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ECONOMIC POTENTIAL OF THE RAILWAY ENGINEERING INDUSTRY OF UKRAINE IN THE CONTEXT OF POST-WAR RECOVERY AND EUROPEAN INTEGRATION

Target setting. The critical socio-economic situation in Ukraine caused by the Russian-Ukrainian war with intensified hostilities in a large part of the country, a dramatic change in the trends of global economic policy, and the institutional environment pose a number of complex problems for the state. In particular, the problem of finding new forms of international cooperation that would make it possible to realize Ukraine's potentially high competitive position (primarily in the European division of labor). The post-war development of Ukraine largely depends on the formation of an effective transport and logistics system within the countries of Central and Eastern Europe (CEE) on its initiative, which actualizes the need not only for revitalization but also for innovative development of its infrastructure, especially the rolling stock fleet.

Currently, the Ukrainian railway engineering industry is in a state of decline due to a number of systemic problems, such as backward technology, insufficient investment, corruption, and the loss of traditional markets. As Ukraine moves toward European integration, the question arises as to how to restore the economic potential of this previously important sector in the context of postwar reconstruction. In this regard, there is a need for production cooperation with promising rolling stock manufacturers, searching for optimal models of integration of Ukrainian companies into the global commodity and financial markets.

International alliances, in particular the Lublin Triangle, a platform for cooperation between Poland, Lithuania, and Ukraine, can become an effective form of long-term development. However, despite the declared intentions of broad cooperation between the founding members of this alliance in all sectors of the economy, the organization's real activities are carried out only in the context of political consultations and military cooperation. However, this does not reveal the potential of this organization. In addition, Ukraine would benefit from the expansion of the Lublin Triangle by adding a number of other CEE countries, such as the

Czech Republic, Romania, Moldova, Bulgaria (and quite possibly Slovakia, Georgia, and Azerbaijan). We should also anticipate the formation of other new alliances. All of them will objectively include transport logistics issues as one of the determining factors.

Thus, there is a complex institutional, economic, technical, and technological problem of extending such interaction to the economic sphere of cooperation, which in turn raises the issue of identifying potential opportunities and priority areas for the development of Ukraine's international partnership in the field of transport engineering.

Scientific research of the problem under study and its unresolved aspects. Even though this topic has been repeatedly considered and analyzed by international experts and analysts [1], there are still a number of unexplored issues, in particular, in the field of international economic cooperation. It is worth noting that such international alliances are the basis for the development of the economy of both a weaker country and wealthy partners, both by "pulling" the weaker country to their level and by activating a number of representatives of various sectors of the economy of stronger countries. Examples include Germany's cooperation with the Czech Republic and Slovenia, the triumvirate of the Baltic countries, and other successful examples of economic globalization [2, p. 12; 3, p. 34].

A noteworthy analysis of the prospects for international cooperation arising from geographical location, communication links, similar economic features at certain stages of development and history is presented in the informative analytical report "State and Prospects of Strategic Partnership between Poland and Ukraine" [4]. In particular, this document emphasizes the benefits of developing transport communications [4, p. 154]. A fundamental analysis of the integration of Ukraine's railway system into the European transport system is presented in a monograph by the former Minister of Transport of Ukraine, General Director of Ukrzaliznytsia, H. Kirpa [5]. The analytical work of Jacob Bornio is also worth noting, as he has made

interesting conclusions about the impact of the Lublin Triangle on the economies of the participating countries, pointing out that their task now is not only to strengthen the dialogue but also to develop economically [6, p. 7]. In addition, this paper indirectly considers the prospects of communications, without which the comprehensive development of the alliance is impossible. The issues of transport and logistics interaction in the country have become the subject of systematic institutional developments in the works of scientists of the Institute of Industrial Economics of the National Academy of Sciences of Ukraine [7-8].

The general theoretical and epistemological component of the study of the totality of aspects of the transport and logistics sphere of Ukraine in the postwar period can be considered in a number of articles in CEE scientific journals on the feasibility, problems, and prospects of creating a new expanded alliance on the basis of the Lublin Triangle, which can become a significant factor in shaping peace and stability on the European continent [9 – 11].

