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**Ukraine's strategic priorities for developing its transportation system during the war  
Prioridades estratégicas de ucrania para desarrollar su sistema de transporte durante la guerra**

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## Resumen

La guerra y la destrucción de la infraestructura están transformando las rutas logísticas y cambiando significativamente las conexiones de transporte. Confirma la necesidad de nuevas vías estratégicas para desarrollar el sistema de transporte. Este artículo tenía como objetivo identificar las prioridades estratégicas para desarrollar el sistema de transporte de Ucrania durante la guerra. La metodología se basa en métodos de análisis de sistemas para evaluar la importancia estratégica del desarrollo del sistema de transporte por modos de transporte. Los autores analizan documentos estratégicos para desarrollar el sector de transporte de Ucrania y evalúan datos estadísticos sobre volúmenes regionales de comercio exterior y transporte de carga de Ucrania. El estudio evalúa el estado de la cooperación entre Ucrania, Moldavia y Rumania en tiempos de guerra.

En particular, evalúa el establecimiento de asociaciones público-privadas entre estos países y empresas conjuntas para desarrollar el transporte ferroviario y por carretera. Los resultados demuestran la importancia de desarrollar conexiones ferroviarias entre Ucrania y los países europeos dentro de los programas y proyectos de cooperación que involucran a Polonia, Rumania, Moldavia y los estados bálticos. Los autores identificaron que las barreras clave para desarrollar el sistema de transporte de Ucrania durante la guerra son las restricciones fiscales y las bajas expectativas de inversión en el sector del transporte de Ucrania. La importancia práctica de este trabajo radica en la identificación de prioridades estratégicas para el desarrollo del sistema de transporte de Ucrania en tiempos de guerra, incluyendo: 1) ampliar la capacidad ferroviaria mediante la modernización de los pasos fronterizos existentes y la construcción de otros nuevos, en particular con Rumania y Moldova; 2) Hacer hincapié en la importancia de desarrollar puertos en el Danubio y cruces de transbordadores para restablecer los volúmenes de transporte de carga.

**Palabras clave:** Sistema de transporte, desarrollo de infraestructuras de transporte, estrategia de desarrollo del transporte, conexiones ferroviarias, conexiones aéreas.

## Abstract

The war and the infrastructure destruction are transforming logistics routes and significantly changing transportation connections. It confirms the need for new strategic pathways to develop the transportation system. This article aimed to identify the strategic priorities for developing ukraine's transportation system during the war. The methodology is based on systems analysis methods to assess the strategic importance of developing the transportation system by transportation modes. The authors analyze strategic documents for developing ukraine's transportation sector and evaluate statistical data regarding regional volumes of ukraine's foreign trade and cargo transportation. The study assesses the state of cooperation between ukraine, moldova, and romania in times of war. In particular, it asses the establishment of public-private partnerships between these countries and joint ventures to develop rail and road transportation.

The results demonstrate the importance of developing railway connections between ukraine and european countries within cooperation programs and projects involving poland, romania, moldova, and the baltic states. The authors identified that the key barriers to developing ukraine's transportation system during the war are fiscal constraints and low investment expectations in ukraine's transportation sector. The practical significance of this work lies in identifying strategic priorities for the development of ukraine's transportation system in times of war, including 1) expanding railway capacity through the modernization of existing border crossing points and construction of new ones, particularly with romania and moldova; 2) emphasizing the importance of developing ports on the danube and ferry crossings to restore cargo transportation volumes.

**Keywords:** Transport system, transport infrastructure development, transport development strategy, railway connections, airlines connections.

## Introduction

The military invasion by Russia on February 24, 2022, and subsequent hostilities have dealt a severe blow to the Ukrainian economy and transportation system, as well as the potential for developing logistic routes and their integration with the EU. Specifically, the destruction and blockade of infrastructure such as roads, bridges, railways, and ports have led to changes in supply chains and the need to seek new ways for strategic transportation development. Ukraine's northeastern and southern regions have been particularly affected in terms of negative impact on logistics, transportation connectivity, cargo flows, and passenger traffic. As of February 2023, the total damage inflicted on Ukraine's infrastructure due to the full-scale invasion amounts to \$143,8 billion (Kyiv School of Economics, 2023). Under such circumstances, both domestic and external routes of connection with EU countries, especially Poland, Romania, and Moldova, are changing. It has implications for other sectors of the economy, such as agriculture, industry, wholesale and retail trade, which constitute a significant share of the GDP structure. Among the short-term priorities in wartime are ensuring the operation and restoration of critical infrastructure, while the long-term priority is integration into the EU transportation system (Ministry of Finance of Ukraine, 2023e).

