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## CURRENT CHALLENGES AND PROSPECTS OF INTERNATIONAL ROAD TRANSPORT SYSTEM FUNCTIONING IN UKRAINE

*The article provides a comprehensive and in-depth analysis of the current state, key challenges, and future prospects for the development of international road transport in Ukraine in the context of globalization processes and the country's strategic course toward European integration. Particular attention is paid to the role of road transport as one of the most flexible, efficient, and economically significant components of the national transport system, which ensures the functioning of international trade, supports export-import operations, and strengthens Ukraine's transit potential due to its favorable geographical location.*

*The study identifies and systematizes the main barriers that hinder the effective functioning and competitiveness of the industry. Among them are the imperfection and inconsistency of the regulatory framework, which complicates the adaptation of Ukrainian carriers to European requirements, as well as the shortage of international transport permits that significantly limits access to foreign markets. Infrastructure constraints are also highlighted, including insufficient development of road networks, border crossing points, and logistics centers, leading to delays and increased transportation costs. In addition, a low level of digitalization, rising operational expenses, and a shortage of qualified personnel are considered critical factors negatively affecting the industry's performance.*

*The role of international institutions in the formation of unified standards for transport activities is examined, in particular the Inland Transport Committee of the United Nations Economic Commission for Europe, the International Road Transport Union, and the International Federation of Freight Forwarders Associations. Their contribution to the development of regulatory frameworks and best practices in the field of international transport is emphasized.*

*Based on the analysis, the necessity of harmonizing Ukrainian legislation with European Union standards, implementing modern digital solutions, and modernizing transport infrastructure is substantiated. These measures will contribute to increasing the efficiency, competitiveness, and sustainability of Ukraine's international road transport sector.*

**Keywords:** international road transport, transport policy, European integration, digitalization, logistics, regulatory framework.

**ПОСОНСЬКИЙ СЕРГІЙ**

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## СУЧАСНІ ВИКЛИКИ ТА ПЕРСПЕКТИВИ ФУНКЦІОНУВАННЯ СИСТЕМИ МІЖНАРОДНИХ АВТОМОБІЛЬНИХ ПЕРЕВЕЗЕНЬ В УКРАЇНІ

*У статті здійснено комплексний аналіз сучасного стану, проблем і перспектив розвитку міжнародних автомобільних перевезень України в умовах глобалізації та євроінтеграції. Визначено ключові бар'єри функціонування галузі: недосконалість нормативно-правового регулювання, дефіцит дозвільних документів, інфраструктурні обмеження, низький рівень цифровізації, зростання витрат та кадрові проблеми. Досліджено роль міжнародних інституцій у формуванні єдиних стандартів транспортної діяльності, зокрема Комітету з внутрішнього транспорту Європейська економічна комісія ООН, Міжнародний союз автомобільного транспорту та Міжнародна федерація експедиторських асоціацій. Обґрунтовано необхідність гармонізації українського законодавства з нормами ЄС, впровадження цифрових рішень та модернізації інфраструктури.*

**Ключові слова:** міжнародні автомобільні перевезення, транспортна політика, євроінтеграція, цифровізація, логістика, нормативно-правове регулювання.

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### Statement of the problem

The current stage of the world economy development is characterized by integration processes' deepening and economic relations' globalization. Road transport occupies a leading place in the structure of international transportation due to its mobility, flexibility and the ability to provide door-to-door services.

International road transport is of strategic importance for Ukraine due to its advantageous geographical location and transit potential. However, the development of the industry is hampered by a number of systemic problems: regulatory fragmentation, international permits' shortage, complex customs procedures, infrastructure constraints and financial risks. [1; 2; 7].

In the European integration context, there is a need to adapt the transport system of Ukraine to the requirements of the European Union, implement the provisions of Mobility Package I [3] and integrate into the trans-European transport network [10].

### Forming article's objective

The article's objective is a comprehensive analysis of the current state of international road transportation in Ukraine, identification of key problems of its organization, and justification of directions for improving the management system, regulatory and legal support, and digital transformation of the industry in accordance with EU standards.

