

**ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ БІЛІМ ЖӘНЕ ҒЫЛЫМ
МИНИСТРЛІГІ МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ
РЕСПУБЛИКИ КАЗАХСТАН**



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ЕВРАЗИЙСКИЙ НАЦИОНАЛЬНЫЙ УНИВЕРСИТЕТ ИМ. Л. Н.
ГУМИЛЕВА**

**"ТӘУЕЛСІЗ ҚАЗАҚСТАННЫҢ ӘЛЕУМЕТТІК-ЭКОНОМИКАЛЫҚ
ДАМУЫ: ШЫНДЫҒЫ МЕН БОЛАШАҒЫ"
атты халықаралық ғылыми-тәжірибелік конференциясының
ЕҢБЕКТЕР ЖИНАҒЫ**

**СБОРНИК ТРУДОВ
международной научно-практической конференции
"СОЦИАЛЬНО-ЭКОНОМИЧЕСКОЕ РАЗВИТИЕ НЕЗАВИСИМОГО
КАЗАХСТАНА: РЕАЛИИ И ПЕРСПЕКТИВЫ"**



**9 желтоқсан, 2021
Нұр – Сұлтан**

ӘОЖ 338.2 (574) (075.8)

ҚБЖ 65.9 (5Қаз) я73

T29

Редакция алқасы

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ISBN 978-601-337-610-3

T29 "Тәуелсіз Қазақстанның әлеуметтік-экономикалық дамуы: шындығы мен болашағы" атты халықаралық ғылыми-тәжірибелік конференциясының еңбектер жинағы. –Нұр-Сұлтан: Л.Н.Гумилев атындағы ЕҰУ, 2021. – 361 б.

Сборник трудов международной научно-практической конференции "Социально-экономическое развитие независимого Казахстана: реалии и перспективы". – Нур-Султан: ЕНУ им.Л.Н.Гумилева, 2021. – 361 с.

Works of the International scientific - practical conference "Socio-economic development of independent Kazakhstan: realities and prospects". - Nur-Sultan: L.N. Gumilyov Eurasian National University, 2021. – 361 p.

ӘОЖ 338.2 (574) (075.8)

ҚБЖ 65.9 (5Қаз) я73

ISBN 978-601-337-610-3

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THE BENEFITS OF DIGITAL LOGISTICS

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As today's economy faces a fourth industrial revolution (Industry 4.0), information and communication technology (ICT) and the extensive automation of production and business processes play a very important and key role in increasing productivity and competitiveness.

In this paper the logistics industry will be the object of the study, as this industry and the state economy are interdependent and mutually supportive of each other. A rapidly growing regional economic level can provide a good platform for the development of the logistics industry in the region and play a huge role in promoting industries directly related to logistics supply chains. In addition, the development of the logistics industry contributes to sustainable economic growth and the transformation of the industrial structure as well as the competitiveness of the country [1].

Information systems are an integral part of logistics chains in terms of planning, management and organization of transport. The application of new information technology provides accurate, automated, reliable and integrated information.

Since 2009, the International Telecommunication Union (ITU) has published an annual report, Measuring the Information Society, which is an ICT development index that assesses ICT infrastructure and skills development outcomes across countries, and an ICT price basket that tracks and compares the cost and availability of ICT services. In 2016, according to this report, Kazakhstan ranked 16th among other countries. A year later, in order to increase digitalization in the country, the state programme "Digital Kazakhstan" was adopted in 2017, where one of the objectives is the digitalization of transport and logistics [2].

In order to achieve maximum effect from the development of communications network infrastructure, it is necessary to develop transport connectivity of the territory both by developing all types of transport connections and making them cheaper, and by developing freight forwarding and delivery infrastructure. Currently, Kazakhstan has a highly developed railway network, but an underdeveloped road network and excessively expensive air transportation. Multimodal transcontinental freight transport between Europe and Asia is developing, but there is still great potential for growth here as well. There is also a small volume of maritime and river transport, but which has undiscovered growth potential. The problems of the industry lie in the following:

- 1) low control of import and transit cargo;
- 2) underdeveloped logistics infrastructure;
- 3) lack of monitoring of all actors in the logistics chain;
- 4) lack of sufficient data for analysis of all types of transport and for decision making.

These problems not only result in the non-use of transit potential, but also create barriers to the development of domestic production.

Digitalization of the transport sector is aimed at an intelligent transport system and multimodal transport. To date, Kazakhstan actively uses the intelligent system ASTANA - 1 (IS ASTANA - 1) [3], which allows electronic declaration of goods using electronic document flow and is integrated with JSC NC Kazakhstan Temir Zholy, IRU (International Road Transport Union), the state database "E-licensing", IS "Marking", IS "Electronic invoices", with the countries of the Eurasian Economic Union to control customs transit and confirmation of the actual departure of exported goods.

According to the GDC report of the Ministry of Finance, the use of is Astana - 1 has led to the following results:

- 1) Financial costs for traders in declaring goods have been reduced;
- 2) Corruption has been reduced, as the people 2 people model for traders and customs authorities has been minimized;
- 3) The time for clearance of goods and transport has been significantly reduced;
- 4) Tracking of goods from importation to final sale;
- 5) Format and logistics control over all electronic documents;
- 6) Easy access to statistical and analytical reports.