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The above confirms the relevance of studying the strategic priorities for developing Ukraine's transportation system during the war.

This article aims to identify the strategic priorities for developing Ukraine's transportation system during the war.

### Literature review

Economic, environmental, and social consequences of the Ukrainian-Russian war at different levels of government are studied in the scientific literature (Bluszcz & Valente, 2022; Johannesson & Clowes, 2022; Prisecaru, 2022; Ratten, 2023). The studies also examine the following:

The principles and policies of Ukraine's recovery (Gorodnichenko, Sologoub & Weder, 2022);

The risks of war for global supply chains (Ngoc et al., 2022);

The potential integration of Ukraine's transport into the EU system (Sologoub, 2022).

However, there is a lack of comprehensive research on the strategic priorities for developing Ukraine's transport system and the impact of the war on the industry's potential.

In the context of Ukraine's European integration and the need to ensure competitiveness and create a resource-efficient multimodal transport system, the scientists analyze the efficiency of the transport sector. The following priorities for transport development are identified in the scientific literature:

Standardization of activities across different modes of transport, ensuring intermodal interaction, quality, and safety of intermodal transport, and higher productivity (Gharehgozli, de Vries & Decrauw, 2019), addressing competitiveness issues and competition among different sectors (Bucsky, 2021).

Updating regulatory institutions to improve transport sector management in the context of digitalization challenges (Antonowicz & Majewski, 2022) and climate change, addressing the development of an intermodal regulatory framework (Finger, Montero-Pascual & Serafimova, 2019), energy efficiency, and decarbonization needs (Tzeiranaki et al., 2023). The importance of developing transport sector institutions, establishing cooperation at different levels of governance to ensure dynamic regulation of the industry in response to challenges and issues (Sys et al., 2020), and developing transport corridors to reduce costs of export-import operations (Minárik & Čiderová, 2021) should be emphasized.

Prioritizing new concepts for supply chain development in the transport sector that facilitate flexibility in utilizing different modes of transport. Among these concepts, attention should be given to the paradigm of "synchronous modality," which includes components such as visibility, integration, multimodal transportation, and flexibility (Acero, Saenz & Luzzini, 2022).

Quantity and quality of transport infrastructure (Mańkowska, 2019), capacity deficits/surpluses, and throughput capacity (Sys et al., 2020) determine the competitiveness of transport links and connections, influencing cross-border cooperation through efficient interaction, interconnectivity, and intermodality (Mańkowska, 2019). The importance of modernization and innovation for the environmental and social sustainability of different sectors of the transport sector should be noted alongside the importance of transport capacity and efficiency (Sys et al., 2020). REICE | 216

Involvement of various stakeholders (public and private) in the development of the transport sector based on transnationalism and multimodality (Beifert & Prause, 2019; Dunmore, Preti & Routaboul, 2019; Greaves, 2019; Minárik, 2021).

## **Materials and Methods**

The article utilizes systems analysis methods and a comprehensive approach to assessing the strategic priorities for developing the transportation system by type of transport. The descriptive design of the study serves as the basis for evaluating the potential of bilateral cooperation between Ukraine and European countries amidst war and Eurointegration. The authors analyze strategic documents to assess the potential directions for developing Ukraine's transportation sector in the context of integration into the Trans-European Transport Network (TEN-T). The authors evaluate statistical data on regional volumes of Ukraine's foreign trade and cargo transportation to assess the potential for railway transportation development. Based on the analysis of cooperation between Ukraine, Moldova, Romania, the United Kingdom, and Poland in war conditions, including establishing public-private partnerships and creating joint ventures, the potential for developing railway and road transportation is substantiated. The authors also analyze transportation and infrastructure development programs, such as the Ukraine Recovery Plan, the "RebuildUkraine" reconstruction program presented by the European Commission, and collaboration with international organizations in the context of fiscal constraints and low investment expectations during the war.

