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PROSPECTS FOR THE DEVELOPMENT OF DIGITAL TECHNOLOGIES IN RAILWAY TRANSPORT AND THEIR ROLE IN SHAPING NEW TRANSPORT CORRIDORS



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Annotation: This article highlights the importance of transportation infrastructure in the phased development of a country's economy, with a focus on the railway transport system. The article emphasizes the crucial role of the transportation sector in connecting different regions of the country and satisfying the transportation needs of the population. The article also discusses the prospects for the development of freight transportation along international transport corridors, which are recognized as a priority for future international relations. The article emphasizes the importance of digital technologies in ensuring high-quality reform of the economy and public life sectors. The article highlights the efforts by the government of Uzbekistan to adopt fundamental documents that lay the normative and legal foundation for further digital reforms. The article also emphasizes the importance of expanding transit corridors to provide access to prospective international markets for the Republic's exported products. The article highlights the increase in investment activity to ensure the sustainable functioning of the entire transportation system. Finally, the article discusses the tasks set to transform the organization and management system of transportation to meet the growing demand for transportation services from the economy and the population. The article further discusses the tasks set to transform the organization and management system of transportation in Uzbekistan. These tasks include improving the level of service, implementing modern information technology, developing the logistics system, and increasing the efficiency and competitiveness of transportation services. The article emphasizes the importance of implementing a comprehensive approach to the development of transportation, taking into account the integration of various modes of transport and the development of intermodal transportation. The article also highlights the need to increase the level of professionalism and qualifications of personnel in the transportation industry.

Keywords. Transport corridors, transportation, transit, logistics, efficiency, railway, international transportation.

Introduction

The phased development of a country's economy depends primarily on the level of infrastructure, and one of its most important elements is the transportation sector.

The social and economic development of a country, as well as satisfying the transportation needs of its population, depend on the state and quality of its railway transport. Additionally, the transportation sector plays a crucial role in connecting

different regions of the country. In modern times, the prospects for the development of freight transportation along international transport corridors are of utmost importance and are recognized as a priority for future international relations. The railway transport system, through effective micro and macroeconomics, creates the foundation for rapid economic development, increases export potential, integrates education and production, and raises the income and living standards of the population. Further development of the economy and its sectors is not possible without the widespread implementation of the digital economy and e-government. One of the priority tasks for the consistent social and economic development of Uzbekistan is the broad implementation of information and communication technologies (ICT) and digital technologies. Digital technologies are an effective tool capable of ensuring high-quality reform of the economy and public life sectors.

In the January address of President Sh. Mirziyoyev to the Parliament and people of Uzbekistan in 2020, great attention was given to the issues of digital development. It was in this year that the fundamental documents were adopted, which laid the normative and legal foundation for further digital reforms. On April 28, 2020, under No. PP-4699, the President of Uzbekistan adopted a resolution "On measures for the wide implementation of the digital economy and e-government." The President's decree of October 5, 2020, "On the approval of the Strategy "Digital Uzbekistan-2030" and measures for its effective implementation," was a logical continuation of the aforementioned efforts.

Analysis of literature on the topic

It should be noted that the modernization of the economy and the growing export potential of Uzbekistan require the expansion of transit corridors, which provide access to prospective international markets for the Republic's exported products. In this regard, given the strategic importance of the development of the transportation industry, great importance is attached to the development of transportation infrastructure on a national scale, taking into account its integration into the international transport system.

Investment activity has made it possible to ensure the sustainable functioning of the entire transportation system. The size of investments made from 2017 to 2020 increased 2.5 times, compared to 1.6 times from 2010 to 2016. The value of transport fixed assets during the same period increased by 2.0 times. [7].

To meet the growing demand for transportation services from the economy and the population, extensive work has been carried out to transform the organization and management system of transportation. In this regard, the following tasks were set [5]:

- the development of a unified state transportation policy aimed at the harmonious development of all modes of transportation;
- the development of transit corridors, improvement of logistics systems, efficient use of the country's transportation potential, and minimization of transportation and logistics costs for businesses;
- the digital transformation of the entire transportation system;
- ensuring the national interests of the Republic of Uzbekistan in the global market for transportation services through the development of international and regional cooperation. [7].

