

DIGITALIZATION IN MANAGEMENT OF TRANSPORT AND LOGISTICS SYSTEM
OF THE REPUBLIC OF KAZAKHSTAN

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ КӨЛІК-ЛОГИСТИКА ЖҮЙЕСІН
БАСҚАРУДАҒЫ ЦИФРЛАНДЫРУ

ЦИФРОВИЗАЦИЯ В УПРАВЛЕНИИ ТРАНСПОРТНО-ЛОГИСТИЧЕСКОЙ СИСТЕМОЙ
РЕСПУБЛИКИ КАЗАХСТАН

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Abstract - Purpose - the authors consider the relevant aspects of the current state, the prospects for the development of agro-industrial complex of the Republic of Kazakhstan and economy as a whole, as well as the world experience of transport and logistics systems. The high relevance of solving problems aimed at expanding the scale of transport logistics, which determined the importance of choosing this research topic. **Methods** - economic assessment on the basis of which, the basic principles and measures for the implementation of the State program "Digital Kazakhstan" are presented; the feasibility and significance of the project for the functioning of transport enterprises is shown; analytical - in monitoring the current situation in transport industry; a systematic approach that allows to identify the effectiveness of management processes when using innovative mechanisms that contribute to the growth of the competitiveness of domestic agro-industrial production. **Results** - in recent years, close attention has been paid to the development of a single national transport system, modernization of all its elements, increasing the sustainable operation of transport complex, providing sustainable services to agricultural sector as a priority sector of country, its integration into the world economic community. The authors state that the trend towards digitalization of transport and logistics services sets new standards for all market participants. The main directions of traffic management are summarized, and the integrated digital platform is characterized by a high degree of transparency and traceability of the food supply chain. **Conclusions** - the assessment of the effectiveness of the functioning of transport and logistics systems based on the widespread use of digital information and communication technologies for planning, monitoring and control of all procedures delivery of goods from manufacturers to end consumers is done. Improving logistics functions in agricultural sector is a key catalyst for the growth of the logistics sector in most countries.

Аңдатпа. Мақсаты – авторлар Қазақстан Республикасының агроөнеркәсіптік кешенінің және жалпы экономиканың қазіргі жай-күйінің өзекті аспектілерін, даму перспективаларын, сондай-ақ көліктік-логистикалық жүйелердің әлемдік тәжірибесін қарастырады. Көлік логистикасы ауқымын кеңейтуге бағытталған мәселелерді шешудің жоғары өзектілігі көрсетілген, бұл осы зерттеу тақырыбын таңдаудың маңыздылығын тудырады. **Әдістері** – экономикалық бағалау

the small number of inhabitants, in the light of the increasing pace of development of the Republic of Kazakhstan in previous years, in turn, give rise to increasing demands for logistical operations. This situation is leading to an increase in the flow of goods from the point of view of contractual relations between the various branches of the economy, and consequently, the issue is prompting concerted action between the leading regions of Kazakhstan. It should be noted that the development of this field has not only an economic dimension, but also, and above all, a social dimension, a positive moment is the achievement of contacts among the resident population through the establishment of a relationship of kinship, business and friendship. This issue helps to solve cultural development, and not least in solving various problems of a social nature.

New vector targets have been set for 10 times increase in transit logistics through transport corridors with neighboring countries by 2050. It is necessary to emphasize in the focus of interest on leaving the border of the country for creation of production transport and logistics facilities [1].

A plan of action for the progressive expansion of transport infrastructure up to 2020 has been drawn up with the assistance of the World Bank, and the final version has gone through the process of harmonization among the public authorities involved [2]. This document of the country development as a young State is a significant step towards the expansion of transport infrastructure and integration into world markets through its integral part.

Material and methods of research. The search for new economic instruments, technologies and directions for the development of transport logistics in the context of heightened competition is due to the presence of several modern management methods, which are indicated in the following:

- firstly, the developing Kazakhstani market of services in the field of transport and logistics system is very attractive for the creation of innovative approaches to management, which determines the competitiveness of the industry;

- secondly, the tendency for the growth of the Kazakhstani economy and the development of its real sector that has formed in recent years has indicated a significant aggravation of the competition for the client base, which contributes to the introduction of innovative methods in solving production problems;

- thirdly, during the period of reforming the Kazakh economy, there was a significant change in the value system of consumers of services in the field of logistics, which in-

creases the importance of the development and implementation of modern technologies to meet customer demand;

- fourth, in the current conditions, it is important to identify the prospects for maintaining strategic competitive advantages by enterprises in the national market, this requires studying the country-specific features of the formation of the transport services market, identifying the main development trends, and substantiating a set of technologies to improve the efficiency of working with clients in a competitive environment.

