, Volga State University of Water Transport istreltsov@yandex.ru

У Сяньюй, соискатель кафедры экономики и менеджмента Волжского государственного университета водного транспорта. ytmikasa@yandex.ru

Wu Xiangyu, Competitor of the Department of Economics and Management, Volga State University of Water Transport. ytmikasa@yandex.ru

Статья поступила в редакцию 23.04.2023; опубликована онлайн 20.06.2023.
Received 23.04.2023; published online 20.06.2023.