

ABSTRACT

to the dissertation for the degree of Doctor of Philosophy (PhD) in the specialty
"6D090900-Logistics"

MOLDABEKOVA AISULU TURSUNBAYEVNA

"IMPROVING QUALITY OF LOGISTICS SERVICES OF DRY PORTS WITHIN EURASIAN TRANSPORT CORRIDORS (BASED ON THE CASE STUDY "KHORGOS GATEWAY")

Relevance of research topics. The steady growth of world trade in recent decades has significantly influenced the development of transport and global supply chains with increased competition between land and sea transport corridors. In the conditions of the geopolitical crisis, special attention is paid to the problems of the development of transport corridors, logistics centres, terminals, and hubs within the trans-Eurasian land transport corridors between Europe and China. On the one hand, the Fourth Industrial Revolution (Industry 4.0) sets new tasks for countries on complex transport and logistics infrastructure transformation using digital technologies. Improving the quality of logistics services within international transport corridors is necessary to maintain existing trade flows, which is especially important for a transit country like Kazakhstan.

Digital technologies play a crucial role in improving the quality of logistics services in the conditions of digitization and the global pandemic. In ensuring the uninterrupted organization of freight traffic in the Eurasian space, one of the tasks is to develop digital transport corridors. In the address to the Heads of the Member States of the Eurasian Economic Union, Kassym-Jomart Tokayev noted that it is necessary to thoroughly and fully use the potential of cross-border transport arteries and logistics hubs. In current conditions, it isn't easy to increase the attractiveness of the Eurasian transport corridors without properly functioning the logistics infrastructure and ensuring the quality of the logistics service. To fully utilize Kazakhstan's transit potential, developing a "soft" logistics infrastructure is essential. In this regard, studying the quality of logistics service of dry ports on land routes of the country on the "New Silk Road" is an actual research direction.

The purpose and objectives of the research. The aim of the thesis is to examine theoretical and methodological approaches to the evaluation of dry ports and to develop practical recommendations for improving the quality of logistics services in the digitalization within the Eurasian transport corridors based on the case study "Khorgos Gateway". This goal is achieved by performing the following tasks:

- to study the conceptual foundations of the dry port concept in the context of the formation and development of land-based transport corridors;
- to study foreign practices of development of dry ports and transport corridors in the context of digitalization and to identify digital technologies that contribute to improving the quality of logistics services;
- to study methodological approaches for monitoring and ensuring the quality of logistics services and develop indicators and sub-indicators for assessing the quality of logistics services of dry ports;
- to assess the impact of technological, innovative development and digital technologies on the improvement of the quality of logistics services;
- to analyze the transit potential of Kazakhstan in the Eurasian transport corridors and apply digital technologies in the sector of transport and warehousing;
- to evaluate the quality of the logistics service of "Khorgos Gateway" dry port;
- to develop the main directions for improving the quality of logistics services of dry ports based on digital transformation;

- to propose recommendations for including dry ports of Kazakhstan in international transport networks with improving logistics services.

The object of research is the logistics service of dry ports in the transport corridors.

The subject of the study is the optimization processes related to improving the quality of the logistics service of dry ports in land transport corridors in the conditions of digitalization.

The theoretical and methodological basis of the research is the conceptual basis of the formation of dry ports, the work of foreign and domestic scientists on the quality of logistics services, the development of transport and logistics infrastructure and transport corridors, and the methodological basis of the formation and development of dry ports.

The research methods. The methodological basis of the dissertation work includes general scientific methods (analysis and synthesis, induction, and deduction), empirical methods (quantitative and qualitative methods) and statistical methods of data analysis. In the study of the quality of the logistics service of dry ports, the following methods were used: bibliometric network analysis, content analysis, correlation-regression analysis, the SERVQUAL method, and the importance of analysis. Empirical data were collected using an expert survey. VOS viewer and SPSS 25 programs were used to analyze and visualize qualitative and quantitative data. The research information base was prepared by normative and legislative acts of the Republic of Kazakhstan and foreign countries, statistical materials of the UN, the World Bank, EAEU, the Bureau of National Statistics of the Agency for Strategic Planning and Reform of the Republic of Kazakhstan, the National Centre of scientific and technical information, monographs and dissertations of Kazakh and foreign scientists, international databases of scientific data Scopus, Web of Science, Springer.