One of the latest innovations in information systems is the eTIR system, which aims to computerize international customs transit procedures, increasing the security and efficiency of the TIR system. In 2020, for the first time, the International Road Transport Union, supported by German Agency for International Cooperation, Customs authorities and IRU members in Kazakhstan and Uzbekistan (KAZATO and AIRCUZ respectively) organised a pilot delivery of goods using the eTIR system [4]. Using eTIR will help reduce paperwork and simplify as well as speed up customs controls. Moreover, customs officers have easier access to all shipping data, which will reduce the workload.

In addition to the eTIR system, Kazakhstan signed its first public-private partnership project on transport digitalization in 2018, more specifically, the "Implementation and adaptation of the e-freight information system". efreight replaces the familiar paper documents used by the air cargo industry for decades with standardized electronic messages and regulated data exchange and, in the long term, optimizes the air cargo industry with all partners along the transport chain. eFreight saves up to 50% of the time of documentation process, thus contributing to environmental protection, as digitalization reduces paperwork.

Moreover, a system of toll collection on national highways has been introduced. The Astana - Shchuchinsk highway alone adds 1.5 billion tenge to the budget annually. This money is used for road maintenance or introduction of automated measuring tools.

With regard to multimodal transport, it is necessary to introduce automation of freight transport processes by all modes of transport. Current developments in digitalization involve a number of new emerging technologies, such as cloud technologies, wireless communication technologies, the Internet of Things (IoT) [5], emerging web technologies, social media, interface technology development (augmented reality, etc.), big data technologies, blockchains, cooperative and

intelligent transportation systems, connected and autonomous mobility, integration and artificial intelligence and others.

For multimodal transportation, the use of Big Data means more secure supply chains. This is especially important for small and medium-sized companies. They will have faster, more transparent and more personalized access to information about their shipments. They will be able to adjust parameters such as cargo condition or temperature and loading time, streamline customs procedures, contracts and receipts, and reduce human error. Industry 4.0 involves increasing the flow of data beyond a single company.

Blockchain is a completely new system in which foreign governments are investing billions of dollars and euros. Blockchain in logistics links all participants in logistics chains into one system, thereby increasing reliability and transparency. Blockchain technology includes mechanisms to ensure the accuracy of stored records, protect them from unauthorized access, and retrieve them from a verifiable source. So instead of multiple supply chain parties storing or modifying copies of their own datasets, each participant of supply chain will have controlled access to a common dataset, creating a single source of information. This gives reassurance to everyone working with that data that they are using the most up-to-date, accurate and reliable data. And manual processes, which are usually managed by legal contracts, can be automated by a self-executing computer program called a smart contract. One example of companies that have already begun exploring blockchain technology for supply chain optimization, and of those that have successfully implemented the technology in supply chains, are TradeLens (a joint project between Danish shipping company Maersk and IT giant IBM), IBM Food, Yojee, Everledger and others.

Thus, we can conclude that in the international arena Kazakhstan lags far behind other states in terms of competitiveness and technological development. Nevertheless, it should be pointed out that Kazakhstan funds and approves projects for digitalization and innovation. However, in practice, the results require improvement. It is necessary to pay attention to foreign experience, the application of blockchains in the logistics sphere may become a big step towards the development of logistics and the economy as a whole.

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TRENDS IN MODERN ECONOMIC DEVELOPMENT OF DIGITALIZATION AND ITS IMPACT OF THE LIFE OF SOCIETY

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In recent decades, the world has been rapidly developing towards a new type of economy, where digital technologies are becoming the main tool for its formation. The expansion of the role of information technologies in the work of the private and public sectors is the basis for the transition to a digital State.

The main goal of the state program "Digital Kazakhstan" is to increase the competitiveness and quality of life of the economy of Kazakhstan through the progressive development of the digital ecosystem. In terms of the current level of digitalization, Kazakhstan is also a catch-up country in the e-intensity rating of the international consulting company The Boston Consulting Group. In order to overcome the status of catch-up, the program requires the presence of revolutionary, breakthrough measures in all areas of digitalization, which are on the agenda of the countries of the world. These areas include the digital transformation of traditional sectors of the economy, the development of human capital, the digitalization of the activities of government agencies, the development of digital infrastructure, as well as the breakthrough in the development of the entrepreneurship ecosystem in the field of digital technologies and, as a result, the transformation of production and the creation of added value in the real sector of the economy. In the 90s, the state program for forced industrial and innovative development was launched, the International Educational Program "Bolashak" was initiated, and the formation of "e-government" began in 2005. A number of elements of the innovative ecosystem have also been created in Kazakhstan, the Fez "Alatau" ATP, AEO "Nazarbayev University" will operate, and the international Technopark Astana hub will be launched. 3/4 of the adult population of the country has a basic level of digital literacy, and more than 3/4 have access to the internet. This is an important base on which we will be the basis in the implementation of the program.

In his address to the people of Kazakhstan on January 31, 2017, the head of state announced the third modernization, which is the core of digitalization, the need to develop new industries created using digital technologies and "it is important to ensure the development of communications, access to mass fiber-optic infrastructure. The development of the digital industry will give impetus to all other industries." The national plan for the implementation of the President's address to the people of Kazakhstan dated January 31, 2017 defines criteria for achieving the goals of the third