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Drivers of Development of the Transport and Logistics System in Azerbaijan in the Context of World Experience

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Abstract: The article examines the drivers of the development of the transport logistics system in Azerbaijan within the context of global experience. The characteristics and development processes of the transport-logistics system in a group of world countries are analyzed. The constituent elements of efficient models of the transport-logistics system in developed countries are given. The development of the transport-logistics system in the European Union and economically developing countries, as well as the associated problems and their solutions, are discussed. The problems associated with the development of the transport-logistics system in Azerbaijan are explained in the context of advanced global experience. The transport and transit potential of the country, as well as the possibilities of international transport corridors, are assessed. The problems and prospects of creating transport and logistics infrastructure in post-conflict areas are discussed. Recommendations and proposals are made on the development directions of the transport-logistics system in Azerbaijan shortly.

Keywords: World experience, countries of the world, international transport and logistics system, Azerbaijan, transport and logistics system, transport and logistics potential.



Introduction

It should be noted that a single position on the disclosure of the essence of transport and logistics activities has not been developed, and conceptual and methodological foundations have not been formed to ensure its effectiveness. Large-scale research on the extent of transport and logistics activities is still being conducted, and efforts are being made to fully study the impact of various external and internal factors on its effectiveness (Əliyev, Ş.T., 2018). By studying these or other issues, it is possible to identify directions for increasing the efficiency of transport and logistics activities. The development of transport and logistics systems is one of the most important components of the global economy. Due to the digital transformation of the economy, the interaction of all its sectors is accelerating, which pushes the transport sector to constantly improve. This is due to the fact that the development of international and domestic markets has always been accompanied by the free movement of goods and resources. Countries that have established the most efficient transport and logistics systems will be able to compete in the international market. The above determines the relevance of this study and allows us to formulate its goal.

Transport and logistics activities in Azerbaijan are important in terms of the development of the non-oil and gas sector and its transformation into one of the main engines of economic progress. Improving the organization and development of transport and logistics activities in the areas of production, transportation, distribution and consumption of products contributes to achieving the country's economic well-being (Əliyev, Ş.T., 2018). The issues of organizing and improving transport and logistics activities are of great importance for any enterprise and the country as a whole. For modern enterprises operating in conditions of intense competition, it is important to improve their supply chains. Consumers' demands for services are increasing day by day, and in order to meet these consumer demands, countries and their companies must adopt progressive foreign experience in order to constantly develop transport and logistics activities and apply new technologies. Currently, the leading countries in the transport and logistics industry in the world are the USA, Germany, Italy, Great Britain, France, China and others. In the European Union, there is a tendency to unify logistics operators and integrate logistics centers into associations, including the global logistics system. A relatively new trend in the development of logistics in the European Union is the formation of a pan-European commodity distribution system, which involves the presence of several logistics hubs and regional logistics transport and distribution centers interacting with them.

Transport and logistics infrastructure has achieved the greatest development in Germany. Transport and logistics centers in this country were formed mainly on the basis of existing railway lines and hubs. Most of them are designed for the parallel use of road and rail transport. There are also three-module logistics centers in Germany. There are two types of logistics centers in Germany: private logistics centers and municipally owned logistics centers. 80% of all logistics centers in Germany are located near railways, they are objects of railway infrastructure. In addition, about 75% of logistics centers are connected to public transport, and 60% use combined transport in their activities. Large transport hubs in Germany, such as Bremen and Lübeck, have direct connections to water transport, and Hamburg - to water and air transport. Geographically located



in the center of Europe and having modern developed transport systems and an extensive airport network, Germany creates wide opportunities for interaction with international markets. Such advantages have allowed the country to take a leading position in the management of transport and logistics infrastructure and create an extensive network of logistics centers. German logistics centers are created on the basis of large ports, railway junctions. Most logistics centers operate by synchronizing the interaction of road and rail. Revenues from the activities of logistics centers in the German budget account for up to 25%. Optimization of the activities of transport and logistics centers allows reducing the costs of loading and unloading operations and storage of goods by 30%, transportation costs by 20%, and other costs related to logistics activities by up to 35% (Арифджанова, Н.З., 2022). Germany has a system of state regulation of logistics, which is developed on the basis of consultations between the country's authorities and business entities and based on their views on problems and development prospects. Business entities can develop in the direction they see fit, but must be based on clear guidelines developed by the government (Литовка, Н.В., Муравьев, В.Ю., Видовский Л.А., 2019). Thus, the German model of construction of transport and logistics centers is characterized by a number of features: strong state support at all levels; participation of the public sector based on federal and state laws; participation of the federal budget in financing investments; widespread use of targeted subsidies and lending of specific investment projects; provision of financial support for investments by federal states and local governments. The created logistics centers are managed through supervisory bodies organized by various companies participating in the project, which are investors and investment consortia, development companies, municipalities, associations and unions. The public sector is involved both at the planning stage and at the stage of implementation of investments in the development of logistics centers.

