**Introduction.** Infrastructure is one of the key competitive advantages of Ukrainian regions. Certainly, Ukraine can and must generate high revenues from transportation services. This is preconditioned by its advantageous geopolitical location. However, the problem of poor quality in Ukraine has put its mark on each and every element of infrastructure. The situation gets further complicated by insufficient interaction between different industries within the transportation sector, scant investment inflows, outdated system of regulations, and rapid physical deterioration.

**Problem Statement.** Infrastructure development is high on the agenda today, especially in view of the challenges and unsettled problems in this sector. The analysis of Ukraine’s competitiveness shows that transport infrastructure is the most dysfunctional component of the national infrastructure.

**Purpose.** To develop preconditions for socio-economic growth of the country, to enhance the competitiveness of the national economy by improving the quality of transport services, developing the transport infrastructure and satisfying the social and commercial needs of the society, as well as to elaborate strategic directions for the public-private support of transportation as key industry of the economy.

**Materials and Methods.** The theoretical and methodological basis of the research is the domestic and international legislative framework, scholarly research works of domestic and international researchers. To achieve the purpose of this research, the following methods have been used: general scientific and special research methods: analysis and synthesis, for studying the current state and experience of the transport infrastructure in Ukraine and the abstract-logical method, for making conclusions.

**Results.** The author has elaborated a set of strategic directions for the development of transport infrastructure, as well as road, railway, air and waterborne transport, and identified the problems that impede effective development of the transport industry in Ukraine. The author has outlined directions for using the public-private partnership mechanisms based on concession agreements as a tool for realizing investment interests of the state and substantiated the feasibility of using the concession mechanism in the transport industry of Ukraine.

**Conclusions.** The development of transport infrastructure remains among the priorities of the national economic reforms. The transport infrastructure unites all the regions and enterprises of Ukraine into a single state and integrates the Ukrainian economy into the world economy. It is necessary to create adequate conditions for attraction of private sector investments into the development of transport infrastructure and to focus efforts on using proper regulatory instruments for facilitating the financial involvement of the private sector.

**Keywords:** concession, public-private partnership, transportation industry, and transport infrastructure.

Infrastructure is one of the key competitive advantages of Ukrainian regions. However, in Ukraine, the problem of poor quality of services has left its mark on every element of the infrastructure. The situation is further complicated by insufficient interaction between the various sectors of the transport sector, low investment flows, an outdated regulatory system and rapid physical deterioration of the transport infrastructure.
Ukraine can and has to generate high revenues from transport services as it has a favorable geopolitical location. Much of the transport capacity that is developing due to the favorable geographical location and the international transport corridors running through Ukraine is used for the provision of transit services. Given the fact that international transport corridors can have a positive impact on neighboring territories within 200 km, it would be advisable to create new high-quality logistics centers in the areas adjacent to the main railway and road approaches to Ukraine. In addition, it is necessary to consider the global trends, as the transport industry accounts for almost 10% of GDP, transport services making up for 20% of all private investment, and the transport infrastructure occupies around 5% of the world territories.

Much attention has already been paid to the issues of transport infrastructure in Ukraine. In particular, Yu.E. Pashchenko has considered the peculiarities of the development and location of the transport and road complex of Ukraine [1]; Yu. Tsvetova, M. Makarenko, A. Lashko, and G. Eitutis [2, 3] have been studying the issues of railway transport development; A.M. Novikov and V.P. Mironenko have researched the current status, tendencies, and prospects for the development of transport links of Ukraine with the world countries [4]; A.O. Filipenko and V.V. Baryshnikov [5] have addressed the problems of reforming the port economy; A. Novikova and T. Bludova have been dealing with the issues related to integration of the national transport system into the European one and studying the development of the national transit potential [6].

Today, the development of transport infrastructure is a pressing issue, especially, in view of the challenges and outstanding problems that this sector of the economy has faced up to. The purpose of this research is to consider the formation of the conditions for facilitating the socio-economic growth of the country, raising the competitiveness of the national economy through improvement of the quality of transport services, developing the transport infrastructure and meeting the social and foreign trade needs of the society.

An extremely high transport intensity of Ukraine’s economy has a special impact on its infrastructure. Thus, in order to earn a hypothetical dollar of GDP, it is necessary to transport an average cargo of 6 ton-kilometers as compared with 0.3 ton-kilometers in the EU, which is 20 times less [7, 8].

