МЕНЕДЖМЕНТ

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MECHANISMS OF PROJECT MANAGEMENT OF DIGITAL TRANSFORMATION OF INTERNATIONAL MULTIMODAL TRANSPORT

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Summary

Introduction. *The use of digital transformation mechanisms in international multimodal transportation plays an important role in ensuring the development of a sustainable economy. The widespread use of digital processes in international transport operations, which have become an integral part of our daily lives and economic activities and are becoming increasingly important during the global pandemic, plays an invaluable role in improving efficiency in this sphere and organizing transport procedures that meet modern requirements. Given the important role of customs and border crossing procedures in the international transport chain, the application of digital mechanisms in the customs system is essential.* ***Purpose.*** *The purpose of the study: to develop a mechanism for managing digitalization projects of the international system of multimodal transportation based on the concept of sustainable development.* ***Results.*** *The results of the study are as follows. During the study, it was found that the full digitalization of efficient, safe and fast multimodal transportation requires, first of all, the use of electronic technologies and electronic documents by all parties involved in the transportation process. Problems that hinder the effective implementation of digital transformation projects in international multimodal transportation were identified. Such shortcomings include the fact that international transport documentation for some modes of transport is partially electronic, transport documents required for customs control in multimodal operations with various modes of transport are submitted in paper format.* ***Conclusions.*** *Despite the fact that customs declarations are electronic, the use of paper transport documents makes it impossible to fully use electronic accompanying documents in customs clearance. Given the above information, it can be concluded that it is important to introduce digitalization projects in the transport industry by organizing the process of electronicization of waybills and exchanging*

them with electronic information systems of customs authorities to unite the competent transport authorities and participants in the cargo delivery system into an integrated digital system for providing multimodal transportation.

Key words: *digitalization project, multimodal transportation, electronic customs declaration.*

МЕХАНІЗМИ УПРАВЛІННЯ ПРОЕКТАМИ ЦИФРОВОЇ ТРАНСФОРМАЦІЇ МІЖНАРОДНИХ МУЛЬТИМОДАЛЬНИХ ПЕРЕВЕЗЕНЬ

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Анотація

Вступ. *Використання механізмів цифрової трансформації стосовно міжнародних мультимодальних перевезень має особливе значення для забезпечення стійкої економіки. Широке використання цифрових процесів у міжнародних транспортних операціях, які стали невід'ємною частиною нашого повсякденного життя та економічної діяльності та набувають все більшого значення під час глобальної пандемії, відіграє неоціненну роль у підвищенні ефективності в цій галузі та організації транспортних процедур, що відповідають сучасним вимогам. Враховуючи важливу роль митних процедур у міжнародному ланцюзі перевезень, застосування цифрових механізмів у митній системі має важливе значення.* ***Мета.*** *Розробка механізму управління проектами цифровізації міжнародної системи мультимодальних перевезень з урахуванням концепції сталого розвитку.* ***Результати дослідження.*** *Було встановлено, що повна цифровізація ефективних, безпечних та швидких мультимодальних перевезень потребує насамперед використання електронних технологій та електронних документів усіма сторонами, які беруть участь у процесі перевезення. Було виявлено проблеми, які заважають ефективному впровадженню проектів цифрової трансформації у міжнародних мультимодальних перевезеннях. До недоліків відноситься той факт, що міжнародна транспортна документація для деяких видів транспорту частково електронна, транспортні документи, необхідні для митного контролю при мультимодальних операціях з різними видами транспорту, подаються у паперовому форматі.* ***Висновки.*** *Незважаючи на те, що митні декларації є електронними, використання паперових транспортних документів унеможливлює повне застосування електронних супровідних документів при митному оформленні. Доведена важливість впровадження проектів цифровізації у транспортній галузі шляхом організації процесу електронізації транспортних накладних та здійснення їх обміну з електронними інформаційними системами митних органів для об'єднання компетентних транспортних органів та учасників системи доставки вантажів до інтегрованої цифрової системи забезпечення мультимодальних перевезень.*

Ключові слова: *проект цифровізації, мультимодальні перевезення, електронне митне декларування.*

Introduction. The development of technological innovations has identified digital transformation as the most important sector of the national economy. Digitalization has become a necessary condition for effective cooperation between countries in the formation of a transport and technological system for the delivery of goods. In recent years, many countries in North and Central Asia have embarked on activities to capitalize on the growing potential of digital transformation and have helped establish strong research and development sectors as digital development hubs in the subregion. Meanwhile, there are still certain gaps in areas such as infrastructure development, digital literacy and technological competitiveness that limit the ability to realize their digital potential [1].