It should be noted that although all researchers emphasize the need to develop economic infrastructure as part of Ukraine's integration into international organizations, the issues of economic, technical, and technological support for improving transport and logistics connectivity remain out of sight.

Instead, the authors of the article for the first time raise the issue and substantiate specific proposals for the creation of an appropriate transport and logistics cluster with a network of transport and logistics clusters within the Lublin Triangle [12-14]. The issues of actualization of the design and technological potential of railway engineering enterprises of Ukraine in the context of opportunities for the development of cooperation between the countries of the Lublin Triangle are studied in the works [15-18].

The aim of the article is to conduct a comprehensive study of the current state and prospects of development of the Ukrainian railway engineering industry in the context of post-war reconstruction of Ukraine and European integration, which involves, first of all, determining effective strategies and recommendations to ensure sustainable competitive development of the domestic railway engineering industry in the face of modern challenges.

The informational and analytical basis of the study was formed by the authors' research work "National Business Cultures of Poland and Ukraine: Improving the Scientific and Practical Foundations of Cooperation in the European and World Markets" (state registration number 0120U103807) within the framework of the Ukrainian-Polish project of the Ministry of Education and Science of Ukraine and the National Agency for Academic Exchange of Poland NAWA (2020 – 2021) and the topic „Trójkąt Lubelski: podstawy rozwoju gospodarczego powojennej odbudowy Europy w XXI wieku”, carried out under the Project of the Ministry of Higher Education of Poland «Inicjatywa Doskonałości – Uczelnia Badawcza» (2022-2023).

The statement of basic materials. By their nature, international organizations-alliances such as the Visegrad Group, the Three Seas Initiative, the Lublin Triangle, etc. are aimed at supporting and strengthening the competitive advantages of certain regions of Europe. In particular, the strategic development of certain sectors of the economy will help strengthen the positions of their member countries on the world stage [4, p. 26].

An objective analysis shows that in the context of justifying the prospects of the most realistic and beneficial alliance for Ukraine in the context of post-war recovery and implementation of the European integration course, we should consider the Lublin Triangle with the prospect of joining the Czech Republic, Romania, Moldova, Bulgaria (possibly also Slovakia, Georgia, and Azerbaijan) [11]. It should be noted that the idea of establishing this kind of international organization has a long history and solid theoretical, methodological, scientific, and practical foundations. It naturally assimilates the following determinants.

First: key provisions of the concept of "Intermarium" put forward by J. Piłsudski [19].

Second: the conceptual approach of the Marshall Plan – the US law "Economic Cooperation Act of 1948" [20], which was used to restore Europe after the Second World War (the main provisions and specific organizational and administrative mechanisms for implementing the "Economic Cooperation Act of 1948" were also used in the post-war restoration of Japan, Taiwan, South Korea, etc.).

Third: Z. Brzezinski's concept of "The Grand Chessboard" with the definition of a particularly significant role of Ukraine as one of the five axes of Eurasia (under certain conditions, Brzezinski also predicted the strengthening of the role of Poland and the Baltic states) [21].

The special dynamics of changes in modern geopolitics (which will increase even more in the mid-term) for Ukraine in the context of the possible establishment of new international alliances opens another historical perspective. It arose as a result of D. Tusk's political force coming to power after the recent elections to the Sejm in Poland. This gives grounds to predict with high probability the activation of another alliance – the Weimar Triangle, founded by Germany, France, and Poland. Moreover, under certain conditions, due to the strengthening of the Ukrainian trend in modern geopolitics, we should not exclude even the invitation of Ukraine to the Weimar Triangle: Germany, France, and Poland may be interested in this based on their particular interests.

However, this kind of versatility can focus on Ukraine (and the Weimar Triangle is likely to transform, for example, into a Pan-European Square). Generalization of the current and projected trends in the development of the transport and logistics sector and the relevant engineering industries of the Weimar Triangle countries also shows that they will keep these issues projected to Ukraine.

But it is Ukraine that should be the initiator and lobbyist of such processes.