### Analysis of recent publications

The development of international road transport in 2020–2024 has become the subject of active scientific and applied research both in Ukraine and abroad. This is due to the transformation of global logistics chains, the implementation of new EU regulatory requirements, the digitalization of transport processes, and geopolitical challenges that have affected the structure of international trade.

The reports of the Committee on Inland Transport of the United Nations Economic Commission for Europe [4] emphasize the need to harmonize international norms in the field of freight transport, unify technical standards of vehicles and enhance road safety. Particular emphasis is placed on the digitalization of control procedures and information exchange between states.

Analytical materials of the International Road Transport Union [5] contain assessments of the impact of global crises on international road transport market functioning. IRU research shows that the key problems are the lack of permits, the shortage of professional drivers, the increase in fuel costs and the need for investments in the decarbonization of the transport sector. Considerable attention is paid to the introduction of the electronic consignment note (e-CMR) as a tool to simplify international operations.

Reports of the International Federation of Freight Forwarders Associations [6] consider the digital transformation of logistics as a strategic factor in increasing the competitiveness of carriers. FIATA publications emphasize the importance of integrating information systems, automating document flow and using cloud technologies for managing cargo flows.

The European Commission, within the framework of the implementation of Mobility Package I [3], has published a number of regulatory documents and analytical materials defining new conditions for access to the international transport market, cabotage rules and social standards for drivers. The studies emphasize that the implementation of these norms is aimed at ensuring equal competitive conditions between carriers of EU Member States and partner countries.

The OECD/ITF reviews [8] consider a long-term forecast for the development of the transport sector until 2050. The authors emphasize the need for sustainable development, decarbonization of road transport and integration of digital technologies into transport infrastructure. It is emphasized that without systemic reforms in the management and financing of infrastructure, countries with transit potential will not be able to fully realize their competitive advantages.

World Bank reports [9] examine the relationship between logistics efficiency and economic growth. The Logistics Performance Index (LPI) is used as a tool to assess the quality of customs administration, infrastructure, and logistics services. It is noted that countries with high LPI scores demonstrate more stable positions in world trade.

Analytical materials of the Ministry of Development of Communities, Territories and Infrastructure of Ukraine [7] highlight the problems of the shortage of international permits, queues at the border and the need to digitalize transportation administration procedures. The need to implement a unified information system for managing international road transportation is indicated.

The European Commission, in its statistical guide “EU Transport in Figures” [10], provides a comparative analysis of the development of the transport sector in EU countries, which allows determining the main guidelines for harmonizing Ukrainian transport policy with European standards.

Thus, the analysis of modern publications indicates the presence of a comprehensive approach to the study of international road transport, covering legal, economic, infrastructure and digital aspects. At the same time, despite a significant number of studies, the need to form an integrated model for the development of international road transport in Ukraine remains relevant, taking into account modern challenges, the requirements of European legislation and the strategic goals of the state transport policy [2; 3; 4; 8].

### Presentation of the main material

The systemic role of international road transport in the structure of the national economy.

International road transport forms the basis of transport support for Ukraine's foreign economic activity. It performs not only the function of moving goods and passengers, but also acts as an important element in the formation of added value, the development of related industries (logistics, insurance, warehousing, customs brokerage services) and state budget replenishment.

International road transport requires coordination between regulatory, infrastructure, operational and economic subsystems. Digital platforms (e-CMR, Smart tachographs, GPS/ITS) integrate these subsystems and ensure the efficient functioning of the system, increase safety and reduce costs. The structural and functional model of the system is presented on Picture 1.

The Law of Ukraine “On Road Transport” [1] defines the organizational and legal principles of the functioning of the road transport market, establishes requirements for carriers, vehicles and the procedure for carrying out international flights. The Strategy for the Development of the Transport System of Ukraine until 2030 [2] emphasizes that the road transport industry modernization is a prerequisite for economic growth, regional development and integration into the European space.