## Result and discussion

In assessing the priorities for the development of Ukraine's transport system, it is advisable to consider the requirements of the Global Sustainable Development Goals until 2030. The Ukraine Transport Strategy until 2030 was developed to comprehensively address the existing problems in the transport sector as part of the European integration course and the implementation of the EU-Ukraine Association Agreement (Verkhovna Rada of Ukraine, 2023a). This strategy was approved following the reforms of the Sustainable Development Strategy "Ukraine-2020," which, in turn, was designed to achieve the Global Sustainable Development Goals until 2030 (Verkhovna Rada of Ukraine, 2023b). The Sustainable Development Strategy of Ukraine until 2020 focused its efforts on finding optimal solutions to transportation problems rather than infrastructure issues.

Currently, the National Transport Strategy of Ukraine until 2030 (hereinafter referred to as NTSU) is the only comprehensive program document that defines the goals and objectives for the development of the transportation sector and takes into account integration into the European transport system (Verkhovna Rada of Ukraine, 2023a). However, a more general conceptual document regarding further strategic development of the country's infrastructure as a precondition for economic growth has yet to be developed. The Transport Strategy of Ukraine until 2030 was created to address existing problems in the transportation sector comprehensively and includes four priority directions for its development (Verkhovna Rada of Ukraine, 2023a):

Direction 1: Competitive and efficient transportation system.

Direction 2: Innovative development of the transportation sector and global investment projects.

Direction 3: Safe for society, environmentally friendly, and energy-efficient transport and investment projects.

Direction 4: Unimpeded mobility and interregional integration.

The Association Agreement between Ukraine and the EU defines the goals, indicators, and prerequisites for:

- Restructuring and modernization of the transport sector.
- Approximation of Ukrainian standards and policies to EU policies.
- Expansion of the Trans-European Transport Network.
- Development of European values and priorities (liberalization of the transport market).
- Elimination/reduction of administrative, technical, and border crossing barriers;
- Considering the impact of climate change on Ukraine.
- Improvement of passenger and cargo transportation, increasing mobility of transportation flows between Ukraine, the EU, and third countries.

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The Trans-European Transport Network (TEN-T) is a multimodal transport system that integrates the transport networks of EU member states. It comprises a combination of land, water, and air corridors and lines with associated infrastructure, traffic management, and positioning systems. The TEN-T aims to:

- Meet user demands for high-quality infrastructure under economically viable conditions.
- Ensure sustainable mobility of people and goods within the EU's internal borders.
- Cover the territory of EU member states in a way that optimizes transport flows, facilitates access to the sea, connects islands to the mainland, links peripheral regions to central ones, and connects major urban areas.
- Stimulate intermodality of differentiated transport modes.
- Promote coordinated operation of all transport modes, taking advantage of each mode's strengths.
- Guarantee proper connection with the transport networks of European Free Trade Association member states and Central and Eastern European and Mediterranean countries (Connecting Europe facility).



In 2018, the Ministry of Infrastructure and experts from the World Bank and the European Commission prepared proposals for the Investment Plan for Transport Infrastructure of the Eastern Partnership (EaP). It identified priority investments of approximately EUR 12,8 billion until 2030. These would enable the construction of 4,800 kilometers of roads and railways, 6 ports, and 11 logistics centers. The mentioned plan was approved on October 15, 2018, at a meeting of the foreign ministers of the EaP member countries. The Investment Plan consists of:

- a) Ongoing projects.
- b) Quick Wins projects, scheduled for the medium-term perspective (until 2020), will significantly impact Ukraine's transport sector and help address bottlenecks. Financing for such projects comes from the "blending" mechanism, which combines grants from the EU and credit funds from the European Investment Bank (EIB).
- c) Long-term projects planned for implementation in the long-term perspective (until 2030) (Cabinet of Ministers of Ukraine, 2023). In the context of the war in Ukraine, it is advisable to review the list of partners, including Belarus, and instead strengthen cooperation with Romania and Moldova.

