

IMPROVING THE EFFICIENCY OF TRANSPORT SYSTEM LEGAL REGULATION IN THE CONTEXT OF GLOBALISATION: PECULIARITIES OF THE NATIONAL ECONOMY

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Abstract: The study aims to analyse problems associated with the legal regulation of the transport system. The study is based on the international and domestic ranking of logistics performance. It also takes into account the economic consequences of world internationalisation to optimise logistics performance (this includes the transportation and legal aspects) under the Transport Development Strategy of the Russian Federation until 2030. The study relies on a systematic approach to systematise legislative, economic and social information and thus create an integral system of transport communication. The review of the legal regulation issues surrounding the transport system showed the following supply chain problems: weak policy coordination and a low level of digitalisation. These problems result in low-quality service and low transparency in legal matters. According to the results of this study, the integration of the world's best practices into transport communications will improve economic efficiency. The scientific novelty of the study is a practical tool to improve transport system efficiency in the context of globalisation, considering the characteristics of the national economy.

1 Introduction

Global supply chains are complex and involve multiple stakeholders, most of whom are in different countries and sometimes on different continents. This makes chains vulnerable to disruptions, as was well demonstrated during the COVID-19 pandemic outbreak in 2020 and the nationwide blockages that followed it around the world. According to the Supply Chain Vulnerability Index [1], the U.S. and U.K. rank first and second most vulnerable to supply chain disruptions. Australia, France and Russia come next. The index also shows that Germany's supply chains are the least vulnerable in 2021, with China, South Korea, Ireland and the Netherlands in the top five, indicating that their supply chains remain secure. Tang, 2022 notes that supply chain management is an integral part of coordinating operations that focus on all elements: from creating a product or service to providing that product or service at the best price and in the best time. As market conditions have changed, many shippers and transportation providers have been forced to rethink their supply chain strategies within national jurisdictions [2].

1.1 Literature review

Transport communications link companies around the world and represent a necessary precondition for a country's integrity and its integration into the global economy through external economic activity, focusing on new opportunities to overcome the effects of the coronavirus pandemic. In this regard, the transport system relates directly to the economy and the social sphere [3, 4]. The transport system is a network of freight carriers and shippers, government transport agencies, metropolitan planning organisations, freight advisory councils and other organisations interested in establishing a sustainable and reliable shipping system [5]. Any state's transport policy is characterised by national priorities at the micro and at the macro-level [6]. A competitive transport system must have the following characteristics: be economically, environmentally and socially sustainable; be able to effectively recover from natural disasters; have a developed and reliable IT-infrastructure [7]. Driven by innovation, socially-oriented economies shift towards service logistics [8]. Logistics refers to the storage and transportation of goods within the economic system. Logistics is closely connected with management as proper

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management influences positively on logistics. As for supply chains management, it is the process of realising the flow of products from just materials to complete production with minimal expenses. In general, supply chain management includes demand planning, supply planning, production planning, stock management and logistics [9]. In this regard, transport is a service that serves the supply chain. There are four primary ways of transportation: sea, rail, road, and air. They can be used either individually or in combination with each other. This requires companies to possess key factors: a skilled workforce, a permanent talent pool and a proper employee retention policy by investing in internal resources [1].