The practice of implementing transport and logistics projects in the United States differs significantly from the German model. The most important difference is the lack of a single federal law that would determine uniform approaches to the implementation of these projects. However, each country has a legal framework regulating the forms of cooperation between the state and private business in the field of development of transport and logistics infrastructure. Among the main areas where projects are implemented with the help of public-private cooperation, one can note transport infrastructure. The experience of Great Britain is interesting, where there is practically no legislative framework regulating relations between participants in transport and logistics projects (Крамков, В.А., Белякова, Е.В., 2019). The British model for the development of transport and logistics centers is associated with the construction of the Channel Tunnel and provided for the creation of 10 intermodal terminals and logistics centers to serve industrial zones. The initiator of their creation was Rail Freight Distribution, a subsidiary of British Railways. With the privatization of this company, the concept of the formation of transport and logistics centers in the UK changed, the basis of which was intermodal terminals and grant systems for freight transportation by rail. This contributed to the development of a special form of financing projects for the development of transport and logistics centers, within the framework of which there were two main budget financing schemes: grants for freight infrastructure facilities and for access to the



railway line. The first scheme for the allocation of budget funds made it possible to cover the costs of creating infrastructure facilities for the processing of railway cargo. With its help, the restoration of existing freight points was also carried out. The second scheme allows companies to pay for the use of railway infrastructure (Гламазда, А.В., 2021). In another European country, Italy, the geographical and economic feasibility of forming transport and logistics centers is determined by their proximity to the intersection of important national and trans-European land and sea routes, airports, and production centers. The first logistics center in Italy was established in 1971 (То́дья, В.А., Бельницкий, Д.С., 2020). Successful projects are being implemented in Italy to form a transport and logistics infrastructure, for example, one of the largest transport and logistics centers, located at the intersection of 5 railways and 4 highways, is the Bologna Logistics Center, established in 1971. This center manages more than 35% of domestic cargo flows and 16% of international cargo passing through the country. The Bologna Logistics Center is a large transport and logistics center, which includes about 100 national and international transport and logistics companies, as well as customs services, banking institutions, postal organizations and a group of other enterprises. In general, the transport and logistics infrastructure of Italy has undergone significant development as a result of the implementation of the national master plan for the development of transport in 1986. The main goal of creating a network of transport and logistics centers in Italy was to concentrate cargo flows, taking into account balanced transport solutions. Financing of projects for the development of transport and logistics centers in this country was carried out on the basis of public-private partnership principles.

In France, transport and logistics centers were formed as part of the project to improve the transport system of Paris. The French model of development of transport and logistics centers is characterized by the fact that its planning, development and management are carried out only by private investors who fully ensure the creation and operation of these infrastructure facilities. Currently, the largest investors in the French logistics infrastructure market are Garonor SA, owned by the American investment company ProLogis, and Sogaris SA, owned by the state and municipalities. The biggest drawback of this model of development of transport and logistics centers is the lack of coordinated centralized planning of projects for the development of international logistics centers, since the state participates in their implementation only by permitting their construction (Кузьменко, А.В., 2015). Nəqliyyat-logistika infrastrukturunun yaradılması və istismarında investorlara köməklik göstərən qeyri-hökumət təşkilatları var. Belçikada bütövlükdə 250-dən çox nəqliyyat-logistika sistemləri var və burada 20 mindən çox işçi çalışır (Ващи́ло, А.А., 2014).

Asian countries are currently leading the world in terms of economic growth rates, and according to forecasts by international organizations, their leadership is likely to remain in the future. The need to develop the transport and logistics system of China, one of the Asian countries, was selected as the main target model in the late 1970s. This was due to the expansion of the volume of foreign trade, which required transport and logistics services. The modern stage of the formation of China's transport and logistics system began in 2004 (Лысоченко, А.А., Ван, С., 2023). China's significant achievements are largely due to its active integration into the world



economy. On the modern world stage, China is one of the main centers of economic development, and logistics is recognized as the most promising industry here. Innovations in the field of logistics and distribution have begun to be actively used in China, which has led to the rapid growth of e-commerce. Many leading Chinese companies are introducing new approaches, creating new business models and processes that focus on developing innovative ways to attract consumers, changing the way consumers shop, pay and deliver (Цю, Х., 2021).