Results and their discussion. State Program “Digital Kazakhstan” aims at economic growth, in building a competitive position of the economy and creation of favorable parties for the quality of life of the population. For the time being, the program implementation follows five basic principles (figure 1):

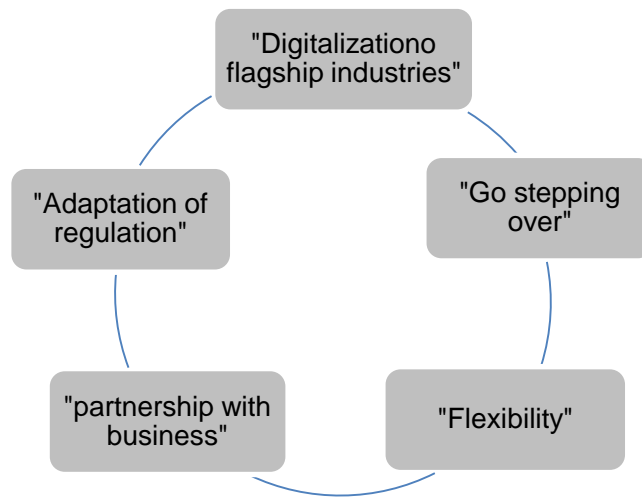
- the first principle – “digitalization of flagship industries” aims to implement the digital transformation of existing industries. The main task of digitalization of industries is a large-scale increase in productivity. This is achieved through the introduction of new technologies and adaptation of existing business processes. As well as creating a favorable ecosystem [3];

- the second principle - "go stepping over". Kazakhstan will introduce the most advanced technologies and innovative approaches for long-term development. After all, they are able to ensure the sustainability of the future;

- the third principle – “flexibility”. When making changes to the Program, in cases stipulated by the current system of state planning, the Agile approach can be applied;

- the fourth principle – “partnership with business”. To achieve greater efficiency, it is important to involve the private sector in the implementation process. In this regard, it is important to create appropriate conditions for large enterprises, as well as small and medium-sized businesses. Attracting investment and reducing costs for the digital transformation of the enterprise is a good support for the massiveness of this process. Especially in specific areas;

- the fifth principle – “adaptation of regulation”. During the implementation of the program, questions naturally arise. The state should take the initiative in the legislative processes to ensure the conditions of the digitalization process. This should be done on the basis on a comparison of the study of foreign experience. That in turn will help the competitive development of the country [4].



Note: compiled by the author on the basis of source [2]
 Figure 1 - Basic principles

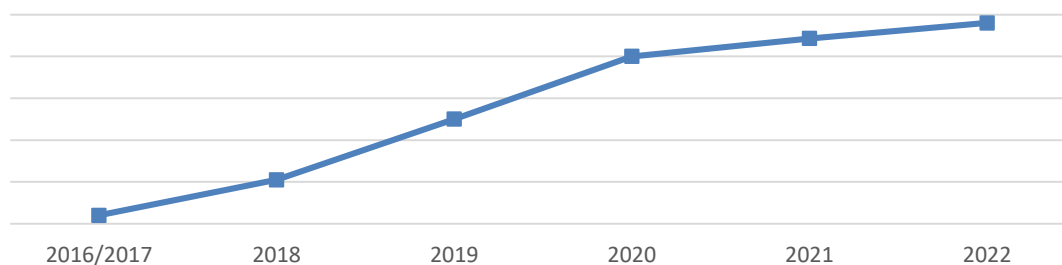
The public figures of the statistical agency RK, reflect the following values in 2020, that the transport sector has provided the country with 8.3% of the total GDP issued (totaling - 62.8 trillion GDP based on the production method).

In the last few years, some 4.1 billion tons of cargo have been transported at various points in the country, and the figures show a doubling of the increase in traffic compared with the figures for the last 10 years. For example, the value of freight turnover in the Republic of Kazakhstan for the period from 2008 to 2020 increased from 371.8 billion tkm to 598.1 billion tkm, and the figures show an increase of 63%.

The principal installations at present are the digitization of transport and logistics, which is an important vector for the digitization of the connected all branches of the economy. It must be understood that the quality of both the

transport and logistics infrastructure are the basis for raising the economy to a new level of sustained strategic development. Kazakhstan today has a fairly well-developed railway network, but the road network is not sufficiently developed and air transportation is excessively expensive. A big advantage is the location of the country, its transit potential.

The program "Digital Kazakhstan" provides the creation of an intelligent transport system. It will combine the functions of video surveillance, traffic management, driver notification of weather conditions and electronic payment for transport services. The introduction of an intelligent transport system will reduce the number of road accidents, as well as reduce the cost of road maintenance [5]. The use of electronic document management and a system of non-stop weighing of vehicles will ensure smooth transit through the country (figure 2).



Note: compiled by the author on the basis of source [2]
 Figure 2 - Expected annual volume of transit freight, million TEU

In the direction of intelligent transport system. The project "Multimodal transport management system" is being implemented in stages, which provides comprehensive auto-

mation of transport management processes, management of customer and contractor base, calculations of services and vehicles (figure 3).

