

Prospects for the Formation of a Single Digital Transport Corridor

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Abstract — To date, international cargo transportation (including road transportation) is influenced by the following general economic development trends - transnationalization, ecologization and digitalization. However, it seems that a further reduction in logistics costs per unit of transported products in the context of the accumulated reserve of liberalization of international trade can be achieved through the introduction of effective management solutions in terms of digitalization of global logistics processes.

Digitalization of global logistics processes allows not only to increase the transparency and manageability of supply chains, but also to significantly reduce the costs associated with the transportation, processing and storage of goods. The introduction of artificial intelligence, big data and blockchain technologies opens new opportunities for route optimization, predictive demand analysis and automated monitoring of cargo status in real time. One of the key areas of digitalization is the use of cloud platforms for integrating data between all participants in the logistics process - from shippers and carriers to customs authorities and final recipients. This helps to speed up document flow, reduce administrative barriers and reduce transport downtime.

In addition, the development of the Internet of Things (IoT) allows the use of smart sensors to monitor environmental parameters such as temperature, humidity and vibration, which is especially important for the transportation of perishable and sensitive goods. In combination with automated inventory management systems and robotic warehouses, such technologies ensure uninterrupted supply and minimize losses. In the increasingly competitive international logistics market, companies that implement digital technologies gain significant competitive advantages. In the long term, the digitalization of logistics will not only reduce costs, but also create more sustainable and environmentally friendly transport systems.

Keyword: *Middle Corridor, Digital Corridor, Data collection, Digitalization, Transnationalization*

I. INTRODUCTION

The current situation in the field of common policy of the corridor member states in the field of road transport information infrastructure is characterized by many aspects.

The comprehensive technical state of the information infrastructure in the transport sector requires serious development.

Considering the need to form a single information infrastructure, it can be concluded that it is advisable to use the best practices of the European Union (hereinafter referred to as the EU) in improving the information infrastructure in the road transport sector of the Middle Corridor countries (hereinafter referred to as the participating countries).

A distinctive feature of the EU experience in comparison with the corridor countries is the scale of the spread of the information infrastructure and the main functions of the systems used:¹

- Multi-service communication network for special bodies
- scalability of the system of traffic flows (in terms of bandwidth, coverage of the territory, the number of involved automobile checkpoints)
- access control, authorization and information protection
- Ensuring service quality support
- implementation of a phased introduction of new services
- Data exchange between zonal control centers and the integrating subsystem
- ensuring data exchange between local computer networks of operational control services of various modes of transport on highways
- ensuring data exchange with computer networks of control bodies
- providing access to remote automated workstations to maintain the continuous functioning of the information infrastructure, etc.

II. EASE OF USE

The scientific and practical problem that this study is aimed at solving is to identify ways to improve the quality of management of international road transport of goods in the corridor countries through the introduction and development of a digital corridor.

In the task of digitalizing the corridor, it is necessary to solve the following tasks:

- Analysis of the current state of infrastructure in the road freight transport sector of countries
- Identification of possible options for improving infrastructure policy in the segment of international road transport of goods in the corridor countries

1. ¹ Novozhilov A.M. Transport Policy of the Eurasian Economic Union and a Single Transport Space

- identification of positive and negative effects of the implementation of the options considered
- determining the compliance of these options with the established goal
- Adoption of a rational policy option and its implementation.

At the same time, insufficient digital integration with business remains a serious problem in the field of improving the information infrastructure of the corridor countries, as well as ensuring the transition to digital transformation means the establishment of a common policy of the corridor countries in this area ².

Therefore, in the interests of monitoring this situation in each of the participating countries, it is necessary, first, to form an observable number of meaningful indicators that adequately reflect the current state of infrastructure in the countries under consideration.³

At the same time, the duration of the process of forming a unified policy in the field of information infrastructure in road freight transport of countries, considering the solution of all these tasks, can be from 3 to 5 years.

III. PREPARE YOUR PAPER BEFORE STYLING

At the same time, it seems appropriate to take the EU experience in terms of creating an appropriate infrastructure of a digital corridor by road transport as a model due to the availability of a sufficient legal framework governing the further development of information infrastructure in the transport industry.

An analysis of various local initiatives (internal programs and projects) shows that the regulatory framework in terms of the information infrastructure of road transport is still insufficient. At present, there is no developed regulatory document regulating the information infrastructure in the transport sector. The current documents do not sufficiently describe the possible functionality in the transport sector. In particular, the following are not sufficiently considered: monitoring of traffic flows, navigation system, transport security, etc.

To implement directions for improving the information infrastructure of the integrating countries in the context of creating a digital corridor, it is necessary to interact with government agencies that deal with the problems of both the transport industry and the information infrastructure.

Along with the experience of the EU, where separate departments have been created, which are engaged in the digitalization of the transport industry, it is much easier to assess the current situation, as well as to develop recommendations for the formation of the information infrastructure of the digital corridor in the segment of international road transportation of goods ⁴.

Thus, for the systematic improvement of the information infrastructure of the corridor countries, as a factor in the formation of a digital corridor, it is necessary to form a unified digital transport policy. The indicators subject to control, first, include:

- an indicator reflecting the level of development of the automotive segment of the information infrastructure
- an indicator reflecting the degree of interoperability of the information infrastructure of the participating countries (both in general and in the automotive segment) with regional and world systems
- an indicator reflecting the level of coherence of the regulatory framework of the information infrastructure of the participating countries in the field of road freight transport
- an indicator reflecting the degree of involvement of road transport infrastructure in the implementation of the transit potential of the participating countries
- an indicator reflecting the quality and competitiveness of the digital services provided in road freight transport
- an indicator reflecting the qualification of personnel working in the field of information and communication support of international road transport of the participating countries
- an indicator reflecting the development of innovative components of infrastructure on road transport
- an indicator reflecting the degree of security of the infrastructure and its automotive segment from cyber risks
- an indicator reflecting the investment attractiveness of the information infrastructure in road transport of the participating countries.