The White Paper of the EU, titled "Roadmap to a Single European Transport Area - Towards a Competitive and Resource-Efficient Transport System," sets out the achievement of the following goals:

- Shifting 50% of freight transport over medium and long distances from road to rail or water transport.
- A significant increase in the share of rail transport in passenger transport.
- Reducing the role of aviation in long-distance transport.
- The use of energy-efficient engines.
- The implementation of intelligent transport systems in all modes of transport.
- The introduction of alternative fuels in transportation (European Commission, 2016; Ministry of Infrastructure of Ukraine, 2023).

During the war in Ukraine, it is advisable to achieve the goals of shifting medium- and long-distance freight transport from road to rail, especially on the borders with Romania, Moldova, and Poland. After the full-scale invasion by the Russian Federation, the western borders of Ukraine have become the leading logistics corridor, requiring an expansion of its capacity through the modernization of existing checkpoints and the construction of new ones, particularly with Romania. Since the beginning of the full-scale invasion, the indicators of trade turnover at the border with Romania have increased by almost 100% (Figure 1).

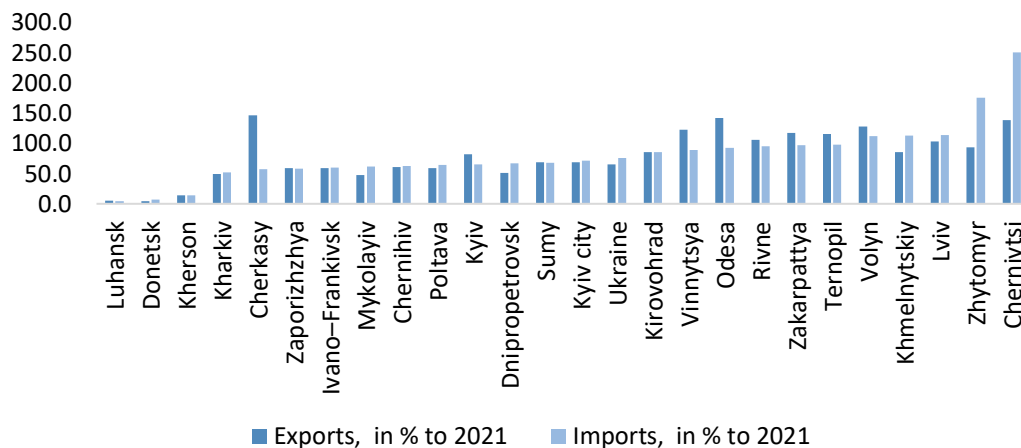


Figure 1. Export and import volumes in Ukraine compared to 2022, %

Source: the State Statistics Service of Ukraine (2023c).

The exports of goods in 2022 decreased by 35,2% compared to 2021, while imports decreased by 24,1%. Significant increases were observed in export-import operations in the following regions: export of Volyn (128,0%), Chernivtsi (138,2%), Odesa (141,4%), and Cherkasy (146,4%); import of Zhytomyr (175%), and Chernivtsi (250%). In the first quarter of 2023, the export of goods amounted to \$10,305.5 million, or 73,9%, compared to the first quarter of 2022, while imports reached \$15,699.4 million, or 110,9%. The negative trade balance stood at 5,393.9 million USD (negative in the first quarter of 2022 was \$208,0 million). The export-to-import ratio was 0,66 (0,99 in the first quarter of 2022) (State Statistics Service of Ukraine, 2023d). It is worth noting a significant decrease in regional trade volumes in the most affected regions of Ukraine: Kherson (13,8% compared

to 2021), Mykolayiv (47,5%), Kharkiv (48,8%), Dnipropetrovsk (51,4%), Poltava (58,5%), Ivano-Frankivsk (58,7%), Zaporizhzhya (59,2%), Chernihiv (60,3%), and Sumy (68,2%).