To summarize, in the context of solving both tactical and strategic institutional, economic, scientific, and technical problems, it is expedient and necessary for Ukraine to consider the aspects of substantiating the prospects for the development of its transport and logistics sector and relevant subsectors of mechanical engineering with a projection on cooperation, first of all, with the following countries: Poland, the Baltic States, the Czech Republic, Germany, France.

The basis of the EU's transport and logistics activities is the Trans-European Transport Network (TEN-T), which in turn is part of a wider system of trans-European networks. The Pan-European Transport Network TEN-T is a large-scale EU infrastructure project that provides for the coordinated improvement of major roads, railways, inland waterways, airports, seaports, inland ports, and traffic management systems, providing integrated and intermodal intercity high-speed routes. The EU is working to promote networks through a combination of leadership, coordination, issuing guidelines, and financing the development aspects. On June 21, 2016, the Ministers of Transport of the European Union, the Eastern Partnership, and the European Commission decided to extend the indicative maps of the European Transport Network TEN-T to the EU's neighboring countries, including Ukraine.

The strengthening of the Ukrainian trend in the current and predictable transformational processes of geopolitics will be embodied in the following likely (and expected) decision of the European Union: even in the conditions of war, transport corridors to the territory of Ukraine will be extended. This, again, emphasizes the importance of cooperation between Ukrainian manufacturers and those in this group of countries.

The creation of an effective economic mechanism for Ukraine's integration into the pan-European transport network, the actualization of infrastructure projects in the context of the implementation of the powerful transit potential of our country requires a transition to the concept of "transport logistics hubs" (TLH), which also stem from the essence of the Single European Regional Policy as contributing to the balanced development of territories.

In the future, given the geographical features of the territory, rail transport will retain the leading role in Ukraine's transportation system, with the undoubted need for the simultaneous development of river and sea routes. For comparison, 82% of freight and 36% of passenger transportation in the country is carried out by JSK "Ukrzaliznytsia". However, today the railroad industry has a number of long-standing unresolved issues, including, first of all, the inconsistency of the existing economic structure and management system, and especially the state of the infrastructure and rolling stock fleet with the strategy for further development of the transport industry [5, p. 31-32]. As a result, there is an urgent need to modernize the infrastructure of transport corridors, improve transportation technology,

and accelerate the replacement of vehicles that have reached the end of their service life.

In our opinion, the problem of renewal of the rolling stock fleet of the Ukrainian railways should be carried out taking into account the need for maximum localization of production of high value-added products, creation of jobs, updating the design and technological potential of domestic science while adapting international experience and obtaining investments. There are grounds to say that the implementation of the TLH network within the expanded Lublin Triangle will activate the production potential of domestic machine-building enterprises, expand their investment opportunities, and especially reorient supply chains and markets. Hence, there is a need to search for potential models of cooperation of domestic manufacturers of railway rolling stock within the selected group of countries.

Locomotives and rolling stock. Since the percentage of deterioration of electric locomotives, diesel, and electric locomotives of JSK "Ukrzaliznytsia" increased from 82% to over 90% between 2001 and 2023, there is an urgent need to renew the fleet of the domestic railway monopoly [15, p. 103; 17, p. 39]. For the last 10 years, the management of JSK "Ukrzaliznytsia" has been making constant attempts to attract foreign manufacturers of rolling stock to resolve this issue. However, it is worth reminding that for a long time, a number of alternative attempts to implement trilateral agreements with JSK "Ukrzaliznytsia" on localization of locomotive production with the participation of foreign companies have failed. First of all, it should be noted that the locomotive industry in Ukraine has suffered significant damage since the leading company, PJSK "Luhanskteplovoz", has been not only formally owned by a Russian investor but also under actual occupation since 2014. Hence, its prospects remain uncertain both in the field of locomotive construction and the production of rolling stock.