IV. USING THE TEMPLATE

The solution to the problem of improving the information infrastructure of the participating countries during the transition to a digital corridor is closely linked to the specifics of the implementation of a common transport policy. The creation of a unified transport policy in the structure can qualitatively contribute to this process.

To the main task This includes policy development and monitoring of indicators that reflect the state and development of infrastructure, as well as ensuring that problems that arise in these areas are addressed promptly.

The formation of a unified transport policy of the digital corridor can be an organizational structure compactly located geographically and equipped with technologically suitable equipment, as well as other means of collecting, storing, processing and analyzing information that will be provided by the relevant ministries and departments of the participating countries.⁵

The main tasks of the formation of a unified transport policy can be divided into three:

²Sjödín D., Parida V., Visnjic I. How Can Large Manufacturers Digitalize Their Business Models? A Framework for Orchestrating Industrial Ecosystems // *California Management Review*. – 2022. – Vol. 64(3). – P. 49-77.

³ Beysenbaev, R. Dus, Yu. Proposals for Improving the Logistics Performance Index // *The Asian Journal of Shipping and Logistics*. – 2020. – Vol. 36(1). – P. 34-42

⁴Srinivasan R., Swink M. An Investigation of Visibility and Flexibility as Complements to Supply Chain Analytics

⁵ Charles V. Trappey, Gilbert Y.P. Lin, Amy J.C. Trappey, C.S. Liu, W.T. Lee.

1. Ensuring online interaction between departments that are responsible for the digitalization of transport (including automobiles).

2. Creation and maintenance of a knowledge base responsible for the digitalization of transport in countries, including statistical and analytical information on programs and projects.

3. Collection of analytical materials from the participating countries on the current state of the information infrastructure of the digital corridor.

The statistical data collected are placed in a single repository of statistical information for the subsequent generation of reports on external statistical requests:

1. Ensuring interaction through modern technologies for the formation of a single transport policy and state bodies of the participating countries.

2. Planning and analysis of initiatives in the field of information and innovation activities in the transport industry of the participating countries, namely:

- monitoring, analysis, systematization and statistical processing of information on information and innovation activities in the transport industry of the participating countries

- monitoring, processing and evaluation of performance indicators of the teams/structural units that carry out this work

- preparation of proposals for planning and a set of measures for the implementation of the strategy for the development of the information infrastructure of the digital corridor in the participating countries.

3. Information and technological support of the activities of the participating countries, namely:

- design, development, formation and maintenance of electronic resources for accounting, processing and systematization of information based on the results of information, innovation, transport activities of the participating countries

- software and hardware support for the activities of the participating countries in the information infrastructure, including the installation of software and databases, recovery from failures, regular backup of information, protection against unauthorized access to the information resources of the participating countries

- interaction with administrators of the external telecommunication network

- **LIAISING WITH THE DEPARTMENT OF TRANSPORT AND INFRASTRUCTURE AND THE DEPARTMENT OF INFORMATION TECHNOLOGY. THUS, AS PART OF ITS ACTIVITIES IN THE FORMATION OF A UNIFIED TRANSPORT POLICY, IT WILL PREPARE INFORMATION AND ANALYTICAL MATERIAL THAT WILL CONTRIBUTE TO THE DEVELOPMENT OF INFORMATION INFRASTRUCTURE FOR THE TRANSITION TO THE DIGITAL CORRIDOR.**

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It is shown that, first, the improvement of methods for managing international road transportation of goods in countries can be ensured by ensuring the development of the necessary information infrastructure. As a result, based on quantitative (calculation) and qualitative (questionnaire-questionnaire) methods of analysis, it is established that the solution of the posed managerial problem can be provided by the decomposition of the specified general task into practical tasks.

The need to introduce a digital corridor and, as a result, appropriate management practices in road transport of the participating countries is due to its leading role in the structure of cargo transportation. From the organizational and managerial point of view, the timeliest step is the transition to a unified transport policy in the field of information infrastructure.

It seems that this can be achieved through closer coordination of the initiatives of the relevant organizations of the participating countries, but on a single platform. At the same time, the main institution for such coordination (and, most importantly, improvement) of management practices in the field of information infrastructure can be the formation of a unified transport policy.

It seems that such a solution will make it possible to respond more quickly, i.e. in real time, to the requests of participants in the international road transport market in terms of management decisions related to the functionality of digitalization.

Among the main tasks of the association, it is advisable to single out the following areas ⁶:

interaction of agencies responsible for transport policy in the participating countries; monitoring the current state of the transport and logistics industry; creation and maintenance of a Single Knowledge Base responsible for the digitalization of transport in countries, including statistical and analytical information on relevant programs and projects; collection of analytical materials from countries on the current state of the information infrastructure; organizational and administrative support for accounting and stimulating indicators of the development of information infrastructure in the context of the participating countries; increasing the level of development of the information infrastructure in the context of the participating countries; promotion of information infrastructure in the context of participating countries; implementation of a set of measures aimed at developing the information infrastructure of the participating countries.

Thus, the study contains scientifically and practically substantiated recommendations for improving approaches to the management of information infrastructure in the implementation of international road freight transportation of the participating countries.

⁶ Brinch M., Gunasekaran A., Fosso Wamba S. Firm-Level Capabilities Towards Big Data Value Creation

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