The scientific novelty of the research. The scientific novelty of the dissertation research lies in developing theoretical and methodological approaches to assessing the quality of logistics services of dry ports and identifying ways to improve the quality of logistics services of dry ports in digitalization in the Eurasian transport corridors.

The following **scientific findings are** obtained based on the result of the research:

- the term "dry port of continental transport corridors" proposed by the author is based on the generalization of conceptual approaches and practices for the development of dry ports;

- based on the study of foreign experience of developing dry ports and digital corridors and network bibliometric analysis identified modern intellectual technologies and aspects of improving the quality of logistic service are determined;

- based on the international standards and methodological approaches developed parameters for service quality and assessment tools for the quality of logistics service of dry ports;

- a correlation and regression analysis of the impact of technological, innovative development, and digital technologies on improving the quality parameters of the logistics service were carried out;

- based on the assessment of the quality of logistics services of the dry port "Khorgos Gateway", recommendations for the further development of the dry port were proposed;

- recommendations have been developed to improve the quality of the logistics service of dry ports based on ensuring the quality of service, digital transformation, and integration into international logistics networks.

The main scientific provisions for defense:

1) A dry port in continental transport corridors is a logistics node (terminal, centre, hub) in a land transport corridor and provides a wide range of transport and warehouse services, as well as other value-added services, while ensuring the quality of service and digital transparency of the processes.

2) The role of digital technologies in improving the quality of logistics services with the provision of operational data, ensuring transparency of the supply chain, optimizing logistics processes, establishing a flexible connection between products and services, and facilitating instant communication between various stakeholders in the provision of logistics services are substantiated.

3) A systematic approach to assessing the quality of the logistics service of dry ports in international transport corridors is defined: at the macro level, an assessment of the factors influencing the logistics service, at the meso level - an analysis of the country's transit potential and the level of application of digital technologies, at the micro level - an assessment of the quality of the logistics service of the dry port. An assessment tool for evaluating the quality of the logistics service of dry ports has been developed, which consists of the following parameters: availability of physical infrastructure, operations and processes quality, management and staff quality, appropriating price for the service quality, comprehensive use of ICT, multimodality, and providing value-added services.

4) Based on the correlation-regression analysis of secondary data, it was revealed that the innovational development, the level of technological readiness of the country and digital technologies have a positive effect on improving the quality of logistics services: trade and transport infrastructure, competence and quality of logistics services, the efficiency of customs clearance processes and cargo tracking.

5) The analysis of the transit potential and the case study of the dry port "Khorgos Gateway" showed that a high level of logistics services will be achieved due to the digital modernization of the transport and logistics infrastructure. In developing logistics and economic corridors in the Eurasian space, the development of dry ports of international significance and technological, digital modernization of cross-border infrastructure (stations, customs, ports, terminals) would increase the transit potential of countries. 6) Developed recommendations on improving the quality of logistics services of dry ports and Eurasian transport corridors based on (1) ensuring the quality of logistics services with the introduction of the ISO international service quality standard and the provision of value-added services; (2) digital transformation based on the digital audit of the dry port, the introduction of digital technologies, the development of an integrated information system/platform; (3) integration into regional, international transport networks based on the development of a "soft" infrastructure of transport corridors, involvement in the regional and global chain, development as a logistics hub.

Correspondence to directions for the development of science or state programs.

Theoretical and methodological results obtained during the dissertation research contribute to the implementation of the "State program of infrastructural development "Nurly Zhol" for 2020-2025" and the development of work plans to improve the quality of logistics services, digital transformation of transport and logistics infrastructure objects in the Republic of Kazakhstan.

The theoretical and practical significance of research results. Theoretical developments of the dissertation research can be used in the preparation of educational and methodological programs in the specialities "Logistics" and "Management" and applied in the development of the educational program in the discipline "Logistics infrastructure of international transport corridors (LIMTK4309)". The practical significance of the research is that the conclusions and recommendations of the thesis can be used in the digital transformation and improvement of the quality of the logistics service of the transport and logistics infrastructure of the Republic of Kazakhstan, in the development of the dry port "Khorgos Gateway".