Back in June 2013, a memorandum was signed between the State Agency for Investment and National Projects of Ukraine and the Polish company PESA Bydgoszcz SA on the prospects for the production of dual-system electric locomotives of the new innovative Gama platform rolling stock within the framework of a joint venture created at the production facilities of the SE RPC "Elektrovozobuduvannia". However, already in September 2013, "Ukrzaliznytsia" together with Skoda Transportation agreed on the organization of production of 3 types of electric locomotives (including innovative dual-system electric locomotives Skoda 109E, which were to be designated DS-25) at the facilities of Zaporizhzhia Electric Locomotive Plant with a gradual increase in the share of components produced by Ukrainian industry to 90% [16, p. 125]. In the end, due to the uncertainty of the prospects for orders by Ukrzaliznytsia, PESA denied the possibility of cooperation with the RPC "Elektrovozobuduvannia". Instead, the Ukrainian-Czech plant Zaporizhzhia Electric Locomotive LLC didn't start production of passenger electric locomotives either [16, p. 125]. In

November 2018, Škoda Transportation opened an official representative office in Dnipro to develop railway transport design projects and integrate into the Ukrainian market [16, p. 127].

Initially, JSK “Ukrzaliznytsia” planned to hold another tender for the purchase of rolling stock. The following companies were among the bidders: Alstom (France), Siemens (Germany), CRRC (China), Škoda (Czech Republic), and PJSK “KRCBW” (Ukraine). In this context, it is worth noting the intentions of some railway car building and repair plants to master the production of locomotives [22-23]. However, this scenario is unlikely, since with the existing production capacities of these enterprises, it can only be a matter of finalizing samples under external contracts of JSK “Ukrzaliznytsia” produced abroad, and not creating a product with high added value. On May 13, 2021, representatives of the Governments of France and Ukraine signed a framework agreement on the implementation of the project to renew the fleet of electric freight locomotives of JSK “Ukrzaliznytsia”. In case of winning the tender, the management of PJSK “KRCBW” planned to establish its production of electric locomotives, the cost of which, according to representatives of the Ukrainian manufacturer, could be 15-20% lower than the price of Alstom locomotives [24].

Today, PJSK “Kryukiv Railway Car Building Works”, having its own powerful design and technological basis and production facilities, has taken a monopoly position as a supplier of motor-car rolling stock for JSK “Ukrzaliznytsia” among Ukrainian manufacturers of rail equipment.

Since 2012, PJSK “KRCBW” on its initiative began designing a new family of suburban, regional, and interregional locomotive trains of a new generation, including diesel trains, and electric trains of different current systems with bodies of similar design. In early 2012, PJSK “KRCBW” built and tested the first 2 samples of the experimental electric train EKr1, which was named “Tarpan” [25, p. 290 – 291]. As a result of the victory of PJSK “KRCBW” in the tender announced by Kazakhstan Railways, the development of the diesel train DPKr2 began, taking into account the regulatory technical requirements in force in Ukraine. In the summer of 2014, a prototype diesel train DPKr2-001 was built, which was named “Obriy” with a construction speed of 154 km/h. In 2014, PJSK “KRCBW” also developed technical specifications for suburban electric trains of AC EKr3 and DC EKr4 [18, p. 357 – 358].

In the spring of 2017, JSK “Ukrzaliznytsia” announced another tender for the supply of three-car diesel trains for regional traffic, in which PJSK “KRCBW”, Polish company PESA Bydgoszcz SA and Kharkiv Railway Car Building Plant LLC took part. However, JSK “Ukrzaliznytsia” soon canceled the tender, rejecting all submitted bids due to non-compliance with the tender documentation. As a result of winning another tender, PJSK “KRCBW” developed and manufactured a regional three-car diesel train DPKr3 with a maximum speed of 140 km/h. Despite the

successful construction of the first four samples of the DPKr3 diesel train under the tender and the possibility of producing electric trains by PJSK “KRCBW”, JSK “Ukrzaliznytsia” is persistently trying to hold a tender with the involvement of the Swiss company Stadler Rail AG for the supply of 80 electric trains with localized production in Ukraine for the amount of UAH 31,462,000,000 [18, p. 358]. However, with the outbreak of hostilities on the territory of Ukraine on February 24, 2022, the prospects for this cooperation remain uncertain.