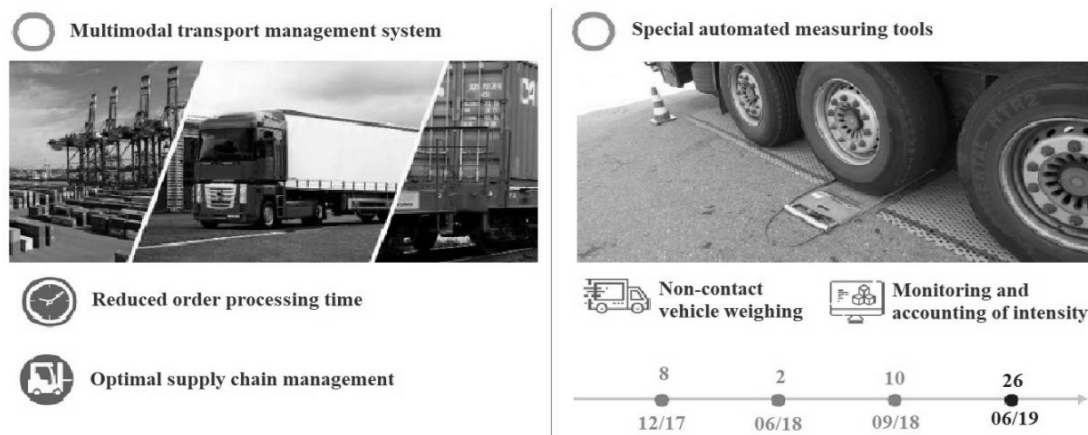


Figure 3 - Digitalization of transport and logistics

8 complexes of "Special automated measuring tools" were launched in 2017, fixing the transportation of goods in excess of the established norms. 12 SAIS complexes were launched in 2018, in 2019 another 26 systems were launched. A road asset management system is also being implemented, within which 16 mobile laboratories have been launched. The system will provide transparency and quality monitoring of road works, both during repair and during the warranty period [6].

The economic effect from 2018 to 2025 will be about 280 billion tenge. In the process of promoting the project "intelligent transport system" in 2018 were created 279 jobs. It is planned to create more than 1 500 jobs by 2025.

The goal of the E-agro-industrial complex program is to introduce effective and affordable tools for digitalization of agriculture to increase labor productivity by 2.5 times by 2022 compared to the level of 2017. Strategic objectives include increasing the volume of exports of processed agricultural products [7-9].

In quantitative terms, the digitalization of the country's agro-industrial complex is planned to cover the maximum number of farms in the country and create 2 000 advanced-level farms, 10 "digital farms". In addition, digitalization will cover the business processes of providing public services for the agricultural sector.

To implement the marketing policy, it is planned to carry out electronic online monitoring of agricultural products in storage facilities, management of storage parameters, search and booking of transportation of products, as well as an online sales system.

Within the framework of the preferential financing program of JSC "NC "SEC "Astana", loans were issued to Kenmart and Astykzhan shopping centers in the amount of 300 million tenge to replenish working capital in exchange for price fixing in Astana last year. As a result, fixed prices were set for 49 products. As part of

the implementation of food belt projects around Astana within a radius of 50 km, 92 projects (16 - dairy, 56 - meat and 20 - other projects) have been identified [10].

The objectives of the updated Roadmap for the formation of the food belt of Astana for 2018-2021. Development of production in the zone of the food belt:

- in 2018-2019 meat processing complex with a capacity of 5 thousand tons was built / year for the production of the missing volume of meat products in Astana (Akmola region);
- in 2019-2020, work was carried out to restore irrigated lands for growing the missing volumes of vegetables;
- in 2020-2021, 16 dairy farms to load milk processing enterprises were built (5-in Akmola region and 11-in Karaganda region).

Creation of conditions for ensuring stable supplies of food products from other regions of the Republic, the production of which is impractical in the zone of the food belt. For this purpose, the mechanism for assigning the status of "Participant of the food belt of the capital" was introduced, which provided the subjects of the agro-industrial complex with priority access to markets in the city, including municipal markets, etc.

Development of trade and logistics infrastructure. For this purpose, a wholesale distribution center was created in Astana to provide an opportunity for domestic agricultural producers to enter the market of wholesale buyers.

Implementation of additional measures to protect the market from nonconforming products. This is the strengthening of interaction of state bodies to protect the market from inappropriate products by increasing the volume of research, monitoring the safety of imported and manufactured products with media coverage of the facts of violations of the legislation requirements of the Republic of Kazakhstan.

Conclusion

1. The development of IT technologies, as compared to countries such as Japan and the United States in leading industries, has been less dynamic in terms of its competitive position.

2. It should be pointed out that the development of the advantages of the economy of our country and, last but not least, the standard of living of the population are fully interlinked. According to the program «Digital Kazakhstan», the increase of labor productivity in the direction of «Transport and Warehousing» in 2022 should increase and appear at around 21%.

3. It should be understood that the logistical costs of Kazakh producers in the overall finished product cost structure composition are generated at around 40%. Hence, it is necessary to reduce logistical costs through the construction of infrastructure and the choice by producers of rational routes for the goods delivery.

4. There are a number of problems in the process of selling finished agricultural products: poorly developed logistics, lack of granaries, lack of information about packaging and sorting technologies, a long and complex process of finding buyers of agricultural products.

5. At the same time, questions of wide-ranging and difficult tasks are being exposed. There is a lack of automation in industrial production and a lack of application of new technologies. Based on these concerns, there is a shortage of staff with a high level of competence.

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