Given the Republic of Azerbaijan's location as an important connectivity crossroads, it plays an essential role as a transport hub for improving regional inter-connectivity and the movement of goods and services. Based on this factor, the Government of Azerbaijan has continued the implementation of a number of improvements concerning cross-border trade facilitation [2].

Formulation of the problem. The use of digitalization mechanisms in various sectors of the economy can be traced within the framework of state policy, as well as private business initiatives in the countries of North and Central Asia. However, the introduction of new technologies has its drawbacks, which relate to the emerging problems of digital literacy, the development of infrastructure projects and ensuring the technological competitiveness of ongoing digitalization projects.

Analysis of recent research and publications. Digital technologies, including artificial intelligence and big data, are general-purpose technologies that have a range of characteristics and are particularly well suited to deliver longer-term productivity gains and economic growth across a wide range of industries" [1; 3]. The combination of technological advances, from advances in digital technologies to the creation of new materials and biotechnologies, opens up new opportunities for socio-economic growth and industrial development. Thanks to researchers and practitioners, the results of the application of new technologies have received names such as Industrialization 4.0, the Next Production Revolution, the Third Wave or Smart Manufacturing. Combined with other global trends such as resource depletion and global warming, technological advances will change the nature of industrial production, with a huge impact on productivity, employment opportunities and the well-being of society. The next production revolution opens up a variety of opportunities for economic development through the optimization of processes and the use of resources, the mass individualization of products and services, the automation of industrial production and human-machine interaction [1; 4].

Unlike the linear model of innovation, when the costs of innovation are gradually transformed into the results of innovation, in the digital economy, various types of innovation develop in parallel to each other and are characterized by continuous improvements due to feedback from consumers. While in traditional sectors of the economy, economic value is created within the enterprise, in the digital economy, value is created outside the enterprise at the time of interaction between partners, shippers and customers [1].

Advanced predictive models and machine learning technologies can predict a failure before it occurs, thereby contributing to significant efficiency and value creation when

failure is prevented. The proliferation of smart and connected devices, as well as the improvement of algorithms, are making a significant difference in how the enterprise operates. Manufacturing enterprises are increasingly engaged in the development of additional digital services that would increase the functionality of their products and create new revenue streams [1; 5; 6]. The mechanisms for implementing digitalization projects for the control system for the delivery of goods in international transportation are considered in [7; 8].

Formulation of the purpose of the article. The purpose of the article is to develop a mechanism for managing digitalization projects of the international system of multimodal transportation, taking into account the concept of sustainable development.

Main material of the research. By research the state of digital technologies, it is possible to identify those industries that are more in need of a transition to digital technologies. These industries include the following: the financial sector; e-commerce; cargo delivery system; agro-industrial complex.

To implement digitalization projects, a clear concept for the development of the digital economy should be developed at the state level, taking into account the introduction of regulatory mechanisms for verifying the effectiveness of proposed solutions related to digital technologies.

These actions involve an increase in spending on research at universities, research institutes, as well as the redistribution of funds for the introduction of new technologies and innovations. The proposed activities will improve communication within government institutions and strengthen cooperation in the development of digital infrastructure.

These efforts to realize the digital potential in North and Central Asia will accelerate the achievement of the Sustainable Development Goals for the adoption of measures aimed at the optimal use of limited resources and the use of environmentally friendly technologies, maintaining stability and ensuring the integrity of functioning systems [9].

As you know, the application of digital transformation mechanisms in relation to international multimodal transportation is of particular importance for ensuring a sustainable economy. The widespread use of digital processes in international transport operations, which have become an integral part of our daily lives and economic activities and are becoming increasingly important during the global pandemic, plays an invaluable role in improving efficiency in this sphere and organizing modern transport procedures. Given the important role of customs and border crossing procedures in the international transport chain, the application of digital mechanisms in the customs system is essential.

It should be noted that the customs system of Azerbaijan uses electronic customs operations and customs declaration, and customs clearance of documents is carried out on the basis of paperless technologies. Since 2016, all customs declarations have been submitted to the customs authorities only in electronic form. In addition, the expansion of the use of electronic systems in customs procedures used in international transport is a priority for the state. Thus, since 2019, a short import declaration has been used to ensure the preliminary electronic declaration of goods imported into the country (Figure 1).