Transport is a systemically critical sector of the economy and a key factor in the industrial development of the country, which today occupies an area of 603 thousand km². The formation, expansion, and modernization of transport infrastructure are necessary prerequisites for the development of Ukraine. According to the Global Competitiveness Report 2016—2017, Ukraine is ranked 81st out of 137 countries by the quality of transport infrastructure, 130th by the quality of roads, 37th by the development of railway infrastructure, 92nd by the development of aviation infrastructure, 59th by the quality of airline services, 93rd by the development of port infrastructure, and 85th by the development of power engineering [9]. In general, Ukraine stands behind the advanced economies and is on par with India, Brazil, and Turkey.

Similar estimates of the Ukrainian transport system have been identified by The Boston Consulting Group (BCG) [10], according to its report, there are the five key problems in the transport industry of Ukraine: limited capacity, fragmentation of transport, lack of funding for the support and development of the transport infrastructure, the lack of engineering and construction technologies and competences, and unfavorable conditions for the involvement of private sector in the infrastructure development.

The use of geo-economic advantages becomes less significant due to the underutilization of transit potential resulting from the underdeveloped network of international transport routes in Ukraine and a high current load of transport services.

In order to enhance the position of Ukraine as a maritime state, it is necessary to improve and to
develop the Danube Shipping Company and its home port, Ismail. So far, the port capacity has been utilized for 25% only, mainly because of poor technical condition of the ships and berths, the lack of modern passenger liners at the local level, the underdeveloped infrastructure around the ports, a low spread of information technologies and the lack of support from international organizations supervising the International Transport Corridor No. 7 (the Danube corridor). As a result, the benefits of the Danube shipping are gradually disappearing, as compared with the Romanian and even the Moldovan ports on the Danube, which consequently causes a decrease in the passenger traffic. However, it should be acknowledged that although strengthening Ukraine’s position in the Danube region is a difficult task for Ukraine’s transport sector, it is of particular political and economic importance in the light of the proclaimed course for European integration [11]. It should be noted that in order to restore Ukraine’s status as maritime state and to implement its Maritime Doctrine, it is necessary, first of all, to draft and to adopt several laws regulating the maritime activity, in particular, the laws on maritime policy and on marine ports; secondly, to develop and to approve a national (government) program for the development of maritime transport, as well as other common industrial programs aiming at long-term development of the infrastructure in the coastal zone (at the regional level), in particular, with regard to the upgrade and launch of new vessels, with a certain share of Ukrainian-made ones. Another relevant issue is the creation of an information and logistics center at the Danube transport hub. Domestic shipbuilding for the Navy of Ukraine will facilitate the implementation of public-private partnership schemes (the Law of Ukraine of July 1, 2010 No. 2404-VI) based on new opportunities provided by the Internal Revenue Code of Ukraine [12].

As stated in the Conception of the Government Target Economic Program of Road Transport Development for 2018–2022, the transport and operational condition of the vast majority of highways and roads is unsatisfactory: 97% of all roads has been seriously degraded and requires major or regular repairs, 39% of national roads does not comply with the strength requirements and 51% is below the roughness standards [13]. The strategic goal of road infrastructure development shall be to increase the national production of vehicles and passenger transport facilities in accordance with the international environment safety and energy efficiency standards. Ukraine has sufficient capacity to increase the production at Kremenchuk (in cooperation with Renault corporation) and Lviv car-building factories, in Zaporizhia (manufacture of buses and other vehicles in cooperation with well-known foreign companies), and at other automobile factories in the country [14]. According to estimates, the country needs to repair 37.6 thousand km old roads annually and build 400 km new highways in order to meet the modern standards [15].

Ukraine has a considerable potential for the development of air transport and an increase in air traffic of passengers by national and foreign airlines. However, in order to utilize this potential, it is important to harmonize the local norms to the international standards, to upgrade the logistics and airport infrastructure, and to protect the national interests while liberalizing the Ukrainian air market. Increasing the number of low-cost air passenger flights shall be a strategic goal for Ukraine. Today, there are over 200 low-cost airlines in the world aviation market [16]. The air transport industry faces significant challenges in securing the construction, reconstruction, and modernization of airports. In addition, it is necessary to support the dynamic development of internal infrastructure and related facilities through the promotion of leasing and concessions. Finally, it is particularly important to create a solid foundation for the development information technology that enables the creation of a unified information communications system for the transport sector and that can be integrated into the global information network.
Identifying the problems that impede the proper operation of the transport infrastructure in Ukraine helps to formulate the strategic directions for its development (Fig. 1).

