Digital logistics platforms as a current trend to ensure the transport competitiveness of the state on the example of China's LOGINK platform

Maria Drozdova 1
Daria Udalova 1

1 Emperor Alexander I St. Petersburg State Transport University, Moskovsky pr., 9, 190031, Saint Petersburg, Russia

Abstract. The article discusses current trends in the development of digital logistics platforms, changes in international legal regulation of the transport and logistics industry to create a regulatory framework governing the functioning of logistics platforms, China's experience in creating a logistics platform LOGINK, as well as the impact of digitalization processes and anti-globalization sentiment in the global economy on the formation of new trends in the regulation of cross-border logistics. The analysis of Chinese experience in creating an international digital logistics platform LOGINK allows us to identify best practices and adopt successful experience of digitalization of cross-border logistics to increase the resilience of the Russian transport and logistics ecosystem to external geopolitical challenges and the formation of a digital logistics ecosystem within the EAEU. In the context of digitalization and automation of processes, the rupture of Russian-European logistics routes, strengthening of international cooperation in the Asia-Pacific region, modernization of international legal regulation of transport and logistics cooperation is required in order to create and implement a unified digital platform to fully ensure the 5th level logistics provider, to create a standard of international electronic document management and electronic consignment note.

1 Introduction, materials and methods

The paper uses data from open sources, the official website of LOGINK, works of Russian researchers in the field of implementation and legal regulation of digital platforms in transport and logistics, studies on digitalization of transport and logistics industry. The study used comparative-legal, formal-legal methods, synthesis, deduction, induction, as well as abstraction and systematic method.

2 Results and discussion

In the context of Industry 4.0 and the sixth technological mode, the formation of the digital space is an urgent task for the transport policy of any state. Providing effectively functioning
digital logistics services that integrate different modes of transport and ensure international interaction is an important area of ensuring the country's transport sovereignty. The Chinese logistics platform LOGINK, created in 2014, is a good example of the realization of this task. It seems interesting to study China's useful experience for further application of its best practices in Russia, taking into account the national interests and needs of our country.

The total volume of China's digital economy in 2021 was $7.1 trillion. At the same time, from 2012 to 2021, the digital economy grew at an average annual rate of 15.9, and its share in the country's GDP almost doubled: from 20.9 to 39.8%. The level of availability of the Internet in the country is 74.4%, and the number of Internet users exceeds one billion. Thus, China is now one of the leaders of the digital economy in the world, whose experience in implementing digital services in the transport and logistics industry is of great interest to both researchers and logistics industry professionals [13]. The tectonic changes in the structure of international cooperation that took place in 2022, the breakdown of cargo transportation routes from Europe to Asia, as well as the international sanctions imposed on Russia have revealed the need to form a single digital space in the transport and logistics sector, both in the Russian Federation, and within the EAEC and with the countries - strategic partners of Russia, such as China. As in China, the digitalization of the transport and logistics ecosystem in Russia remains the leading trend in its development. The issues of digitalization and innovation in the Russian logistics ecosystem have been considered in the works of O.D. Pokrovskaya [9-12] and other authors [3-7].

Speaking about the principles of legal regulation in the PRC, we note that the Chinese legislation has a developed practice of regulation by subordinate regulatory acts, while there are few basic laws, which, in fact, creates an opportunity for the executive branch to engage in actual law-making activities, replacing the legislation by its regulations.

The protection of personal data in Chinese law is underdeveloped, which, however, did not hinder, but even simplified the creation of standards of information interaction and the use of face recognition.

On the one hand, the facial recognition system introduced in China makes it possible to use the technology for, for example, paying on boarding trains or at ATMs. In major cities, a "smart parking" system has been implemented, which makes it possible to collect fees based on license plate recognition. In the PRC there are "e-government" projects and online courts.

At the same time, the Chinese government often uses the regime of secrecy for a significant number of adopted regulatory legal acts, which makes their content inaccessible to the public.

State medium- and long-term development programs are of great importance in the development of digital technology.

For example, there is now an Internet+ program that regulates the introduction of technology in various industries, the development of artificial intelligence, etc. An important document was the law "On Electronic Signature" of 2004, which unified the practice of its use in various digital services. In 2019, the law "On Cryptography" was passed, which regulates the standards and procedures for the use of crypto-protection tools in various areas, including digital platforms. Also in 2019, the State Chancellery for Internet and Information adopted the Regulation on Blockchain Information Services Management, which defines the rules for the application of the said technology in various fields, including the logistics industry.

The National China Transportation Logistics Information Platform (LOGINK) is one of the key government projects of the "Long-Term Logistics Industry Development Plan. The creation of the LOGINK platform began back in 2007 with the establishment of a regional digital platform, which was later joined by the remaining 16 regions of the country. NEAL-NET, a LOGINK-based information exchange system between the PRC, South Korea and Japan, made it possible to expand the project to an international scale. The project was implemented by the Ministry of Transportation and the National Development and Reform
Commission of China to create a digital public information logistics service that provides its customers with multilateral cooperation. LOGINK implements key development strategies in China's national logistics industry.

According to the provisions of the 2014-2020 China Medium-Term and Long-Term Development Plan for the Logistics Industry, the establishment and development of the national transportation and logistics public information platform (LOGINK) was the key project and main task for the transportation industry for that period [8]. Several Chinese government agencies were responsible for its implementation, were the Ministry of Information Technology, Ministry of Science and Technology, Ministry of Commerce, Ministry of Public Security, General Administration of Customs, General Administration of Quality Supervision, Inspection and Quarantine, Civil Aviation Administration, Post Office, China Railway Corporation and other departments. Platform partners are divided into four categories:

✓ International, such as Japan COLINS, International Organization for Standardization, Asian Development Bank and others;
✓ Institutions and associations (higher education institutions in China, research institutes, the Chinese Logistics Society, and others);
✓ Leading enterprises such as Cosco group, China National Railway group, Sinotrans and others;
✓ Service companies (15 companies engaged in service maintenance of information technologies) [2].