In order to improve the transportation and logistics potential of the Republic, an institutional framework and regulatory framework for the transportation sector have been created. The Ministry of Transport, established by the decree of the President of the Republic of Uzbekistan on February 1, 2019, is the state body responsible for managing the transportation system.

The "Strategy for the Development of the Transportation System of the Republic of Uzbekistan until 2035" envisages the following tasks:

- creating conditions for a sharp increase in the volume and quality of passenger and freight transportation;
- improving the management system of the transportation sector;
- introducing fundamentally new approaches to training and improving the qualifications of transportation system workers.

Analysis has shown that the implementation of qualitatively new approaches to the organization and management of transportation has led to a certain increase in freight and passenger traffic. Freight transportation by all modes of transportation increased by 6.1% in 2019 and amounted to 1.31 billion tons, while passenger transportation by all modes of transportation increased by 2.7%, amounting to 6.1 billion people. [2].

Research methodology

This article, as a scientific and theoretical basis, studies economic literature and scientific articles on the development of digital technologies in railway transport and their importance in the formation of new transport corridors, as well as scientific works of foreign and domestic economists on new transport corridors. In the study of the topic, comparative analysis of literature, logical and structural analysis, grouping and comparative comparison methods were used.

Analysis and results

In modern times, when uncertainty and risks are prevalent in society, the economy of Uzbekistan and its industries must work sustainably. This will lead to an increase in GDP, which is necessary to solve long-term strategic tasks of social development, modernization of the national economy, and the provision of services.

One of the main tasks of the digital transformation of the management system of the economy is the creation of a unified national interdepartmental information resource for operational analysis and short-term forecasting. Without this, it is impossible to develop the necessary toolkit that provides economic management specialists with all the necessary information about the situation, macroeconomic trends, and allows them to assess current and future risks and threats to sustainable development, identify the causes and causal relationships between indicators and factors of economic growth. [14].

In modern conditions, the sectors of the economy face the task of determining a long-term development strategy and carrying out reforms for consistent development in all directions. The goal of the development strategy of the Republic of Uzbekistan until 2035 is to include our country among the 50 economically developed countries in the world. In this regard, one of the main tasks is the development of the market and infrastructure of transport and logistics services, increasing the level of electrification of railway infrastructure to 60%, accelerated development of the network of highways and

expanding "green corridors" for external and transit opportunities in the transport sector, as well as increasing the volume of transit goods up to 15 million tons.

As a result, in 2019, the Ministry of Transport of the Republic of Uzbekistan [6] was established, and a Center for the Study of Transport and Logistics Development Issues [15] was also created under the Ministry. The digital platform "Warehouses and Logistics Centers of Uzbekistan" (www.skladi.uz) was created by the Logistics Association of Uzbekistan with the support of the Ministry of Transport of the Republic of Uzbekistan [1].

In the field of railway transport, the following measures are considered expedient: [15]

- gradual reduction of subsidies for passenger transportation at the expense of revenues from freight transportation and a transition to subsidies from the state budget, development of high-speed passenger traffic, improvement of the quality of services provided and construction of a double-track viaduct;
- active implementation of advanced information and communication technologies to provide services to cargo owners and passengers online based on public-private partnerships;
- improvement of the regulatory framework, continuation of work on harmonization of intergovernmental standards and work on the conformity assessment system in the field of railway transport and transport infrastructure objects;
- creation of transport research institutes, including training and retraining of personnel in scientific, design work, and digital technologies development. [7].

The main goal of the digital platform "Warehouses and Logistics Centers of Uzbekistan" is to meet the constantly growing demand for the services of Uzbekistan's warehouse and logistics centers from national and international trading and investment companies. The platform aims to improve the quality of work in the development of railway transport infrastructure, provide quality and convenient transport services in the tourism industry and to the population, implement modern information and communication technologies in the management of railway transport, ensure safety in passenger transportation, and review outdated norms in the development, construction, and operation of transport infrastructure objects.

Digital transformation (digital platforms) refers to a set of digital data, standards, methods, models, and tools that are integrated into a single automated functional system designed to manage the target area, its subjects, and the organization of interaction between them and with them. [14].