Due to changing geography of trade flows, international road transport has become a key mechanism for ensuring the continuity of logistics chains. Road transport provides flexibility of routes, rapid response to market changes and minimization of logistics risks, which is especially important in conditions of instability of global markets [9].

Regulatory harmonization and international cooperation.

Legal regulation of international road transport is complex and is based on the interaction of national legislation and international norms. The coordinating role in the development of international legal instruments is played by the United Nations Economic Commission for Europe, within which the Inland Transport Committee operates [4].

Within the framework of Ukraine's European integration course, the implementation of the provisions of Mobility Package I [3], which establishes new standards for the functioning of the international road transport market, is of great importance. In particular, it provides for the mandatory use of new-generation digital tachographs, control over the work and rest regime of drivers, as well as tightening the requirements for the conditions for registration of transport enterprises.

Analytical studies of International Road Transport Union [5] show that harmonization of the regulatory framework contributes to reducing administrative barriers and increasing market transparency. At the same time, the International Federation of Freight Forwarders Associations [6] emphasizes the need to standardize freight forwarding activities and implement digital logistics documents.

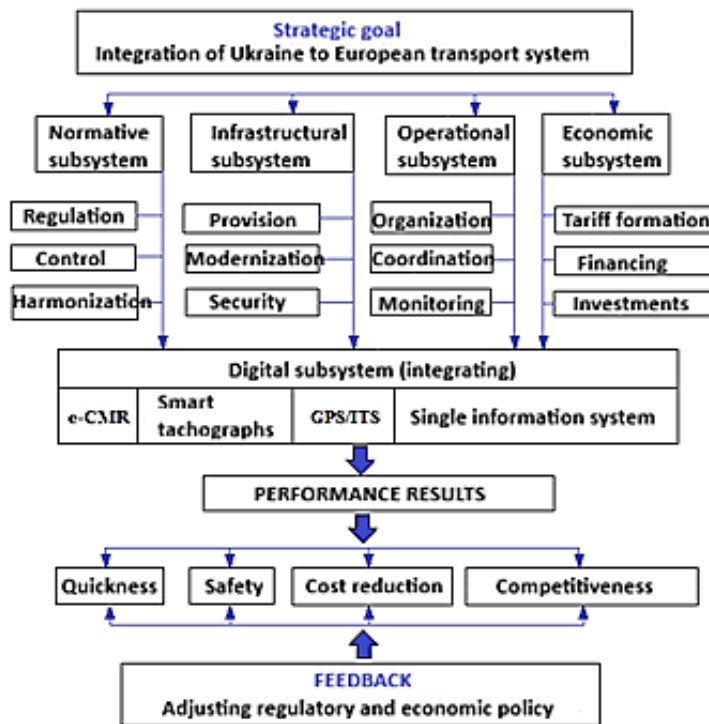


Fig. 1. Structural and functional model of Ukraine's international road transportation system

In Ukraine, the following problems remain relevant:

- 1) fragmentation of regulatory and legal acts;
- 2) lack of universal and transit permits;
- 3) complexity of customs administration;
- 4) insufficient level of interdepartmental coordination [7].

Organizational and logistic mechanisms for managing international transportation.

Effective organization of international road transportation involves complex interaction between the carrier, forwarder, customs authorities, insurance companies and regulatory services. Timeliness of delivery, cargo safety and cost minimization depend on the quality of management.

The key stages of organizing an international flight include:

1. Conclusion of a contract of carriage.
2. Preparation of cargo documentation.
3. Customs clearance of cargo.
4. Route planning taking into account international restrictions.
5. Monitoring the movement of the vehicle.
6. Carrying out financial calculations.

According to analytical materials of the Ministry of Community, Territorial and Infrastructure Development of Ukraine [7], a significant part of delays occurs at the stage of customs control and border crossing. This necessitates the digitalization of procedures and the creation of an integrated information system for transportation management.

Infrastructure conditions and integration into TEN-T.