Wagons. In the late 1980s, half of the production capacity of the USSR railway car industry was concentrated in Ukraine, including 100% of the production of tank cars, up to 50% of freight cars, and heavy-duty transporters [26, p. 5, 27]. For a long time, the leading manufacturer of tank cars in Ukraine was the Azovmash Plant, which was virtually destroyed during the hostilities in Mariupol. The fate of the Stakhanov Railway Car Building Plant, which has been in the occupied territory for a long time, remains uncertain. Today, Ukrainian railway car manufacturers include PJSK “KRCBW”, PJSK “Dneprovagonmash”, RMF “Karpaty”, LLC “Kharkiv Railway Car Building Plant”, and a number of certified car repair plants.

The number of new wagons on European railways is constantly growing. In 2022, private companies alone increased their freight car fleet by almost 11,000 units. According to the International Union of Wagon Keepers, their investment in the purchase of new wagons is about €400 – 500 million per year [28]. Currently, the EU market is key to the survival of the Ukrainian railway car industry, as the markets of the CIS countries that use a wide gauge (1520 mm) are virtually blocked for Ukraine. The EU market used to be inaccessible to Ukrainian railway car building companies due to the complex certification procedure, and especially the need to switch to European railway car production technologies.

Back in the early 2000s, JSK “KRCBW” gained practical experience in creating subway wagons, innovative freight wagons, as well as locomotive-powered passenger wagons with a speed of 160 km/h [25, p. 58]. The company was able to stabilize its financial position by expanding its product range, upgrading its fixed assets with the latest equipment, and preserving its design and technological potential by mastering the industrial production of new types of rolling stock [29, p. 187]. In the end, today, despite the formal presence of 2 competitors in the form of JSK “Dniprovgonrembud” (Dnipro) and OJSK “KhRCBP” (Kharkiv), it is PJSK “KRCBW” that is the exclusive monopolist in the production of passenger railway cars in Ukraine. In particular, in 2022, JSK “Ukrzaliznytsia” purchased 100 passenger railway cars from PJSK “KRCBW” with the help of the state budget and plans further purchases under the rolling stock renewal program until 2026 [30].

Nowadays, the possibility of PJSK “KRCBW” entering the EU passenger railway car market arose as a result of the interest in the Company's products by a

private Czech railway operator RegioJet. Given the significant growth in rail transportation in the EU, which has created a significant demand for the products of local railway car manufacturers, Ukrainian rolling stock manufacturers have a unique chance to enter the European market, provided they master international quality standards. RegioJet's management expressed readiness to order 1,000 passenger railway cars from PJSK "KRCBW" if they are adapted to EU standards and cost no more than EUR 1 million per unit. For comparison, in European countries, the cost of one passenger railway car is on average 2 million euros per unit [31].

In the fall of 2023, PJSK "KRCBW" for the first time in Ukraine received the right to manufacture freight cars for the European gauge – 1435 mm. The company's specialists designed an intermodal platform railway cars of the Sggrss 80' type for the transportation of containers. The prototypes of these railcars have already been tested at European testing grounds and have proven their compliance with the requirements of the technical specifications for interoperability (TSI) in force in the EU [32].

However, the most promising candidate for entering the EU markets is PJSK "Dniprovagonmash", as its parent group "TAS" has already acquired 40% of the shares of the Austrian company TransAnt GmbH, a manufacturer of innovative module railcars. TransAnt module railway cars, developed together with the company's Austrian minority shareholders, the Voestalpine AG metallurgical group, and the state-owned OBB Rail Cargo Group, will be sold to European rail operators. This is a new type of freight car that can be quickly transformed from one type to another. Within 2 years, the company plans to produce about 1500 railway cars annually. In 2021, OBB Rail Cargo Group announced plans to purchase 1400 module wagons from TransAnt GmbH for €130 million [28]. Since February 2022, PJSK "Dniprovagonmash", having received the appropriate international certification, has been producing the main components for the module-type TransAnt railway cars [28].