Improving the efficiency of transportation along international transport corridors is of great importance for the development of Uzbekistan's economy. The globalization of our republic's economy with international economic ties, affecting many sectors of the economy, creates a transportation system that has strategic significance and high importance in the country's economy.

Transport is considered a basic industry of Uzbekistan's economy, and its level of development and efficiency depends on the development and interaction of all industrial sectors. The process of implementing globalization of the republic's economy and developing external economic relations, improving the quality of transport services,

developing freight and passenger traffic, requires a new approach. Increasing the volume of product exports in the country requires a revision of the quality of all transport services provided on a national scale, indicating the need for it to comply with global standards. In this regard, the importance of exporting goods highlights the importance of exporting transport services, which is necessary for the country's strategic socio-economic development and further improvement of the use of the transit potential of the transportation system, etc. Railway transport constitutes the basis of the country's transportation complex and has significant economic, political, and security value, being tasked with transporting a large part of the freight traffic over long distances and meeting the needs of transportation in relation to foreign countries. Undoubtedly, over time, rail transport will become the most economically efficient way over long and medium distances. In transportation over medium distances, railway transport competes with automobile and maritime transport, and railway transport is considered more effective in transporting large-sized and heavy goods.

In modern conditions, the high level of growth in international transportation accelerates the impact of the transport factor on the efficiency of economic activity in international relations. The share of transport services in the cost of some goods in foreign trade exceeds 40% [9]. Therefore, the rational use of the country's transport system and the implementation of progressive, modern types of transport will lead to a reduction in transport costs, as well as the development and efficiency of foreign economic activity. Undoubtedly, the economic efficiency of services provided through transport corridors in foreign economic relations is determined by the choice of routes for foreign economic relations, types of transport, methods of transportation, and the development of international communication options. Since the export of goods is important for the strategic development of the country, it is necessary to expand the export of transport services, further improve the use of the transit potential of the transport system, etc. The increase in the efficiency of railway transport is determined by the modernization of the main production in the network, an increase in demand for railway transport, the results of structural reforms, and the efficient use of sections of international transport.

The definition of effectiveness requires an approach that takes into account the needs of customers, using flexible services and mechanisms that allow for cost savings during operation. Determining the efficiency of a particular transportation option is an important principle when choosing a primary carrier. In this case, it is important to consider the comprehensive delivery (on time, with a guarantee, quickly "door to door"), taking into account the level of transport safety and environmental friendliness, among other things, and not just comparing transportation costs. In modern conditions, international freight and passenger transportation and the transportation services market will function normally, strengthening the material and technical base of the transport industry, accelerating investment activity, conducting effective innovative policies, and strengthening the legislative, legal, and regulatory framework.

The formation of a competitive market for transportation services, centralization of management of the transportation process, differences in the level of development of technologies and capacities of individual transport complex enterprises determine the factors reducing the accuracy and soundness of operational decisions by market

participants. In these conditions, one of the approaches to eliminating problems existing in the processes of organizing and managing the transportation process is the creation of a unified information space (UIS) - an information environment of collective access.

It should be noted that the design of a unified information space for ensuring the transportation process should be based on the following principles: [9].

- The information completeness refers to the sufficiency of information for making decisions regarding the management of local business processes by the participant in the transportation process at the interaction points with other participants.

- The information relevance means that the information is accurate in the implemented part of the management decisions of the participants in the transportation process.

- The predictability component involves using statistical data to forecast the expected composition of the project or process in the transportation and logistics chain.

- The specificity component indicates that the system is designed to obtain information and manage individual types of material flows, rather than aggregated product categories.

- The response time component denotes that connecting to a single information system should enable transportation and logistics process participants to make decisions that reduce their costs.

- The integrity component means that the system operates with the mandatory provision of information about all participants and transportation business processes.

- The institutional component means that the regulatory framework for organizing transportation is aimed at mandatory cooperation of transportation process participants on the basis of a single information space.

- Finally, the security component indicates that the information presented in the Integrated Information System (IIS) about the business processes of a transportation and logistics chain participant cannot be used against that participant, except for the interests of the end consumer and the market. This means that the information is not confidential and is public for making effective management decisions by other market participants.