The development of strategies for the development of international transport services shall be based on the principle of integrated approach. This means that the transport system shall embrace all modes of transport, which are equally developed where possible. Along with transport services, it is important to develop the national innovation- and technology-intensive vehicles. This approach to the development of the transport market can only be realized by expanding modern and convenient networks of highways and railways, seaports and airports, as well as by increasing the share of vehicles belonging to national corporations. This requires the implementation of a nationwide policy for reforming the country’s transport fleet, services, and facilities.

It is strategically important for Ukraine’s transport system to achieve the world standards in the technical parameters and in the quality of services provided. All efforts and resources shall be focused on the most effective use of technological progress in the transport industry. The directions for the commercialization of technological developments shall be selected through competitive selection, with only the most effective projects implemented. To this end, it is necessary to create a mechanism for balancing the economic interests of investors, developers, manufacturers, and consumers of new transport technology. Industry that supplies technology to the transport sector shall receive a government support.

Due to the upgrade of fleet, the modernization of infrastructure, and the introduction of advanced technologies, the technological level of all modes of transport will up. This includes repairing the rolling stock, motor vehicles, equipment, and navigation systems, in particular, the equipment for an integrated air traffic management system, mainly, within the framework of nationwide target sectoral development programs. The technological modernization of transport requires the creation of a special fund for funding urgent research and development, as well as providing a government support in order to preserve the R&D potential and to carry out fundamental research.

In the field of innovation, the efforts and resources shall be concentrated in those areas of fundamental research that enables generating the most significant practical results.

The main directions of the transport system development in Ukraine have been formulated in the policy documents approved on the basis of the requirements for general economic development, in order to remove the main “bottlenecks” in the transport network [17]. Proceeding from that, we can make a list of specific objects for infrastructure projects (Fig. 2).

The infrastructure development can be governed by the three models: proactive, synchronous, and reactive. The first model involves the active involvement of government that assumes high investment risks (for example, the present-day China). In the US proactive model, important players are businesses that are looking for opportunities to remove the barriers to growth. The synchronous model balances the government involvement in
the private business like, for instance, in Germany. However, in Ukraine, no model can be used in its pure form for many reasons, the most significant of which is the lack of public funds and a yet-established infrastructure framework and private venture capital capable of leading the process. Ukraine needs to develop an alternative approach, to win a limited number of priority projects with active involvement of business in the implementation of key ideas. No success is possible unless the government and the private sector join efforts to implement reforms in the national transport industry.

We believe that the public-private partnership mechanism used in European countries to create infrastructure facilities shall be a major tool for the development of transport infrastructure in Ukraine. It is just the one that has been used for the construction of main motorways in Finland, for the reconstruction of Portuguese airports and regional highways, for the reconstruction of water-supply networks and for the construction of motorways in France. The less developed countries are implementing such projects mainly in the areas of transport infrastructure and utilities through concession agreements.

The international experience has shown that the development of partnerships between the government and business can be an effective mechanism for improving the efficiency of the transport industry, since it enables attracting additional funding, mainly, investments in the transport infrastructure that is too capital intensive.

In advanced economies, central or national transport authorities work closely with local authorities and private businesses. Such a scheme is effective enough to facilitate cooperation and interaction between administrative bodies at different levels of central and regional government, as well as to attract private sector invest-
ment to finance specific projects for the sake of the state. The use of similar practices can be beneficial for Ukraine, since such a structure of relationships enables combining the resources and capabilities of the government and the business sector and creating a synergistic effect that helps to raise resource efficiency, to improve the distribution and to minimize risks between the government and the private sector.

Concessions can be used for the reconstruction and expansion of transport routes, the development of modern infrastructure and its support, as well as for the improvement of quality of transport services. In addition, they can be a means of cross-border cooperation at the regional level and a mechanism for integration of Ukraine into the international transport system.

When implementing public-private partnership practices in the railway sector of Ukraine, it is necessary to take into account the economic aspects in terms of the effectiveness of the allocation of investment funds. One of the most important issues addressed by the parties to the concession agreement is how the government and the concessionaire can correctly identify and distribute the risks associated with the construction of a new railway. The concession consists of the following stages: the government attracts investments for the construction of a greenfield or reconstruction of an existing railway by initiating a competitive bidding and awarding the concession to successful bidders. Upon completion of the construction works, the investor is granted an exclusive right to operate the concession object (no longer than 30—50 years). During the whole period of operation of the railway, the concessionaire shall be reimbursed for the invested capital both at the expense of fees for the use of the railway services and partly from the national budget. Having got back the total amount of invested capital, together with a return on investments, the concessionaire transfers the right to operate the railway back to the government [18].