In the fall of 2023, PJSK "Dniprovagonmash" shipped the first lightweight modular freight cars (MultiBOX) designed for operation on EU railways. The project is implemented in cooperation with Austrian partners. Now MultiBOX is undergoing the necessary tests for compliance with European standards, and PJSK "Dniprovagonmash" is already working on additional orders, not only for module structures, but also for railway cars, and is preparing to explore new opportunities in the European market [33]. The net income of PJSK "Dniprovagonmash" for 2022 increased by 77.3% to UAH 1 billion 108.7 million, and net profit amounted to UAH 48.64 million against a loss of UAH 111.3 million a year earlier. At the same time, sales of railway cars increased by 35% to 623 units, and production increased by 21% to 577 units [34]. It became known that the TAS Group, which includes PJSK "Dniprovagonmash", received permission from the Antimonopoly Committee of Ukraine to increase its

stake to more than 50% of the shares in the Austrian TransAnt GmbH [35]. However, despite the broad prospects for European industrial integration, the relative proximity to the territory of hostilities remains among the main risks of PJSK "Dniprovagonmash".

Special equipment. Unfortunately, mass production of special rail equipment in Ukraine is not widespread. The exception is the hand car manufactured by RPE "DEVZ" (Dnipropetrovsk) [36, p. 57], as well as track machines manufactured in cooperation with the Austrian company Plasser & Theurer GmbH and PJSK "Starokramatorsk Machine-Building Plant" (Kramatorsk) [37, p. 178 – 180]. Instead, a sample of the railcar for track and power grid repair AD-01 developed by PJSK RPE "Dniprospetsmashina" was presented in the spring of 2013 [38] has not been mass-produced, which, in our opinion, makes it all the more impossible for it to be certified in the EU, not to mention its competitiveness in local markets.

Conclusions and prospects for further research of the issue under study. Therefore, an important element of Ukraine's post-war recovery and European integration should be its effective participation in Eastern European international organizations, among which the most realistic may be participation in the expanded format of the Lublin Triangle (or Weimar Triangle). The organizational and managerial mechanism of this cooperation is proposed to be implemented through the creation of a network of transport and logistics hubs, for which it is important not only to comply with the principle of combining the flows of different types of transport but also to optimize the location of hubs within the member countries of the alliance since transport and logistics flows intersect in large industrial centers with an existing human and resource base.

The railway transport network will traditionally remain the key logistical element in ensuring such logistics. However, the market for wide-gauge railway equipment (1520 mm) is virtually closed to Ukrainian manufacturers of rail rolling stock. In this regard, there is an urgent need to find alternative formats of manufacturing cooperation in order to prevent the industry from going bankrupt in Ukraine. In our opinion, a possible solution to this problem is the realization of full cooperation between Ukraine and certain Central and Eastern European countries.

The economic potential of this cooperation can be realized in two ways: by the leading Ukrainian manufacturers of railway equipment (PJSC "KRCBW", PJSC "Dniprovagonmash", etc.) entering the EU market, and by attracting potential manufacturers to create joint ventures based on the privatization of state property in Ukraine. In our opinion, this format of cooperation, with the prospect of creating special economic zones in Ukraine, has great potential for the domestic machine-building industry, given its need to reorient supply chains and markets in the international arena.

That is, the creation of a network of diverse special economic zones should be considered an appropriate

regulatory regime for implementing Ukraine's post-war restoration policy (including in the context of establishing the proposed cooperation of domestic railway transport enterprises).

Due to the ineffective management system, the railway engineering enterprises that are still in state ownership have outdated design and technological developments and are unable to ensure competitiveness. The presented analysis confirms that the Ukrainian industry is capable of being present in the EU markets in the field of railway car building; instead, the outdated locomotive facilities and the creation of innovative rolling stock require attention.

The development of the competitive environment for locomotive and rolling stock manufacturers in Ukraine will involve the development of a long-term

strategy taking into account the specific needs of the railway operators' market and the actualization of design and technological cooperation, in particular with manufacturers PESA Bydgoszcz SA, Newag SA (Poland), Škoda Transportation (Czech Republic), which have long practical experience in the production of mainline equipment and innovative design and technological solutions.

In general, systematic manufacturing, commercial, scientific, and technical cooperation with CEE companies will allow Ukrainian enterprises not only to master new technological standards but also to compete with the world's leading manufacturers in this industry (which is a natural and logical phenomenon of the modern global economy).