According to estimates from the Recovery Agency, it is possible to triple the cargo flow at the border with Romania (Official Website of Ukraine's Recovery, 2023). Therefore, there is a need to improve the corresponding freight transportation infrastructure at the Romanian border and the borders with other Western neighbors. A comprehensive approach to EU integration in the context of the war will enable Ukraine to increase exports to the EU, expand transportation volumes, and improve the quality of border crossings.

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Overall, the war in Ukraine has had a negative impact on macroeconomic stability, resulting in a significant decline in GDP and a change in the economic structure. In 2022, GDP contracted by 29,1%, with the most affected sectors being transportation, warehousing, postal, and courier activities, which saw a reduction of 44,3% (State Statistics Service, 2023a). According to the forecast by the National Bank of Ukraine (2023), inflation is expected to slow down to 14,8% in 2023, and real GDP is projected to grow by 2%. Inflation will continue to decrease in the following years, and economic recovery will accelerate against the backdrop of reduced security risks. However, a swift economic recovery will be hindered by the persistence of high-security risks, which dampen investment and consumer sentiment, logistical constraints on exports, and slow rates of return for displaced people from abroad (National Bank of Ukraine, 2023).

The infrastructure sector ranks second in terms of the cumulative damage caused by the war. In addition to significant damage to production and storage facilities, security risks, and uncertainty, the blockade of maritime transport routes has dealt an unprecedented blow (which accounted for about two-thirds of Ukraine's foreign trade turnover in peacetime).

According to the results of the full-scale war in 2022, the losses in this sector are estimated at \$36,2 billion. During this time, more than 25,000 kilometers of national and local roads and 344 bridges and overpasses were destroyed or damaged due to the war. According

to the Ministry of Community Development and Infrastructure, in 2022, 78 bridges were restored on roads of national significance. The most restorations were carried out in the Kyiv region (20 out of 24 objects) and the Chernihiv region (20 out of 27 objects). In 2023, the passage was restored through 2 bridge crossings in the Mykolaiv and Kharkiv regions (Kyiv School of Economics, 2023). Due to the destruction of infrastructure in Ukraine, the volume of cargo transportation and turnover has significantly decreased (Figure 2). In such circumstances, among the tasks and priorities of the Ukrainian government for restoring cargo transportation volumes is the development of ports on the Danube and ferry crossings.

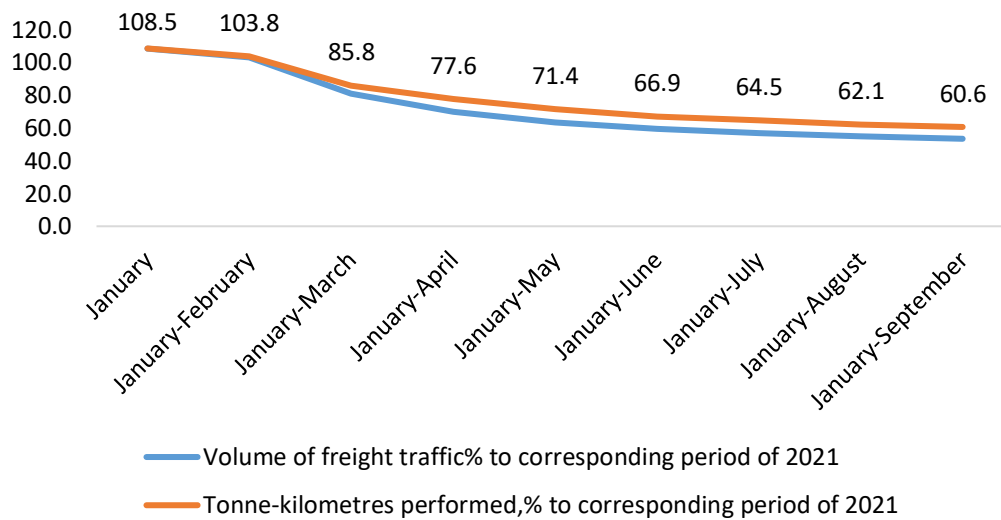


Figure 2. Freight transportation and cargo turnover in Ukraine in 2022, in % compared to the corresponding period of 2021

Source: the State Statistics Service of Ukraine (2023e).