On November 23, 2017, the Chinese delegation presented the National Logistics Platform LOGINK at the IPCSA conference "Globally Connected Logistics. The Chinese Ministry of Transportation and Logistics spent seven years developing it. Initially, the platform was designed to provide Chinese manufacturing enterprises with digital logistics services for the transportation of goods. LOGINK created a national digital logistics system based on established unified standards of information interaction, allowing for the integration of digital data from all railway stations, airports and seaports in China, as well as seaports in the PRC, Japan and Korea.

Fifty-two independent local logistics systems were integrated into the LOGINK system, reducing the time to implement logistics software in new companies from eight to one month.

To a unified system of exchange of logistics information were connected 50 of the largest companies in China, 91 logistics park, 450 thousand Chinese enterprises (28% - from production, 17% - from trade, 55% - from the sphere of transport and logistics), all railway stations of China and 26 ports of China, Japan and Korea [8]. Thus, LOGINK, by uniting operators of various modes of transport, promotes the development of multimodal transportation both domestically and internationally.

LOGINK infrastructure was developed by a group of 18 technical experts appointed by the Ministry of Transport. They included experts from relevant ministries, research institutes, universities, associations, and enterprises.

LOGINK operation is organized by Zhejiang Provincial Transportation Department. It set up the Zhejiang Transportation and Logistics Public Information Platform Management Center, which is responsible for the construction, operation, maintenance and daily management of the national logistics platform. The center began its operation in 2013.

The Zhejiang National Transportation and Logistics Public Information Platform Management Center was officially put into operation in 2013 to support the platform's operation.

Exchange hubs in rail, water, road, air transport and post offices were set up to exchange information and ensure the platform's operation. The Chinese Ministry of Transport, Development and Reform Commission, Civil Aviation Administration, China Postal Service
and General Administration of Railways participated in the project. In order to support the operation of LOGINK in China, a basic national platform network and regional logistics transport hubs have been built.

The Northeast Asia Logistics Information Service Network (NEAL-NET) was established to promote international cooperation in transport and logistics, which is a non-profit international cooperation mechanism to facilitate the exchange of logistics information resources, improve regional logistics efficiency, expand logistics services and promote regional economic development. NEAL-NET connects LOGINK with digital seaport services in Japan and South Korea, and provides information exchange in the implementation of logistics services in the Southeast Asian region (ASEAN) and with the European Union.

LOGINK is operated by a data service (which runs the servers), an exchange service (which communicates information) and a standards service (which develops standards).

Users of the platform have access to information about logistics infrastructure, credit data, the latest regulations, can use the platform services to build a transportation route, track cargo, select a counterparty, etc.

LOGINK's digital services process about 30 million messages per day across 26 different interaction scenarios. The volume of goods turnover of the platform is about 1.35 trillion goods per year. An important condition for the success of the project and its advantage is the use of a unified standard for electronic document management. The platform's services ensure information interaction between the shipper and the carrier and enable the tracking of shipments. In fact, LOGINK provides a digital link between supply and demand for logistics services, reducing the cost of information exchange and paperwork, increasing the efficiency of logistics cooperation.

At present, the platform services continue to evolve, new technologies are being introduced, and the range of user options is expanding.

Also, in April 2022, the International Port Community Systems Association (IPCSA) joined LOGINK to launch a network of trusted networks (NTN) that will give China access to data and information at 70 ports and 10 airports, and set data exchange standards for the ASEAN region. In this way, China's logistics platform is constantly increasing the degree of interconnectivity with digital services of other nations, expanding its reach.

3 Conclusion

A significant issue in the development of international legal regulation of the transport and logistics sphere is the lack of legislation regulating the use of international digital logistics platforms. The creation of such digital platforms at the domestic level has become widespread. Digital technologies enable the process of coordinating shippers with freight carriers using platform solutions. Blockchain technology is currently one of the current trends in the digitalization of transport and logistics ecosystems. Its implementation has improved the quality of logistics process management through the exchange of information based on digital platforms.

At the present stage, private corporate logistics platforms are most widespread [1]. In Russia, a digital logistics platform created within the EAEU is currently under development. However, it seems that, taking into account the current trends in geopolitics and the redistribution of logistics freight routes to the East, one of the important directions for the formation of technical services of the EAEU platform is to develop the possibility of its interconnection with the Chinese logistics platform LOGINK in order to exchange data, the functioning of EDI. In addition, the cohesion of the EAEU and China platforms could become one of the stages in the implementation of the EAEU and Silk Road Economic Belt (SREB) interconnection plan. The mechanism of NEAL-NET information exchange opportunities via LOGINK between China, Japan and South Korea would expand digital logistics
opportunities in Eurasia and connect the EAEU countries with the Asia-Pacific region. To implement this initiative, it is necessary to conclude an international agreement between EAEU countries and strategic partner states in the Asia-Pacific region on cooperation in the digitalization of transport and logistics services, with additional protocols on the issues:

✓ Data standardization, which will allow the information support of the platform’s activities at the international level;

✓ Transfer of information in order to form conditions for integration in the created system of interagency and interdepartmental participants;

✓ The creation and operation of an interstate structure that provides servers for data transmission.

New geopolitical challenges and the development of digital logistics services require the formation of a new paradigm for the development of transport and logistics ecosystems in Russia, the EAEU, member states of the Shanghai Cooperation Organization (SCO), as well as ASEAN states as a basis for sustainable transport concept.

References