Infrastructure development is the basis for the competitiveness of international road transport. The European Commission in its report "EU Transport in Figures" [10] emphasizes that integration into the Trans-European Transport Network (TEN-T) involves the modernization of highways, the development of logistics centers and the improvement of safety standards.

OECD/ITF [8] emphasizes that investments in road infrastructure have a long-term multiplier effect, stimulating regional development and the growth of international trade.

For Ukraine the following problems are vital:

- 1) modernization of international transport corridors;
- 2) expansion of the capacity of border crossings;
- 3) creation of modern multimodal hubs;
- 4) implementation of intelligent transport systems (ITS).

Economic and financial aspects of the industry.

The economic efficiency of international transportation is determined by the level of costs, tariff policy and exchange rate stability. According to the International Road Transport Union [5], the increase in fuel costs is one of the most significant factors in increasing the cost of transportation.

The OECD/ITF [8] also highlights the impact of energy crises on the functioning of the road transport sector. In addition, carriers bear additional costs associated with EU environmental requirements and the need to update their fleets in accordance with Euro-6 standards [10].

Financial risks include:

- 1) payment delays;
- 2) currency fluctuations;
- 3) penalties for violating international regulations;
- 4) insurance and certification costs.

Increasing financial sustainability is possible through the use of leasing mechanisms, government support programs and attracting investments [2].

Digitalization of transport processes.

Digital transformation is a strategic direction for the modernization of international transport. Reports by the International Federation of Freight Forwarders Associations [6] emphasize the importance of implementing electronic consignment notes (e-CMR), automated accounting systems and cloud-based logistics management platforms.

Introducing digital technologies allows:

- 1) to reduce administrative costs;
- 2) to increase the transparency of operations;
- 3) to minimize the risks of document loss;
- 4) to ensure remote control of transportation;
- 5) to integrate national systems into European information networks.

Mobility Package I [3] provides for the use of Smart digital tachographs, which provide remote monitoring of drivers' work schedules. This contributes to increased safety and discipline in the transportation market.

Transport safety and risk management.

Safety is a fundamental principle of international transport. The documents of the United Nations Economic Commission for Europe [4] emphasize the need to comply with standards for the transport of dangerous goods, technical inspection of vehicles and the unification of traffic rules.

Risk management includes:

- 1) cargo insurance;
- 2) use of GPS monitoring systems;
- 3) accident analysis;
- 4) implementation of driver training programs.

Mobility Package I [3] also aims to improve the social working conditions of drivers, which has a positive impact on safety.

Human resources and social aspects.

One of the biggest problems in the industry is the shortage of qualified drivers. According to the International Road Transport Union [5], the shortage of human resources is a global trend.

For Ukraine, the following are relevant:

- 1) modernization of the vocational education system;
- 2) international certification of drivers;
- 3) increasing the level of social protection;
- 4) creation of motivational programs for youth.

Strategic directions of development.

Comprehensive modernization of international road transport should include:

1. Legislation harmonization with EU standards [3].
2. Institutional cooperation with the United Nations Economic Commission for Europe [4].
3. Applying the recommendations of the International Road Transport Union [5].
4. Digitalization of logistics in accordance with the standards of the International Federation of Freight Forwarders Associations [6].
5. Infrastructure integration into TEN-T [10].
6. State support and financial incentives [2].

Therefore, the development of international road transport in Ukraine should be based on a comprehensive approach that combines legal harmonization, infrastructure modernization, digital transformation and increasing human resources. This will create the prerequisites for strengthening Ukraine's position in the European and global transport services market.

### Conclusions

International road transport is a strategically important element of Ukraine's economic development and its integration into the European transport space. Despite its significant transit potential, the industry faces a complex of regulatory, infrastructural, economic and technical problems.

System modernization of the industry should be based on harmonization the legislation with EU standards, digitalization of transport processes, development of infrastructure and improvement of safety level. Implementation of these measures will contribute to strengthening the competitiveness of Ukrainian carriers and integration of Ukraine into the single European market of transport services.

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