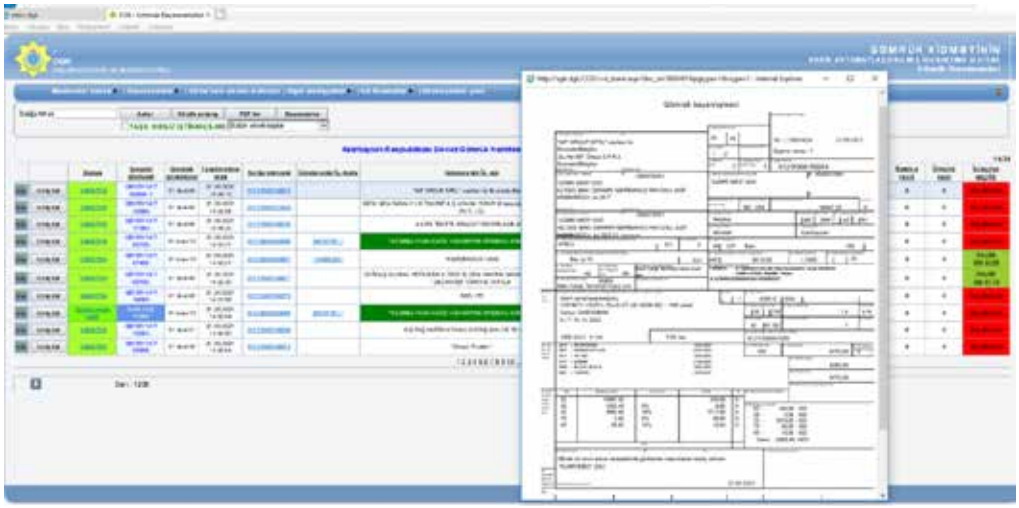

Fig. 1. Electronic declaration system

The electronic declaration system includes: filing a declaration in electronic form with an enhanced electronic signature; use of Internet technologies for the provision of electronic services; the ability to receive and automatically process information in 24/7 format; possibility of integration with other systems; reduction of paperwork.

The measures that contributed to the Republic of Azerbaijan's scores in Paperless Trade Facilitation category (Figure 2, Figure 3) include the Automated Customs System, Electronic Single Window System, electronic submission of Customs declarations, electronic application and issuance of Preferential Certificates of Origin, and e- payment of customs duties and fees – all of which the Republic of Azerbaijan has now changed to "fully implemented" status.

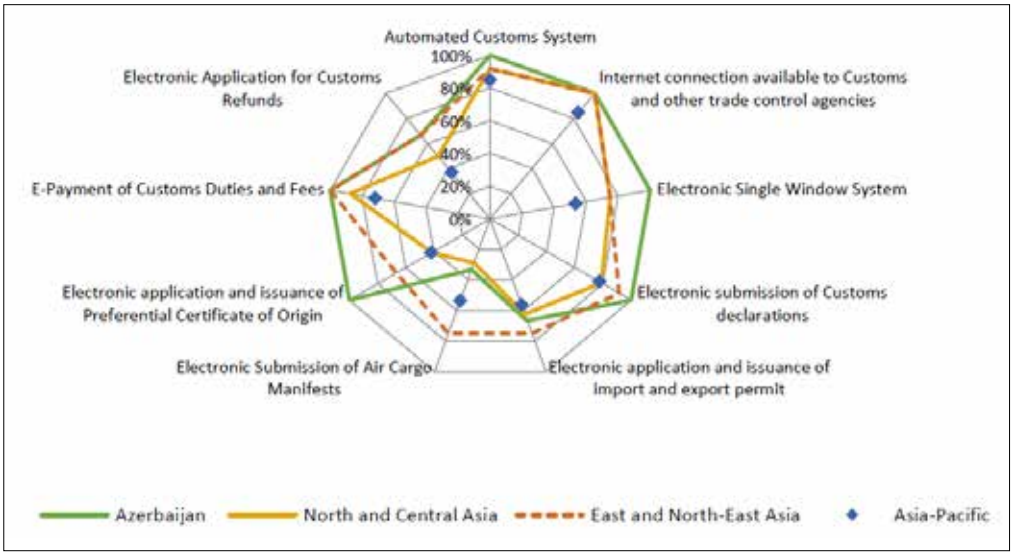

Fig. 2. Azerbaijan implementation of paperless trade measures [10]