A post-pandemic coronavirus country-by-country audit of the transportation industry (Australia, Great Britain, Germany, Russia, Panama, Peru) [10] showed that as the global movement of goods and people resumes, the situation of the transportation system stabilises in the long term. Russia, among the countries analysed, is the largest country in the world with an area of 17.1 million km² [11] and by population - ninth largest country out of 245 countries in the world [12]. Consequently, the country requires a high level of trade and a developed transport industry in order to remain prosperous in the global community. The crisis of 2014 caused an economic downturn and, consequently, a decrease in imports and exports, which negatively influenced on freight traffic. After the crisis the transport sector began to slowly recover in 2015. In 2019, it amounted to 102.8% versus 99.1% in 2014 [11]. The transport and logistics industry accounts for approximately 6.3% of Russia's GDP. In comparison with the EU countries, this figure constitutes 2.7% on average [13, 14]. Hence, one can argue that the Russian economy launched a growth regime. Freight transportation in a supply chain becomes a high priority. At the same time, e-commerce creates additional opportunities for logistics services. One of them is the increasing volume of freight traffic. The main way to deliver goods in Russia is road transportation [15]. It accounts for 70% of the total freight turnover. Railroad transportation ranks second. Moreover, Russia relies on airways and seaways to move freight across borders. For instance, seaway transport accounts for nearly 60% of international freight traffic, mainly because of the geographical location of the country. It is bounded by the Pacific Ocean and three seas - the Baltic Sea, the Black Sea and the Caspian Sea [13]. The share of the Russian e-commerce market in 2019 was 22%. According to experts, it will tend to expand. At the same time, the largest share in digital retail sales belongs to the European Union countries (65%) and China (48%) [13]. In this regard, some issues become of high importance. These include the policy environment of the freight transportation in a supply chain regulated by the national legislation [3].

The rule of law of transport legislation is declared in the Russian Federation Constitution [16: 71]. Analysing the legal framework for the transport sector in Russia,

Aristov [17] underlined the three primary regulatory documents:

- The Decree of the President of the Russian Federation on the National Security Strategy of the Russian Federation;

- Federal Law on Road Safety;

- Federal Law on Transport Safety [17].

Thus, economic security at the national level is presented in the Russian Federation Strategy [18]. The safety of transport activities is regulated by the Federal Law on Transport Safety [19]. The Federal Law on Road Safety regulates the issues concerning the interaction of vehicles and transport process participants are regulated by the State Duma [20].

The policy environment includes the ordering of all subjects' relations without exceptions through the usage of legal instruments [21]. Because the world is becoming internalised in the context of globalisation, developing the transport system within the country and adjusting national legislation to global changes become a priority. The main task of the transport infrastructure sector in Russia is to achieve maximum growth of the transport market. It should meet the needs of the national economy. One way to reach this goal to establish an effective internal logistics environment. The Ministry of the Transport of the Russian Federation is the executive body responsible for implementing government policy and legal regulation in the field of transportation under the Transport Development Strategy for the Period until 2030 [22, 23].

In recent years, the freight transportation sector in Russia comprises of five directions. These are road (67.6%) and rail shipping (16.7%), pipelines transport (14.3%), seaways transportation (1.8%) and air (0.1%) [13].

Taking into account the above, it can be stated that studies on legal regulation concerning transportation do not consider the practice-related issues, and in most cases resolve theoretical issues. The identified research gap is filled in this study by applying systematisation to the political aspects of forming a state position to create conditions for transport system development and determining how to improve the legal regulation of freight transportation to enable efficient supply chain management.

1.2 Problem statement

Any country has a strategic document establishing a model of actions with the view to achieve a global developmental goal. To be competitive, a country must have a viable economy. Nowadays, Russia's transport sector is in transition and needs a policy behind it that will improve the general approach to transportation of goods in a supply chain and align it with the global trends.

Transport policy should avoid mobility limitations. It must cover a range of social and economic issues. Transportation is an underlying sector of the national economy. A competitive transport infrastructure is needed

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both for the internal market to ensure economic and social unification and for the external one, especially in the field of commerce.

The purpose of the study is to analyse the problems of the legislative framework for the freight transportation in a competitive global supply chain.

Research objectives:

- 1) monitoring international logistics effectiveness in different countries;
- 2) analysing the effectiveness of internal logistics and legislative stability in the Russian Federation;
- 3) identifying strategic objectives of the Transport Strategy within the national economy.

2 Methodology

In this study, the transport system is considered from the perspective of the regulatory framework of logistics. The theoretical part is built on the concepts of Aristov [17], Platzer [6], and Tang [24]. Initial empirical base - data of the World Bank, 2020 and reports from the official website of the Ministry of Transport of the Russian Federation, 2021. The study relies on the following methods: monitoring, analytical analysis, comparative analysis, normative method, and systematic approach. The latter is a core research method in this study. It helped systematise the legislative, economic and social information to create an integral system of transport communication.