Countries with great resource potential, implementing a foreign economic policy aimed at expanding mutually beneficial cooperation with states on all continents of the world, are among the largest participants in world trade. The role of the transport system in the innovation of the country's economy is also great (Алиев Ш.Т., 2014). In addition, one of the important development determinants of the country's economy is the transport sector (Алиев Ш.Т., 2010). At the same time, the transport and logistics system performs important functions in the implementation of new economic mechanisms (Алиев Ш.Т., 2009).

In modern times, the main trend in the development and improvement of the transport and logistics system has become the spread of transport and logistics management, that is, all services for the fast and high-quality delivery of goods. The defining strategy for operating in global markets is the high speed of delivery, which indicates the growing role of transport and logistics activities, which are the main point of activity in developed societies (Федотенков, Д.Г., 2014). Options for increasing the efficiency of transport and logistics activities are aimed at combining supply and demand, reducing costs and increasing customer satisfaction. This dictates the requirements to reduce uncertainty in the transport and logistics system as much as possible, to ensure demand forecasting for all sections of this system. However, sometimes it is difficult to avoid uncertainty due to the characteristics of the product. Efficiency in the field of transport and logistics activities is an indicator of achieving the required quality level of logistics activities, expressed in optimal use of space, reduction of inventories, acceleration of capital turnover, reliability of supply, efficiency and flexibility of work (Əliyev, Ş.T., 2019).

In order to form a successful logistics strategy, the system for assessing the effectiveness of transport and logistics activities should be based on a set of complex conditions. One of the modern and popular methods for increasing the efficiency of the transport and logistics system is the use of a balanced scorecard, which turns the mission and long-term strategy of this system into a common goal. In particular, the role of the transport and logistics system in protecting the security of the country's economy is significantly higher (Алиев, Ш.Т., 2020). The transport and logistics system is one of the main performers of useful functions in the efficient use of existing resources in the country's economy and in increasing the efficiency of the economy (Aliyev Sh.T., 2014.). In this regard, there is a need for intensive application of digital mechanisms to improve the transport and logistics system and make it operate more efficiently (Mamedov, Z.F., Aliyev, Sh.T., Jafarova, N.A., 2020).

The set of indicators for assessing the efficiency of the transport and logistics system covers financial, material, labor, information flows, active use of green economy technologies and



economic security of the country in achieving its growth and sustainable development. There are no single, unambiguously recognized, specific methods for assessing the efficiency of transport and logistics activities. There is also no single integral indicator that provides a quantitative assessment of the efficiency of the transport and logistics system. The indicators used to characterize the efficiency of transport and logistics activities are multifaceted (Карпенко, Е.М., Карпенко В.М., 2020). A distinctive feature of the proposed mechanism for increasing the efficiency of transport and logistics activities is the presence of a control process and the inextricable connection and subordination of the mechanism to the process. Let us consider the features of the implementation of the proposed mechanism. Resources and products enter the logistics system, consisting of subsystems of the enterprise - production, transport, marketing, information, warehouse and supply subsystems. The proposed mechanism operates on the basis of a continuous flow of a number of interconnected management decisions in the field of logistics. To ensure this flow of decisions, an information system is needed that will ensure efficiency in the field of transport and logistics activities. The developed model provides for the movement of information flows both between transport and logistics subsystems and within the framework of the mechanism for making final management decisions.

The use of the mechanism for increasing efficiency, which is the basis for transport and logistics activities, will allow managing each subsystem of transport logistics by comparing the actual and standard values of indicators characterizing production, information, marketing, purchasing, warehouse and transport activities. Based on the results of monitoring the transport-logistics subsystem, existing resources for the efficiency of this activity will be determined and specific directions for their use will be formed, the implementation of which will ensure the economic efficiency of the enterprise as a whole. In order to increase the efficiency of transport-logistics activities, it is necessary to study international experience in this area and apply its effectiveness. In-depth study of advanced experience in the field of development of the transport-logistics system and the preparation and implementation of new related projects based on this requires the gradual intensification of relations with large transport-logistics companies (Hüseynova, M.S., 2020).

Increasing the efficiency of transport and logistics activities depends on the level of innovation implementation. The practical application of innovations in the field of transport and logistics becomes a powerful tool for increasing the competitiveness of enterprises and organizations, as well as increasing the competitiveness of the products they produce and the services they provide. The application of innovations in transport and logistics activities involves technical developments that help to facilitate the work of warehouses and transport enterprises and increase their profits (Зарипова, Р.С., Рочева, О.А., Хамидулина, Ф.Р., Арбузова, М.В., 2021). To increase the efficiency of transport and logistics activities, it is necessary to stimulate the development of logistics infrastructure by attracting finance from private investors, including commercial banks, non-bank credit organizations, etc. In order to accelerate the processes of creating a transport and



logistics system and increase the efficiency of their activities, it is necessary to create associations on a corporate basis with the participation of all interested parties.