Strengthening requirements for the quality of transport services imply improving the management of Ukrainian railway transport, increasing technical and operational capacity, and bettering the quality of services provided. Thus, railway corporations need effective organizational and economic mechanisms for innovative development. However, for the existing companies it is more relevant to evaluate the efficiency of investing in their reconstruction and technological upgrade.

For the development of ports, which shall be incorporated into the Strategy for the Development of Transport Infrastructure in Ukraine, it is necessary:

- to harmonize the national legislation and the management system with the EU directives, under due consideration of the national interests of Ukraine;
- to improve the transit operation of Ukrainian ports as international gateways and ensure compliance of all seaports with the applicable international standards;
- to improve the government supervision over compliance with legal requirements, standards, and rules governing the transport of passengers by sea and inland waterways;
- to provide government support for competition and expansion of tourism, inasmuch as the geographical location of seaports and river ports facilitates cooperation between them at regional and international levels;
- to intensify efforts in the sphere of developing the coastline and to improve the structural and regulatory framework for efficient coastline management.

Concessions shall be a major tool for strategic development of Ukrainian ports. They are just those that allow the government to keep its title to property. The concessionaire receives guarantees and the possibility of long-term operation, develops the infrastructure of ports that in Ukraine have been worn out for about 70%. The advantages are obvious: transparency of fundraising, efficiency of management, legal protection of investments, purposeful development of the objects of port infrastructure and guaranteed fulfillment of undertakings by all parties to the con-
cession agreement. At the same time, the concession shall be considered as a mechanism for the development of the port industry and a possible tool for attracting investments in Ukraine’s maritime industry.

The need for public-private partnerships in Ukraine’s aviation industry is caused by a sharp increase in the competitiveness requirements for corporations operating in the global aviation market, by open-skies policy and by international standards for air transport services. To comply with these conditions and requirements, airlines and airports must invest huge funds in the reconstruction of aircraft fleet, as well as in capacity building and quality assurance. The government cannot afford such investments at the expense of the national budget, while the privatization of aviation industry facilities cannot address the need to develop this socially significant government program. Therefore, it is important to attract investments from other sources.

The implementation of public-private partnership mechanisms and concessions in the aviation industry of Ukraine will contribute to:

\(^{+}\) balancing the government’s efforts to implement a policy for protecting the customers and private business, which aim at maximizing the economic benefits of business commercialization;

\(^{+}\) eliminating anti-competitive practices and abuses of monopoly for airports with respect to airlines and customers;

\(^{+}\) preventing discrimination and ensuring transparency of pricing;

\(^{+}\) ensuring that the investments in the development of airport capacity are in line with the public interest in the context of increasing demand for transport services.

In the current conditions of the aviation market liberalization, the implementation of concession agreements in the air transport industry is the most promising and effective way of attracting investments in the development of state-owned property, especially, airports. For this reason, the attractiveness and openness of the tourism sector in Ukraine shall be strengthened in order to increase traffic of tourists, which will result in growing transport volumes, bring new transport corporations into the services market, and create many opportunities for attracting private sector investments. The government shall focus its efforts on regulating those entities that are directly involved in ensuring safety and transportation services (the road and river transport in Ukraine is almost 100% private; the railways, seaports, and motorways are wholly state-owned). The government shall regulate its tariff policy. The tariffs shall include the costs related to maintenance of roads, reduction in environmental pollution, settlement of losses from road accidents, etc. Finally, the government shall try to optimize the size of national airlines, which will strengthen their position in the airline market and enhance their competitiveness while transiting to the open-skies policy.

In general, the problems outlined above hinder the development of transport infrastructure, which in turn slows down the economic growth of the whole country. That is why the development of transport infrastructure remains a priority in the national economic reforms. After all, this particular industry unites all regions, corporations, and citizens of Ukraine into a state and integrates the Ukrainian economy into the world economy. It is important to find a “middle ground” between business autonomy and public control over the role of the private sector in the development of the transport sector in Ukraine. Adequate conditions shall be created to attract private sector investments in the transport infrastructure development and to focus the efforts on the use of appropriate regulatory tools for facilitating the financial involvement of the private sector. Successful transformation of the transport industry is impossible unless revising and harmonizing the relevant legislative framework. At the same time, the further research shall be focused on developing the theoretical basis for the future concession legislation as well as on adapting the state to the specific transport business conditions in Ukraine.
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СТРАТЕГІЧНІ НАПРЯМІ ФОРМУВАННЯ, РОЗВИТКУ ТА РОЗШИРЕНИЯ ТРАНСПОРТНОЇ ІНФРАСТРУКТУРИ В КУРІНІ

Вступ. Інфраструктура є однією з ключових конкурентних переваг України, проте проблема низької якості послуг наклала свій відбиток на кожному її елементі. Ситуація ускладнюється ще й недостатньою взаємодією між різними галузями в транспортному секторі, мізерними інвестиціями, застарілою системою регулювання та швидким фізичним погіршенням транспортної інфраструктури.