Initially, this study monitors the current state of the logistics system of countries around the world [25], which consists of six evaluation criteria: customs administration, transport infrastructure, international transport, logistics quality and competence, tracking of cargo transportation in the supply chain, timeliness of cargo delivery. A summary assessment of the six criteria constitutes a logistics performance index (LPI), using the geometric mean method: $G = \sqrt[n]{(X_1 \cdot X_2 \cdot X_3 \cdot \dots \cdot X_n)}$, where $X_i \geq 0$ for $i=1,2,\dots,n$. LPI index covers 160 countries of the world with different levels of economic development according to the World Bank classification (Atlas method). The frequency of the study is once every two years. The result is a ranking table of logistics systems development of the countries on an international scale as of 2021. The ranking table includes countries' scores and ranks broken down into three positions:

- I position - ranking leaders (LPI index corresponds to the highest value of this index equal to 100);
- II position - countries with average positions in the rating (LPI index is within average values, 45-55), which indicates the opportunities for advanced development in comparison with other countries of the world;
- III last positions in the rating - the countries with the lowest scores on the LPI index.

The second stage is a detailed analysis of the logistics constraints within the regulatory framework between the

country with the most stable indicators of the internal logistics environment (Russia) and a benchmark country in this industry with high indicators (Germany). Logistics performance was measured against four main criteria for assessing internal logistics performance (LPI) [25]: border procedures; infrastructure; services; process efficiency and time; implementations and developments, which increase supply chain reliability. The ranking of the results is identical to the LPI composite index. The result of this stage is a comparative table of the characteristics of domestic logistics systems in Russia and the leader in this industry (Germany), which allows one to work through the identified logistics constraints through the study and use of best practices.

At the third stage, given the data of monitoring and comparative analysis, a structural-logistics scheme (SLS) is formed, aimed at improving the approach to organising a transport system at the macro level in the context of globalisation. The information base for the SLS is the Transport Development Strategy to 2030 of Russia [3]. The structure of the scheme includes two stages of change: fundamental factors affecting the national economy and fundamental changes in the context of globalisation. Together, the stages systematise the economic, social and legal regulation of the transport system into a single graphical model, which allows one to present transport system development at the macro level in a holistic and accessible way.

Limitation of the study. The study is focused on a detailed analysis of the national economy and transport system of Russia, which narrows the study subject and makes it limited.

3 Result and discussion

An analytical review of case studies has shown that transport logistics is a driving force behind the competitiveness of countries and companies and is fundamental to job creation and economic growth. Table 1 shows the ranking of logistics systems' efficiency among 160 countries according to the composite LPI index, in which the leaders of the ranking correspond to the highest values of this indicator, and the countries occupying the last positions - the lowest ones. The middle positions in the ranking are occupied by countries with averages from 0 to 100. The analysis of the data in Table 1 shows that high logistics performance is accompanied by high income of the country's economy. Thus, the leader in efficient logistics according to the LPI composite index rating as of 2021 is Germany. The middle positions in the ranking belong to transition economies - Armenia and Russia. The last positions are taken by developing countries - Burundi, Angola and Afghanistan, respectively.

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Table 1 Countries with the highest, moderate, and the lowest logistics 'friendliness' as per 2021

Rank	Country	% from the leader	Customs		Infrastructure		International shipments		Logistics competence		Tracking & tracing		Timeliness	
			Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Top performers														
1	Germany	100	1	4.09	1	4.37	4	3.86	1	4.31	2	4.24	3	4.39
2	Sweden	95.4	2	4.05	3	4.24	2	3.92	10	3.98	17	3.88	7	4.28
3	Belgium	94.9	14	3.66	14	3.98	1	3.99	2	4.13	9	4.05	1	4.41
Moderate performers														
70	Latvia	56.5	49	2.80	49	2.98	81	2.74	81	2.69	77	2.79	113	2.88
75	Russia	54.9	97	2.42	61	2.78	96	2.64	71	2.75	97	2.65	66	3.31
92	Armenia	50.2	81	2.57	86	2.48	95	2.65	97	2.50	113	2.51	111	2.90
Bottom performers														
160	Burundi	33.2	159	1.69	146	1.95	139	2.21	117	2.33	156	2.01	158	2.17
160	Angola	32.6	160	1.57	153	1.86	143	2.20	155	2.00	157	2.00	140	2.59
160	Afghanistan	29.6	158	1.73	158	1.81	152	2.10	158	1.92	159	1.70	153	2.38

Source: Adapted from The World Bank [25].