The connection of this work with the priority direction of the development of science and other research works. The dissertation work was carried out in the course of the implementation of domestic and international projects: 1) Program-targeted financing of the Ministry of Science and Higher Education of the Republic of Kazakhstan "Kazakhstan's path to a knowledge-intensive economy based on the third technological modernization: strategy, models and mechanisms for development" (No. 0118RK01076, 2018-2020), subprogram 1.1 exports in Kazakhstan: mechanisms and priorities; 2) The project "Small ports of the South Baltic as a gateway to an integrated sustainable European transport system" of the European Project Center of the University of Applied Sciences Wismar (Germany), activities 3.2 Development of international digital audit tools for small ports; 3) Research project "The impact of new information technologies on improving the quality of logistics services and the prospects for the development

of the port" within the framework of the annual research fellowship for doctoral students of the German Academic Exchange Service (DAAD).

Approbation of the research results. The results of the study were reported and discussed at foreign, international and republican conferences, including the 19th International Conference on Reliability and Statistics in Transport and Communications "RelStat-2019" (Riga, Latvia), International Scientific and Practical Conference of the Institute of Economics of the CS MES Republic of Kazakhstan (Almaty, Kazakhstan), VI Kazakh-German Forum on Logistics (Almaty, Kazakhstan), International Scientific and Practical Conference "Marketing and Logistics: Modern Challenges and Trends in the Age of Information Technology" (Almaty, Kazakhstan), XXIII International Scientific and Practical Conference of young scientists and students (Almaty, Kazakhstan).

Contribution of the doctoral student to the preparation of each publication. The results of the study were published in 11 publications, of which:

- 2 articles in journals indexed in Scopus. In writing the article "Advanced technologies in improving the management of logistics service: bibliometric network analyzes", the doctoral student is a correspondent-author. She was engaged in conceptualization, methodology, program analysis, data collection, processing, and visualization. In writing the article "Digital Technologies for Improving Logistics Performance of Countries", the doctoral student is a correspondent-author who contributed to the conceptualization, methodology, data collection and analysis in the SPSS 25 program.

- 3 articles in journals recommended by the Committee for Quality Assurance in Education and Science of the Republic of Kazakhstan. In writing the article "Methods and practice of assessing the national logistics system of the Republic of Kazakhstan", the author explored the theoretical and methodological foundations for assessing the state logistics system; In the article "Supply chain management in the context of Industry 4.0: a systematic analysis of the literature", the doctoral student did a content analysis of scientific literature on supply chain management in the context of Industry 4.0; "The role of digital technologies in the development of logistics in Kazakhstan in the formation of Industry 4.0" the doctoral student did a correlation analysis between indicators of technological readiness, innovation and sub-indices Logistics Performance (LPI).

- 5 articles in the materials of foreign and local international conferences, including 2 indexed in the scientific databases Web of Science, Scopus, Springer: "Logistics service quality of dry ports within land-based transport corridors: a case study "Khorgos Gateways" by a doctoral student a toolkit for assessing the quality of logistics services of dry ports was developed. During the preparation of the article "Small and Medium-Sized Seaports on the Digital Track: Tracing Digitalization Across the South Baltic Region by Innovative Auditing Procedures", the doctoral student participated in the development of a digital audit toolkit for small ports in the Northern Baltic region during her foreign internship. Articles published in the materials of the conference "Prospects for the development of regional logistics centres in the Republic of Kazakhstan" and "Priorities for the development of exports of transport and logistics services in the Republic of Kazakhstan in the context of technological modernization" by the doctoral student identified the main directions for the development of transport and logistics services in Kazakhstan. The subsection of the collective monograph "Development of the transit potential of Kazakhstan" was completed by the doctoral candidate independently. In the article "Technological Readiness and Innovation as Drivers for Logistics 4.0", the doctoral student is a correspondent-author. She did data collection and analysis.

The structure and scope of the dissertation. The work consists of content, designations, abbreviations, an introduction, three chapters, a conclusion, and references; it contains 33 tables, 46 figures, 11 applications, and 140 sources.