It is worth noting that at the beginning of 2022, the cooperation between Ukraine and Moldova was activated to develop railway connections. The state enterprise "Moldovan Railways" began restoration work on railway tracks from the Ukrainian border to Romania. On May 18, 2022, the work started on the Tighina-Basarabeasca-Giurgiulești section. The repair of 233 km of railway tracks, costing EUR 108 million, is planned to increase the capacity, safety level, and efficiency of freight transportation and improve conditions for cargo transportation. As a result, the speed of freight trains will increase to 90 km/h and passenger trains to 120 km/h. The project is being implemented through a public-private

partnership, with the Kazakhstani company "Temirzhol Zhondeu," a part of the "Kamkor Management" group of companies, winning the respective tender.

On May 2, 2022, the Romanian Ministry of Transport announced a tender to repair the railway line between the village of Giurgiulești (Moldova) and the port of Galați to transport goods from Ukraine to Romania and vice versa. Through this route, Ukraine can unload and receive cargo through Moldova and the seaport of Galați. Thus, the Danube port and the Polish port of Constanta will become one of the key ports in the region for transporting goods and raw materials. The repair of this railway line, which includes a broad gauge section of 3,58 thousand km and a standard gauge section of 1,17 thousand km, will take 60 days from the date of contract signing. The total value of the tender will be 1,289 million lei (UAH 2 million), and the CFR Infrastructure budget finances it. REICE | 223

On August 25, 2022, the United Kingdom signed a historic agreement with Ukraine to develop a new British-Ukrainian transport partnership to restore the war-damaged infrastructure. The Agreement sets out commitments regarding exchanging engineering expertise with Ukraine and providing a new support package amounting to £10 million to restore war-damaged infrastructure, specifically to support "Ukrzaliznytsia" (JSC "Ukrainian Railway"). This package will procure equipment for bridge repairs, tunnel construction, and over 120 containers for grain transportation. The Ministries of Infrastructure of both countries have signed a Joint Action Plan to assist in the recovery of transport infrastructure. According to the Plan, the United Kingdom agrees to provide expertise from prestigious British private organizations. British partners will propose a plan for the reconstruction of airport, air traffic, and port infrastructure, as well as work with the Ministry of Infrastructure of Ukraine on the possibility of training airport personnel, air traffic controllers, and aviation security (Ministry of Infrastructure of Ukraine, 2023b).

Among other critical strategic priorities of Ukraine in developing cooperation in the transport sector with EU countries, there are:

1. The potential for developing railway transportation for exporting metal products and grains to the global market through the ports of the Baltic countries. Ukraine and Poland

will establish a joint logistics enterprise to increase the volume of railway transportation of Ukrainian exports to the EU and global markets through Europe. For example, the international mining and metallurgical group of companies "Metinvest" has started working on logistics through Baltic and Romanian ports. In turn, the metallurgical plant in Ukraine, "ArcelorMittal Kryvyi Rih," is negotiating with the government of Poland to place facilities in Baltic Sea ports for the necessary transportation of metallurgical products.

2. The potential for developing aviation transportation and connectivity through the development of aviation and road infrastructure at the borders with Poland, Romania, and Moldova. It is reasonable to expand road transport links between Ukraine and neighboring countries where airports are located (Poland, Slovakia, Romania, Hungary, and Moldova, specifically Rzeszów, Lublin, Kraków, Košice, Bratislava, Debrecen, and Suceava).

During martial law, it is advisable to update the National Transport Strategy, considering the priorities of the TEN-T policy, the National Economic Development Strategy until 2030, and Ukrainian regional development strategies. Achieving the goals set in the National Transport Strategy until 2025 is unlikely, mainly due to significant direct and indirect losses from infrastructure destruction and disruptions in supply chains and logistics routes. In the short-term perspective, it is worthwhile to invest primarily in restoring supply chains and projects related to the development of new transport and logistics clusters and logistic hubs/centers at the borders with neighboring countries: Poland, Slovakia, Hungary, Romania, and Moldova. The strategic priorities for developing Ukraine's transportation system should be aligned with the National Economic Strategy in the "Transport and Infrastructure" direction and the Recovery Plan for Ukraine.