The main goal of the Unified Information Space is to make the transportation service market open and accessible to every user. The problem is that the transportation market currently does not have a centralized system for managing transportation services. It should be noted that the railway company uses its own information space, and only information that is considered unnecessary and irrelevant at the moment is made available to the public. Such an approach to the transportation market is unfair, as it should be open to all participants. In this case, the integrity of the information system is assumed, which is integrated into a single information space of the transportation market in the form of separate modules.

Thus, the digital economy and the digitalization of the transportation complex are currently part of modern business processes and demonstrate their effectiveness in practice. The digitalization of the logistics industry is primarily a question of competitiveness for both individual companies and entire industries in the global market.

It should be noted that logistics is becoming one of the priority technologies that can ensure transparency and security of all related processes - blockchain. Blockchain is the name of a distributed database that represents a sequentially linked chain of blocks built according to certain rules, each containing some information. Each block contains a timestamp and a reference to the previous block. Such a block is called a distributed ledger, given the fact that there is no centralized authority that could control such a chain of blocks at its discretion.

Blockchain technology can be successfully applied in logistics for railway transportation, as logistics supply chains consist of multiple stages. All shipments are accompanied by documents such as invoices, contracts, certificates, customs declarations, and others, which require a lot of time and resources to fill out.

When implementing blockchain technology in the supply chains of railway transportation, the situation becomes as follows:

- Each participant in the supply chain has access to tracking all operations with the goods.
- Events and accompanying documents are tracked in real-time.
- No participant can add, modify, or delete records without the consent of the other participants.

Thus, transparency is achieved, work is accelerated and simplified, and the possibility of obtaining reliable and useful information arises. From the perspective of the transportation industry, the digital environment should provide integration into the global digital transportation system, transition to electronic paperless document management using the best international and domestic standards and practices, and ensure maximum utilization of transportation infrastructure. One of the main tasks in the conditions of digital transformation in rail transport is to ensure equal access of all clients and partners to the railway infrastructure to meet the needs of clients for quality transportation of goods and provision of services. Since the railway infrastructure is distributed and clients and partners of JSC "UTY" are located in different regions, timely and efficient information transmission is essential. The existing means of information transmission do not guarantee completeness, reliability, and timeliness of information receipt by clients. For this reason, the use of modern information technologies is becoming significant. Foreign practice shows that these issues are solved through electronic trading platforms. The use of this system contributes to increasing the volume of transportation and reducing the costs of organizing the transportation process.

Conclusion and suggestions

To ensure the efficient operation of freight transportation on the railway, the following measures need to be implemented:

- Gradual exclusion of organizations not related to transport activities, providing emergency recovery work, and belonging to the potentially competitive sector to reduce the company's workload and concentrate material and financial resources on the main type of activity - transportation.

Development and implementation of a new regulatory methodology for organizing train flows is necessary to accelerate delivery times of goods to the landfill of the Republic, to increase the attractiveness and comfort of railway transport. In order to increase the

competitiveness of domestic corridors and redirect transit goods from alternative to domestic railways, it is necessary to establish railway communication through Afghanistan with Pakistan, as well as through Kyrgyzstan with China, and to create logistics clusters at Galaba station (Uzbekistan) and Peshawar station (Pakistan), Kashgar (China) and Andijan (Uzbekistan) for organizing intermodal transportation (by rail and road transport), which will attract interest in cargo transportation in this direction from both shippers and transport companies of Afghanistan and Kyrgyzstan. Implementation of the proposed measures will contribute to the formation of a world trade zone at the intersection of Uzbekistan's transit corridors, stimulate the development of all modes of transport, and create conditions for redirecting major world trade markets to Central Asia, with the implementation of a balanced, mutually beneficial, constructive foreign policy, increasing the republic's transport and transit potential, and creating favorable conditions for foreign trade. This, in turn, opens up opportunities to integrate into the global community and develop cooperation within the transport business. The use of electronic trading platforms provides an opportunity to provide customers with reliable information, create new channels for the sale of transport services and accelerate financial reporting, leading to a reduction in manual labor of workers, a maximum increase in the share of electronic document circulation between customers and UTJSC, an increase in the share of sales volume and the share of railway transportation in the market of transport services.

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