Проблематика. Аналіз конкурентоспроможності України показує, що транспортна інфраструктура є найбільш неефективною складовою загальної інфраструктури країни, а тому її розвиток сьогодні є актуальним питанням, особливо з огляду на викикли і невирішені проблеми, що постають перед ним сектором.

Мета. Аналіз формування умов для соціально-економічного зростання країни, підвищення конкурентоспроможності національної економіки через забезпечення якості транспортних послуг та розвитку транспортної інфраструктури.

Матеріали й методи. Вітчизняну й міжнародну нормативно-правову базу, наукові праці вітчизняних і зарубіжних вчених було досліджено загальнонауковими та спеціальними методами: аналізу та синтезу — при вивченні сучасного стану та розвитку транспортної інфраструктури в Україні, та абстрактно-логічним — при формуванні висновків.

Результати. Розроблено комплекс стратегічних напрямків розвитку транспортної інфраструктури. Виявлено проблеми, що перешкоджають ефективному розвитку транспортної галузі України. Окремо розглянуто механізми державно-приватного партнерства на основі концесійних угод як інструменту реалізації інвестиційних інтересів держави і обґрунтовано доцільність використання концесій у транспортній сфері.

Висновки. Розвиток транспортної інфраструктури залишається пріоритетним напрямом у національних економічних реформах. Зазначена галузь об’єднує всі регіони та підприємства України в єдину державу та інтегрує українську економіку у світове господарство. Важливо створити адекватні умови для залучення інвестицій приватного сектора у транспортну інфраструктуру, зосередити увагу на використанні належних регуляторних інструментів для полегшення фінансової участі приватного сектора.

Ключові слова: транспортна інфраструктура, транспортна галузь, концесія, державно-приватне партнерство.

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СТРАТЕГИЧЕСКИЕ НАПРАВЛЕНИЯ ФОРМИРОВАНИЯ, РАЗВИТИЯ И РАСШИРЕНИЕ ТРАНСПОРТНОЙ ИНФРАСТРУКТУРЫ В КУРІНІ

Введение. Инфраструктура является одним из ключевых конкурентных преимуществ регионов Украины. Однак проблема низкого качества услуг в Украине поставила свой отпечаток на каждом ее элементе. Ситуация еще осложняется и недостаточным взаимодействием между различными отраслями в транспортном секторе, незначительным поступлением инвестиций, устаревшей системой регулирования и быстрым физическим ухудшением транспортной инфраструктуры.

Проблематика. Анализ конкурентоспособности Украины показывает, что транспортная инфраструктура является наиболее неефективной составляющей общей инфраструктуры страны, поэтому ее развитие сегодня является актуальным вопросом, особенно учитывая вызовы и нерешенные проблемы, стоящие перед этим сектором.

Цель. Анализ формирования условий для социально-экономического развития страны, повышения конкурентоспособности национальной экономики путем обеспечения качества транспортных услуг и развития транспортной инфраструктуры.

Материалы и методы. Отечественная и международная нормативная база, научные труды отечественных и иностранных ученых были исследованы общенаучными и специальными методами: анализ и синтез — при изучении современного состояния и развития транспортной инфраструктуры в Украине, и абстрактно-логическим — при формировании выводов.
Результаты. Разработан комплекс стратегических направлений развития транспортной инфраструктуры. Выявлены проблемы, препятствующие эффективному развитию транспортной отрасли Украины. Определены направления использования механизма государственно-частного партнерства, базирующиеся на концессионных соглашениях как инструменте реализации инвестиционных интересов государства, а также обоснована целесообразность использования механизма концессии в транспортной отрасли Украины.

Выводы. Развитие транспортной инфраструктуры остается приоритетным направлением в национальных экономических реформах. Указанная отрасль объединяет все регионы и предприятия Украины в единое государство и интегрирует украинскую экономику в мировое хозяйство. Важно создать адекватные условия для привлечения инвестиций частного сектора в развитие транспортной инфраструктуры, сосредоточить внимание на использовании надлежащих регуляторных инструментов для облегчения финансового участия частного сектора.

Ключевые слова: транспортная инфраструктура, транспортная отрасль, концессия, государственно-частное партнерство.