Despite the ongoing war in Ukraine, reconstruction and recovery planning has begun. It includes a dynamic analysis and discussion of initiatives and decisions for infrastructure rebuilding, analysis and assessment of direct and indirect losses from the damage to infrastructure objects, and discussions regarding potential mechanisms for its restoration. A working group on urban planning has recently been established within the National Council for Reconstruction of Ukraine, created by the President of Ukraine.

The Recovery Plan for Ukraine aims to accelerate sustainable economic growth. The plan identifies a list of National Programs to achieve key results. The Recovery Plan for Ukraine is based on the following main principles:

- Immediate start of recovery and gradual development.
- Increase in the level of well-being.
- Integration of the transport system with the EU.
- Rebuilding at a higher level on the national and regional scales.
- Stimulating private investments.

The recovery plan is developed for 2023-2032 and is based on the implementation of projects within national programs, including the National Program "Expansion and Integration of Logistics with the EU" (with financing estimated at \$120-160 billion) and "Reconstruction and Modernization of Housing and Infrastructure in the Regions" (with funding estimated at \$150-250 billion) (Official Website of Ukraine's Recovery, 2023).

The European Commission has presented its reconstruction program, "RebuildUkraine," which is supported by several national and international actors (UNDP Ukraine, 2023). Among the main trends are the urgent need for the reconstruction of transportation infrastructure, especially the restoration of roads in the most affected regions, infrastructure facilities in the industrial and agricultural sectors of the economy, and the overall transportation sector, which forms supply chains with other sectors of the economy. In this context, the short-term and medium-term public-private partnership (PPP) projects will be particularly relevant.

Fiscal constraints are among the barriers to developing Ukraine's transportation system. During the war, Ukraine's budget financing sources mainly consist of credits from international financial organizations, bilateral credits and grants, and military bonds. In 2022, Ukraine received \$32,144 million from international partners, including \$11,990 million from the United States (a grant), \$7,961 million from the EU (a grant), \$2,693 million from the IMF, and \$1,889 million from Canada (Ministry of Finance of Ukraine,

2023b). The budget was financed by the NBU of USD 12,477 million and by domestic state bonds (including military bonds) of USD 7,692 million. Therefore, in such conditions, the problem arises of attracting funds from private investors and providing them with favorable conditions for investing in Ukraine, concluding cooperation agreements with central executive authorities that should guarantee the private sector regarding the return of investments or risk reduction. In addition, it is advisable to expand cross-border cooperation to develop logistic clusters and hubs with neighboring countries (Poland, Romania, Moldova). It is worth noting that negative assessments prevail in the business environment regarding investments in Ukraine's transportation sector (Table 1) today, particularly in such major asset types as equipment and machinery, land, buildings and installations, and intangible assets.

Table 1. Expected changes of investment by types of assets in services in 2023 over 2022 (surveyed in April of the current year, balance\*, %)

	Machines and equipment	Land, buildings, and installations	Intangible assets (R&D, software, data, intellectual property, vocational training, etc.)
Services	5	1	5
Transportation and storage	6	1	2
Land transport and transport via pipelines	4	-1	1
Water transport	c	c	c
Air transport	20	20	20
Warehousing and support activities for transportation	7	2	-1
Postal and courier activities	40	0	40

Source: The State Statistics Service (2023b).

\* The balance is calculated as the difference between the percentages of respondents giving "increase" and "decrease" replies.

Symbol (c) – data are not released to comply with the requirements of Ukraine's law on official statistics regarding the provision of guarantees of the state statistics bodies on statistical confidentiality.



The higher investment expectations apply only to Ukrainian air transport assets. Considering the need for immediate infrastructure restoration, the government is implementing urgent recovery plans totaling \$14,1 billion in 2023. The priority areas for reconstruction include the following:

- restoring the energy infrastructure;
- repairing damaged housing;
- humanitarian demining;
- critical and social infrastructure restoration;
- providing support to the private sector (Ministry of Finance of Ukraine, 2023a).