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Рубан М. Ю., Чеботарьов С. В. Економічний потенціал залізничного машинобудування України в умовах повоєнного відновлення та європейської інтеграції

Опрацювання сукупності проблем повоєнного відновлення України і похідних питань провадження євроінтеграційного курсу держави передбачає, перш за все, обґрунтування оптимальних стратегічних напрямів відповідної відновлювальної політики. Узагальнення світового досвіду розробки і реалізації політики повоєнного відновлення виступає ґносеологічним і науково-практичним підґрунтям у числі визначальних стратегічних напрямів відновлення України виокремити створення транспортно-логістичного кластеру на базі розширення міжнародного альянсу – платформи співробітництва «Люблінський трикутник». Розширення «Люблінського трикутника», за умов проведення Україною необхідної відповідної діяльності, є цілком реальним шляхом доєднання до Польщі, Литви та України Чехії, Румунії, Молдови, Болгарії (дещо пізніше, можливо, також – Словаччини, Грузії та Азербайджану).

В статті автори поглиблюють висунуту ними й обґрунтовану в українській і зарубіжній науковій літературі пропозицію створення зазначеного транспортно-логістичного кластеру з використанням мережі транспортно-логістичних хабів в контексті пропонуваного розширення «Люблінського трикутника». Ще одним новим історичним шансом для України за даним напрямом (й у більш ширшому інституціональному й економічному розумінні) може бути прогнозоване запрошення доєднатися до Німеччини, Франції та Польщі в межах альянсу «Веймарський трикутник».

На основі аналізу економічного і науково-технічного стану вітчизняних підприємств залізничного машинобудування розглядаються проблеми та перспективи їхньої широкої кооперативної співпраці з підприємствами Польщі, країн Балтії, Чехії, Німеччини та Франції в підгалузях виробництва локомотивів і моторвагонного рухомого складу, вагонів та спеціальної техніки. Відповідним регуляторним режимом, який в змозі забезпечити практичне запровадження пропонованої співпраці (як й у широкому контексті практичного провадження політики повоєнного відновлення України), слід визначити створення мережі спеціальних економічних зон.

Ключові слова: повоєнне відновлення України, регуляторні режими, «Люблінський трикутник», транс'європейська транспортна мережа, транспортно-логістичний кластер, залізничний транспорт, локомотиви та моторвагонний рухомий склад, вагони, спеціальна техніка.

Ruban M., Chebotarov Ie. Economic Potential of the Railway Engineering Industry of Ukraine in the Context of Post-War Recovery and European Integration

The study of the set of problems of Ukraine's post-war restoration and derivative issues of the state's European integration course involves, first of all, substantiation of the optimal strategic directions of the relevant restoration policy. Generalization of the world experience in the development and implementation of post-war restoration policy serves as an epistemological and scientific-practical basis for the following strategic directions of Ukraine's restoration: the creation of a transport and logistics cluster based on the expansion of the international alliance –

the Lublin Triangle cooperation platform. Expansion of the Lublin Triangle provided that Ukraine takes the necessary measures, is quite realistic by adding to Poland, Lithuania, and Ukraine the Czech Republic, Romania, Moldova, Bulgaria (later, perhaps, also Slovakia, Georgia, and Azerbaijan).

In the article, the authors elaborate on their idea, which is substantiated in the Ukrainian and foreign scientific literature, to create the mentioned transport and logistics cluster using a network of transport logistics hubs in the context of the proposed expansion of the Lublin Triangle. Another new historic chance for Ukraine in this area (and in a broader institutional and economic sense) may be the expected invitation to join Germany, France, and Poland in the Weimar Triangle alliance.

Based on the analysis of the economic, scientific, and technical state of domestic railway engineering enterprises, the problems and prospects of their wide cooperation with enterprises of Poland, the Baltic States, the Czech Republic, Germany, and France in the sub-sectors of production of locomotives and rolling stock, wagons and special equipment are considered. The appropriate regulatory regime that can ensure the practical implementation of the proposed cooperation (as well as in the broader context of the practical implementation of Ukraine's post-war restoration policy) should be the creation of a network of special economic zones.

Keywords: post-war restoration of Ukraine, regulatory regimes, Lublin Triangle, trans-European transport network, transport and logistics cluster, rail transport, locomotives and rolling stock, railway cars, special equipment.