As shown in Table 1, developing countries retain the ability to move goods and link companies and consumers to international markets, but the logistics system requires comprehensive changes in a number of policy aspects: infrastructure, trade facilitation, and improved services. The current situation in countries with economies in transition also requires increasing the current level of available resources and intensifying interaction and cooperation between countries, as evidenced by the low efficiency of customs and border controls; traceability and the formation of international transport corridors. For a detailed study of the logistical constraints identified in Table 1, it is advisable to conduct an internal efficiency analysis of logistics LPI in the context of the regulatory framework of Russia, as an example of a country in transition, which demonstrates the positive dynamics in transport logistics, and the international leader in the composite LPI index - Germany (Table 2). Assessment of the internal logistics environment is based on four main criteria that determine the effectiveness of logistics at the macro level of the country: border procedures; infrastructure; services; process efficiency and time; implementation and development, which increases the reliability of the supply chain.

As the analysis of Table 2 shows, Germany is a country with a high quality of transport infrastructure, service and regulatory transparency in the field of transport communications. In Russia, the basic criteria of the internal logistics environment are at a low level, resulting in a gap in the form of low organisation of logistics chains from the position of state regulation and unpreparedness for the mandatory digitalisation of public institutions, which is a catalyst in logistics. This management style leads to non-

transparency and inefficiency in the practice of regulatory support.

The strategic goals of the government policy in the field of transportation are defined in the Transport Development Strategy until 2030 [3], using the normative approach. This allowed identifying the fundamental factors affecting the national economy and determining the fundamental changes required to prioritise the transport policy at the national level in the context of global competition (Figure 1).

The SLS (Figure 1) provides a step-by-step statement of issues on logistics management at the macro level, which is recommended to implement to reduce the logistical constraints through improving the state transport law in accordance with the stated objectives of the strategy. The presentation of changes in the SLS is divided into two stages, which reflect the consensus on the implementation of the national transport strategy and the accumulated experience of developed countries. The first stage focuses on the factors affecting the national economy. The second phase focuses on the necessary practical implementations to improve competitiveness in the global marketplace. Taken together, the two stages rely on the achievement of goals in terms of social, economic and transport results:

- 1) expansion of transport service in the context of global competition;
- 2) social inclusion in relation to transportation services;
- 3) environmental safety of transport infrastructure;
- 4) creation of a unified base of the transportation system;
- 5) improving the safety of the transportation system by attracting a workforce with technological skills and analytical abilities;
- 6) availability of digital technologies and services in the transport service.

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Table 2 International LPI data as per 2021: Russia vs Germany

Basic criteria of logistics performance	Russia	Germany
Level of Fees and Charges	Percent of respondents answering high/very high	
- Port charges	25%	47%
- Airport charges	33%	58%
- Road transport rates	25%	27%
- Rail transport rates	50%	25%
- Warehousing/transloading charges	0%	41%
- Agent fees	25%	10%
Quality of Infrastructure	Percent of respondents answering low/very low	
- Ports	50%	0%
- Airports	50%	0%
- Roads	75%	14%
- Rail	50%	23%
- Warehousing/transloading facilities	0%	0%
- Telecommunications and IT	50%	14%
Competence and Quality of Services	Percent of respondents answering high/very high	
- Road	0%	95%
- Rail	0%	62%
- Air transport	25%	95%
- Maritime transport	50%	95%
- Warehousing/transloading and distribution	25%	100%
- Freight forwarders	50%	80%
- Customs agencies	25%	79%
- Quality/standards inspection agencies	50%	63%
- Customs brokers	50%	75%
- Trade and transport associations	25%	63%
- Consignees or shippers	25%	53%
Efficiency of Processes	Percent of respondents answering high/very high	
- Clearance and delivery of imports/exports	25 - 50%	90 - 95%
- Transparency of customs clearance	50%	89%
- Transparency of other border agencies	50%	86%
- Provision of adequate and timely information on regulatory changes	25%	90%
- Expedited customs clearance for traders with high compliance levels	25%	80%
Sources of Major Delays	Percent of respondents answering often or nearly always	
- Pre-shipment inspection	0%	5%
- Solicitation of informal payments	25%	5%
Changes in the Logistics Environment Since 2015	Percent of respondents answering improved or much improved	
- Customs clearance procedures	50%	56%
- Trade and transport infrastructure	25%	45%
- Telecommunications and IT	75%	50%
- Private logistics services	75%	70%
- Regulation related to logistics	50%	20%
- Solicitation of informal payments	25%	18%
Developments since 2015	Percent of respondents indicating much increased or increased	
- Demand for traditional freight forwarding	25%	15%
- Cybersecurity threats in logistics	0%	11%
- Firms preparedness for cyber threats	0%	5%