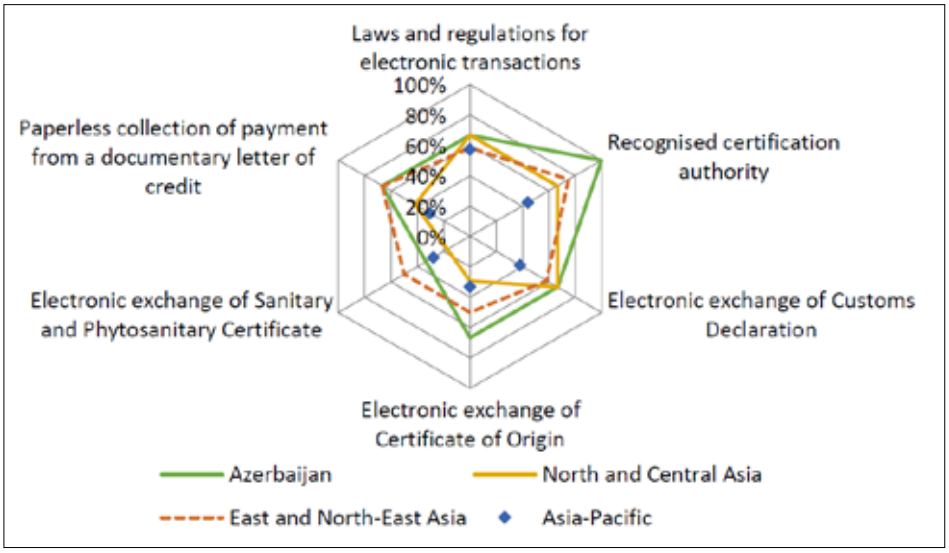

Fig. 3. Azerbaijan implementation of cross-border paperless trade measures [10]

Transformation to a digital economy and the introduction of paperless solutions aimed at facilitating the trade operations are among the priority issues for the Republic of Azerbaijan. In recent years the Government has taken significant steps towards developing the national digital policy that facilitates trade, simplifies non-tariff barriers.

Currently, State Customs Committee is assigned to perform necessary measures to implement the cross-border paperless trade. In this context, it coordinates the Electronic Customs Project (e-Customs), which is one of the components of the "Electronic Azerbaijan" (e-Azerbaijan) initiative. The e-Customs project based on the legal and regulatory documents created within the framework of "e-Azerbaijan". Therefore, the completion of the e-Customs project is closely related to the implementation of "e-Azerbaijan". SCC activities mainly comprise the following areas [2]:

− Development of Unified Automated Management System of the State Customs Committee on the basis of modern technologies and ensuring security of the system;

− Enhancement of the corporate Web Portal by increasing the number of customs e-services;

− The further development of the customs Single Window via a new e-Window project by increasing the inter-linkages with other government agencies, permit issuing agencies and the private sector;

− Developing Smart Customs solutions for providing customs services via a single mobile platform;

− Further development and digitalization of the national transit system by further development of the existing systems (TIR), and integration to the New Computerized Transit System of EU and other initiatives.

The Republic of Azerbaijan due to its advantageous geographical position is a transit country, without access to the sea. In this regard, the development of transit potential is one of the main indicators of economic stability. Goods and vehicles transiting through the territory of our country are placed under special customs procedures for internal or international transit in accordance with the Customs Code of the Republic of Azerbaijan.

The volume of transit traffic through Azerbaijan is shown in Table 1.

Table 1

Statistics of transit traffic for 2021 (tons) [11]

Type of transport	Transportation volume, tons
Automobile	1 702 212,18
Railway	3 950 189,23
Maritime	253 879,68
Air	294 228,62
Stationary	3 122 655,53

In general, road and rail transport play an important role in the transit of goods across the country's borders.

The development of transit potential is one of the main indicators of economic stability (Figure 4).

Fig. 4. Transport corridors

Considering the Republic of Azerbaijan's location at the crossroads of the East-West and North-South international transport corridors connecting Europe and Asia, the development of international transport corridors passing through the country is of particular importance. The sustainable development of the transit sector accelerated the integration into the global and economic environment. Plus, the development of transport links which are the main means of integrative processes, have become one of the main priorities of the economic policy of the Republic of the Republic of Azerbaijan.