At the international level, discussions are already taking place, particularly with the International Finance Corporation, regarding expanding public-private partnerships (Ministry of Finance of Ukraine, 2023b) and mobilizing financial resources for the country's reconstruction and supporting Ukrainian businesses. One of the instruments for attracting funds through PPP is cooperation with the International Finance Corporation to rebuild the country and develop the private sector, identified as priorities within the immediate recovery plan of \$2,8 billion for 2023. Among the international partners are also the International Development Association (IDA) and the International Bank for Reconstruction and Development (IBRD), which will meet Ukraine's needs for a swift recovery and expanded financing in 2023, facilitating the mobilization of additional financial resources for urgent transportation infrastructure restoration. The Special Program for Ukraine's Recovery and Crisis Response (SPURR), with funding of \$2 billion, was introduced to rebuild the transport infrastructure. The SPURR program is implemented by the International Development Association (IDA) through mechanisms for attracting additional funding from donors and monetizing donor guarantees (Ministry of Finance of Ukraine, 2023c).

The World Bank has established the Ukraine Relief, Recovery, Reconstruction, and Reform Trust Fund (URTF) to mobilize funds from donor countries for framework projects, including RELINC (Transport Infrastructure Reconstruction) with a budget of \$585 million,

Re-Power (Energy), and HEAL (Healthcare Support) (Government Portal, 2023). The "Recovery of the Main Logistics Infrastructure and Network Integration" (RELINC) project aims to rebuild major bridges and railway tracks to restore transportation links and connectivity between settlements. This goal will be achieved by purchasing modular bridges and supplies for urgent repairs of damaged road-bridge connections and critical railroad tracks. Financial assistance is also directed toward purchasing flatbed rail platforms and additional rolling stock to expand railway transport capacity, including containerized freight. REICE | 228

Under the RELINC project, assistance is provided to implement priority reforms necessary to enhance Ukraine's readiness for implementing complex reconstruction programs. For example, these include introducing anti-corruption tools, digitalizing recovery processes, and improving effectiveness in donor coordination. The administration and management of the project involve the United Nations Office for Project Services (UNOPS).

The mentioned management provides construction, procurement, and project implementation services, specializing in post-war infrastructure recovery projects (Ministry of Infrastructure of Ukraine, 2023). The URTF Fund mobilizes grant funds. The initial meetings of the URTF Fund involved representatives from the governments of Austria, Canada, Iceland, Japan, Lithuania, the Netherlands, Norway, Sweden, Switzerland, the United States, Germany, and Indonesia. By the end of 2023, the URTF is expected to accumulate \$2 billion. Currently, the fund has around \$1,1 billion in potential donor contributions (Ministry of Infrastructure of Ukraine, 2023).

## Conclusion

The conducted research confirms the importance of developing railway connections between Ukraine and European countries in the context of activating integration processes into the Trans-European Transport Network (TEN-T) within the framework of cooperation programs and projects with Poland, Romania, Moldova, and the Baltic countries. The key barriers to the development of Ukraine's transport system during the war include fiscal constraints and low investment expectations in the transport sector of Ukraine. Therefore, it is advisable to expand bilateral cooperation between Ukraine and key partners regarding transport. Overcoming fiscal limitations is possible through developing public-private partnerships and signing agreements between the governments of Ukraine, European countries, and major enterprises.

Among the main strategic priorities for the development of Ukraine's transportation system in the conditions of war, the authors have identified the following:

- 1) Expansion of railway capacity through the modernization of existing border crossing points and construction of new ones, particularly with Romania, Moldova, and Poland.
- 2) Ensuring the restoration of freight transportation volumes by emphasizing the importance of developing ports on the Danube and ferry crossings.

The development of railway transportation will contribute to the growth of metal products and grain exports to the global market through the ports of the Baltic countries. Ukraine and Poland have significant potential for creating joint logistics enterprises to increase the volume of railway transportation for export products to the EU and global markets through Europe.

The research also highlights the potential for aviation transportation and connections by developing aviation and road infrastructure at Poland, Romania, and Moldova borders. It is expedient to expand road transport connections between Ukraine and neighboring countries where airports are located, such as Poland, Slovakia, Romania, Hungary, and

Moldova, specifically in cities like Rzeszów, Lublin, Kraków, Košice, Bratislava, Debrecen, and Suceava.

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