Source: Adopted from World Bank [25].

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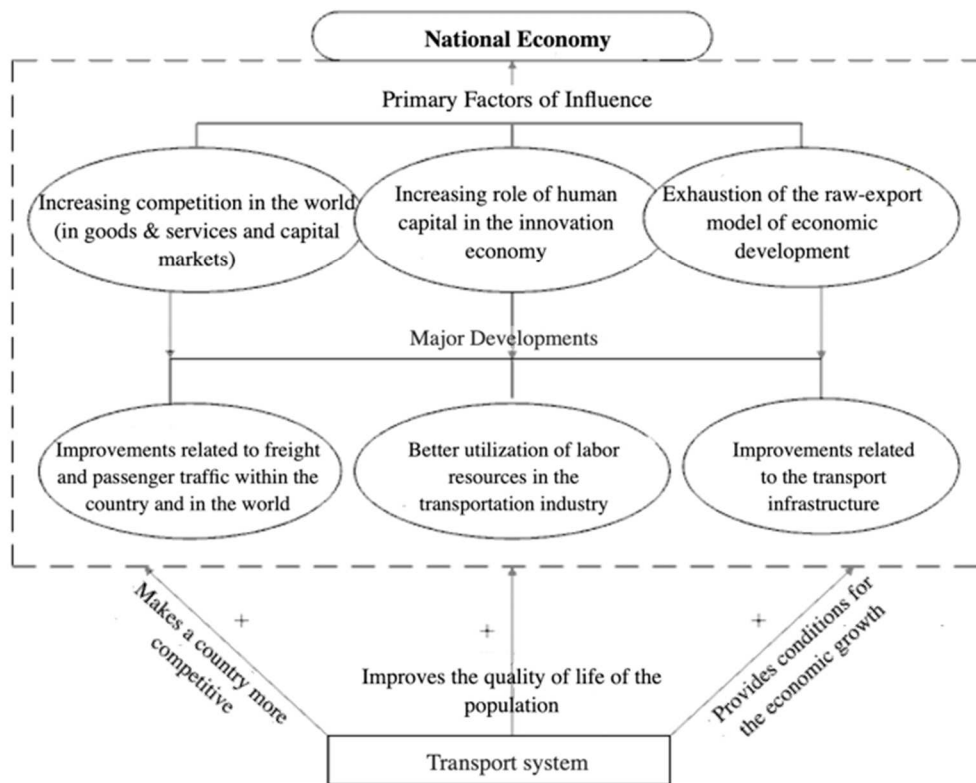


Figure 1 The structural-logistics schematic representation of the Russia's transport system development in the context of globalisation

Source: Developed using data from the Ministry of Transport of the Russian Federation [3].