The North-South Transport Corridor is designed to provide transport links between the Baltic States and India through Iran. International transport corridor "East – West", passing through the Euro-Asian continent, the advantages of this transport corridor are the stimulation of trade between the EU and Asia. The Baku-Tbilisi-Kars (BTK) railway – implemented with special efforts by Azerbaijan, Turkey and Georgia, connected the Trans-Europe-Asia railway networks. Transport Corridor Europe-Caucasus-Asia (TRACEKA) ensured the development of a transport corridor from Europe to the countries of Central Asia through the Black Sea, the Caucasus and the Caspian Sea.

The geographical location of the country on the TRACECA, North-South, CAREC, Lapis Lazuli transport corridors creates favorable conditions for the development of the country's transit potential. By joining these corridors, the country has ensured the flow of goods in different directions.

In 2019, the TIR Electronic Pre-Declaration System (TIR EPD) was introduced. Electronic pre-declaration mechanisms enable faster border crossings in international traffic through the use of risk-based customs control methods. It allows transport operators to send advance information on goods transported under the TIR procedure to customs authorities in every country along the TIR journey in one go.

Moreover, a pilot eTIR project on international transport under the TIR Convention has been implemented, and the technical harmonization of the customs system with the newly established eTIR international system, supported by the UN Economic Commission is progressing well. In the future, as the number of countries willing to implement the eTIR procedure increases, it will be possible to create a multimodal eTIR corridor through the territory of Azerbaijan.

The use of alternative digital transit systems that promote the development of international trade is one of the priority issues in the implementation of projects for the digitalization of international multimodal transportation. Thus, within the framework of the Central Asian Regional Economic Cooperation (CAREC) program, work was done on the Advanced Transit System (CATS) project between Azerbaijan, Georgia and Kazakhstan, and a draft agreement and software specifications were prepared.

In addition, the European Union-supported Twinning project to join the European New Computerized Transit System (NCTS) provides for significant reforms in legislation, electronicization and procedures in order to coordinate the country's transit system with this system.

The customs Single Window system is an integral part of the customs Unified Automated Management System (UAMS), under which all data exchanges are carried out nationally and with foreign partners. UAMS is a nationwide system that is operational at all ports and for all methods of transportation and Single Window functions such as

the national Single Window, which acts as the national single point of connectivity for the private sector for any cross-border operations.

UAMS is the central point through which the required import-export and transit declarations are processed electronically. Shipment data are processed immediately, and errors are detected and corrected at the time of filing. SCC is also working on the establishment of data exchange with Kazakhstan and several other countries was designed to ensure compliance with legislation and enforcement activities, improve trade statistics, eliminate duplicate actions in-border operations, improve customer service etc [2].

Customs are working on further extension of the customs Single Window and will launch a new Electronic Window (e-Window) project by increasing the inter-linkages with other Government Agencies and Permit Issuing Agencies and the private sector; the customs "e-Window" system will be a single electronic entry point between entrepreneurs and government agencies and will allow all trade operations to be carried out in an electronic environment that will minimize time and cost. The Electronic Window (e-window) system will concentrate all trade chain operations and will ensure fast track, customs clearance, pre-arrival data transmission, real-time issuance of permits and other documents, online payment processing etc. The State Customs Committee intends to create a single web application and bring together the responsibilities and functions of each relevant state agency involved in foreign trade operations. This will create opportunities to respond immediately to inquiries addressed by the system to them, and effective coordination environment between state bodies.

Conclusions. During the study, it was found that the full digitalization of efficient, safe and fast multimodal transportation requires, first of all, the use of electronic technologies and electronic documents by all parties involved in the transportation process.

Problems that hinder the effective implementation of digital transformation projects in international multimodal transportation were identified. Such shortcomings include the fact that international transport documentation for some modes of transport is partially electronic, transport documents required for customs control in multimodal operations with various modes of transport are submitted in paper format. Despite the fact that customs declarations are electronic, the use of paper transport documents makes it impossible to fully use electronic accompanying documents in customs clearance. Given the above information, it can be concluded that it is important to introduce digitalization projects in the transport industry by organizing the process of electronicization of waybills and exchanging them with electronic information systems of the customs authorities to unite the competent transport authorities and participants in the cargo delivery system into an integrated digital system for providing multimodal transportation.

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