For the efficient operation of transport and logistics systems and their development, it is also necessary to organize interaction with logistics programs and systems of various levels. A prerequisite for the efficient operation of transport and logistics systems is the development of an appropriate strategy, which, along with the constant increase in the volume and range of goods, should consist in expanding the functional capabilities of these systems using advanced logistics technologies and other services characteristic of the market (Hüseynova, M.S., 2021). Increasing the efficiency of transport and logistics activities depends on the level of its digitalization. Rapidly developing information technologies contribute to the digitalization of all elements of the transport and logistics system. The use of digital technologies creates broad opportunities for optimizing all transportation processes, including material, information, financial and transport operations. The introduction of technological innovations increases the competitiveness of transport and logistics systems, reduces their costs, and improves economic indicators. Today, large-scale digital transformation of transport and logistics processes is a strategic task of the country's transport industry.

Digital logistics based on the use of information technologies in the transport and logistics management system is becoming the main direction of modernization of the entire cargo transportation route, adhering to all logistics principles that contribute to the automation of the tasks of carriers. Transport and logistics companies have the opportunity to increase economic efficiency by improving the level of customer service, expanding the capabilities of marketing and analytical activities, technological construction of routes, and increasing labor productivity. The information system as a whole is capable of expanding the scope of transport and logistics services and improving their quality by strengthening competition among business entities. The application of digital information technologies contributes to the formation of transparency of transport and logistics networks and the availability of their comprehensive monitoring. The broad prospects for using information technologies to optimize costs for production needs, increase the economic efficiency of transport companies and increase their competitiveness currently contribute to the continuous growth of interest of enterprises in technological innovations. Countries that strive to become more competitive in the international market should strive to minimize the costs of customs clearance of goods, and, conversely, to speed up the process of transportation and customs clearance. In order to increase the efficiency of transport and logistics activities, customs clearance procedures should also be simplified to ensure compliance with various rules and fees. This can be achieved through the application of digital technologies (Alguliyev, R.M., Aliyev A.G., Aliyev Sh.T., Shahverdiyeva, R.O., 2014). Therefore, countries interested in increasing the competitiveness of transport and logistics services on a global scale should pay special attention to the development of digital infrastructure, including the application of information and communication technologies.



The use of information technologies allows not only to accurately track the delivery of goods, but also to transform the entire spectrum of transport and logistics services from the warehouse to the recipient of the goods. They allow delivering safe cargo in the shortest possible time and at optimal costs. It is also important to solve the problem of creating a digital information base for managing all transport and logistics systems, choosing the optimal delivery route using the most suitable means of transport, logistics intermediaries and cargo terminals. The creation of multimodal transport and logistics centers can become an important factor in the development of transport and logistics infrastructure, which allows optimizing the system of temporary storage, transportation, sorting, and providing information and legal support for commodity flows. Such centers can work with large volumes of goods, which stimulates the application of information technologies in transport and logistics activities. Any transport and logistics service plays an important role in increasing the efficiency of socio-economic relations between countries of the world, in the preparation and implementation of the regulation of cargo flows, and therefore, improving the transport and logistics system in accordance with international standards is also an important condition (Rəcəbli, İ.R., 2022).

It should be noted that in terms of the development of the transport and logistics system in Azerbaijan, transport projects implemented in post-conflict areas are of great importance. Currently, two large railway projects are being implemented, and one of them, the Barda-Agdam railway, has been put into operation. In the future, the Zangezur global transport corridor will form strategic functions in the economic integration of the Turkic states (Əliyev, Ş.T., 2023). At the same time, this transport corridor has extensive transit opportunities and will significantly increase freight transport between Europe and Asia (Əliyev, Ş.T., 2023). All of this can be seen as indicators of the fairly high importance of Azerbaijan's transport and logistics system at the global level.

Conclusions

Thus, in terms of directions for increasing the efficiency of transport and logistics activities, the following can be noted:

- determining the level of quality and effectiveness of decisions made to optimize transport and logistics systems and the criteria for this;
- assessing the efficiency indicators of transport and logistics activities;
- using a balanced scorecard that turns the mission and long-term strategy of the transport and logistics system into a common goal;
- improving the management system of transport and logistics activities;
- increasing the competitiveness of transport and logistics enterprises;
- strengthening and constantly improving the digitalization of transport and logistics activities, which will allow improving the quality of transport and logistics services, accelerating the circulation of electronic documents when carrying out logistics operations, etc.



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