The results obtained in this study show the high unevenness in the transport logistics system between developed and developing countries and the significant potential for transition economies. Analysis of the monitoring data found that high LPI composite index scores correspond to a high income level of the economy, which is consistent with the results of Hofman [26]. At the same time, increased economic integration of transition countries that have opportunities for development (Armenia, Russia) will help to overcome the logistical limitations in their development. Dunaev et al. [27] argue that logistics is a technology of supply chain management, integration, cooperation and coordination of networking of business processes, which plays a key role in bridging the gap in transport communications and organisation of value chains in the context of globalisation trends. Consequently, supply chain disruptions can have serious consequences for both government agencies and private companies [28]. Significant delays in delivery can lead to more problems in the public sector as well. They also distort the country's image on the international arena. National policy should assess the potential impacts of negative events on its transport system, economy, society and resources. It should improve a supply chain approach that includes a mix of regulatory, information and physical infrastructure

actions, as well as coordination between jurisdictional boundaries and between transport service providers, and their clients [29]. Thus, the problems of legal regulation in the field of freight transportation within a supply chain depend mainly on how much the rules of law meet the realities of economic activity. Affecting the logistics environment with policy instruments will give a positive feedback if the impact meets modern market relations and aims at the regulation of economic ties [30]. A comparative analysis of the structure of internal logistics environment in Russia, which occupies an average position in the international LPI rating and has the potential to develop and Germany, which is currently the benchmark in the industry, showed the advantages of effective organisation of transport logistics, which is significant for the improvement of the transport system in Russia. Issues of transport logistics optimisation have been studied by Sidorenko and Makhina [31], Burov [32]. Researchers revealed the lack of consistency when it comes to ensuring security in transport communications, and proposed to optimise transport communication in the direction of coherence of different transport modes using mandatory digitalisation and simplification of regulatory and customs procedures, which is consistent with the results of this study. Currently, Russia has unresolved problems

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concerning customs and border management clearance. Customs use traditional approaches to process organisation, which do not meet the rapidly changing globalised reality. Boyko [33] examined the experience of foreign countries and found that customs services could be efficient with informatisation. The author suggests establishing a service customs system where goods are tacked at all stages of a supply chain. Dmitriev [34] investigated the regulatory framework for freight transportation in a digital economy. He concluded that transport infrastructure had become more digitalised. Consequently, the legal regulation became more transparent. The review of the strategic development priorities in the transportation sector of Russia, using the normative approach, made it possible to group the national transport policy priorities of Russia in the context of global competition [3]. The European Commission also emphasises the importance of strategic objectives. The main aim of those is to develop the transport sector. Kolik et al. [35] argue that the strategic infrastructure package should include: national policy frameworks, commercial business models, strategic planning, assured financing, sufficient gateway capacity, international and domestic communications, and a green economy. Serieva [36] notes that in the context of global competition, the development of the transport system in all sectors of the economy is far ahead of state regulation. Within this framework, the researcher found that no matter that transport activities are regulated by laws and by-laws, in Russia, there is no unified framework for the legal regulation of supply chains as a set of subjects, products and transportation-related economic activities [37,38]. Regarding the problem of practice, this article focuses on the implementation and use of the experience gained in the logistics system of developed countries, in particular the leader in international logistics (Germany), which is reflected through SLS.

4 Conclusions

The review of legal regulation in the field of freight transportation within a supply chain unveiled the following problems of transport communication: non-transparent regulation within the customs system, the low quality of services, and reluctance to expand digitalisation. These weaknesses slow down the economic development of Russia and lowers its level of competitiveness. The World Bank [39] ranks Russia 75th among 160 countries in term of logistics performance. The country has three domains that need attention: customs and border management clearance, tracking and international shipment. Strict prioritisation is essential to maintain and modernise the existing infrastructure. The study suggests improving the national approach to organising domestic logistics. It should be done in accordance with the strategic goals established in the Transport Development Strategy of the Russian Federation until 2030 taking into account the global experience. In this regard, it is necessary to address

the shortcomings of legal regulations as they may slow down market development. This study is can be considered timely and relevant as transport communications and system sustainability are of high priority in the national transport policy of the Russian Federation.

Results can be applied by managers in the public and private sector working in the field of transport logistics, as the study offers a practical tool to improve transport system efficiency based on the accumulated best practices of leaders in this field.

The further work is recommended to connect with the study of macroeconomic indicators of transport logistics within the national economy from two perspectives: effective supply planning and demand forecasting to correct transport failures in practice.

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Review process

Single-blind peer review process.