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THE ROLE OF LOGISTICS AND INNOVATION IN THE DEVELOPMENT OF FOREIGN TRADE

Student of the Banking Financ Academy
Project Management Student
Aliyeva Ziroat Zokirovna

Abstract: This article examines the role of digitization processes in the logistics sector, including the supply chain, in the development of foreign trade relations. The main objective of the study is to observe the impact of logistics on efficiency in the digitalization processes of the economy, It involves analyzing the widespread adoption of digital systems in developing countries like Uzbekistan and formulating recommendations. In the scientific methodology section, empirical analysis of the introduction of digital technologies and their integration into external economic processes was conducted using data from scientific research over the past ten years. The analysis results show that innovative digital technologies in logistics and foreign trade relations during globalization serve to increase transparency and speed, reduce costs, and simplify business processes. Additionally, risks in international trade relations were identified, and recommendations for their resolution were provided.

Keywords: Foreign trade, regional logistics, delivery system, innovative technologies, digitalization of the economy, logistics productivity index, strategy.

Аннотатсия:Основная цель исследования – анализ влияния логистики на эффективность экономики в процессе цифровизации, оценка широкого распространения цифровых систем в развивающихся странах, таких как Узбекистан, и разработка предложений. В разделе научной методологии проведен эмпирический анализ на основе данных научных исследований за последние 10 лет по внедрению цифровых технологий и их интеграции во внешнеторговые процессы. Результаты анализа показывают, что в процессе глобализации инновационные цифровые технологии способствуют повышению прозрачности, скорости, снижению затрат и упрощению бизнес-процессов в логистике и внешнеторговых отношениях. Также выявлены риски в международных торговых отношениях и предложены пути их решения.

Ключевые слова: Внешняя торговля, межрегиональная логистика, цепочка поставок, инновационные технологии, цифровизация экономики, индекс производительности логистики, стратегия.

Annotatsiya: Ushbu maqolada tashqi savdo munosabatlarining rivojlanishida yetkazib berish tizimini o’z ichiga olgan logistika yo’nalinishida raqamlashtirish jarayonlarining o’rni o’rganildi. Tadqiqotdan asosiy maqsad iqtisodiyotning raqamlashtirish jarayonlarida logistikaning samaradorlikka ta’sirini kuzatib, O’zbekiston singari rivojlanb borayotgan mamlakatlarda raqamli tizimning keng qo’llanishini tahilillar oraqali baholash hamda takliflar ishlab chiqishdan iborat. Ilmiy metadologiya qismida oxirgi 10 yillik ilmiy tadqiqotlarga doir ma’lumotlar orqali raqamli texnologiyalar kirib kelishi, tashqi iqtisodiy jarayonlarda integratsiya qilishi emperik tahlil qilindi. Tahlil natijalari, globallashuv jarayonida innovatsion, raqamli texnologiyalar logistika va tashqi savdo munosabatlarida shaffoflik, tezkorlikni oshirishga va xarajatlar miqdoring pasayishiga, ish jaroyonlarining soddalashuviga xizmat qiladi. Shuningdek, xalqaro savdo munosabatlarda xavf - xatarlar aniqlanib, yechimi uchun takliflar ham berib o’tildi.

Kalit so’zlar: Tashqi savdo, mintaqalaro logistika, yetkazib berish tizimi,innavatsion texnologiyalar, iqtisodiyotni raqamlashtirish, logistika unumdorligi indeksi, strategiya.

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INTRODUCTION

Alongside the current globalization process, the development of economic relations between countries has made the logistics network one of the key areas ensuring economic efficiency and competitiveness in foreign trade. Transportation infrastructure related to the supply chain in foreign trade, and the precise and systematic management of processes such as warehousing quality standards and customs clearance have a broad impact on factors like the speed, transparency, reliability, and cost of international economic relations.

Globally, as the supply chain expands year after year and integrates into the manufacturing and service sectors, we can observe the continuous improvement of the logistics system, which is the fundamental basis of foreign trade.

Today, in the integration of international trade, the systematic implementation of economic digitization is highly regarded for its efficiency. In particular, in foreign trade relations, modernization of the system with digital technologies was undertaken under the influence of factors such as speed, cost reduction, transparency, and the efficiency of time spent.

The use of modern digital technological systems is reducing the time spent on customer delivery and customs clearance by 15–20%, impacting the economic efficiency index. Systems such as artificial intelligence, blockchain, lot devices, and digitized platforms that encompass all sectors are enabling the optimization of external and internal trade processes and ensuring compliance with transparency and security requirements.

The main purpose of this article - the continuous development of international economic trade relations, the systematization of services from producer to consumer, the adoption of innovative digital technologies, and the assessment of their impact on efficiency. The research places special emphasis on the role of developing countries, including Uzbekistan, in international trade relations. Among the Central Asian states, Uzbekistan, by virtue of its geopolitical location, serves as the strategic link connecting all corridors.

The article also addresses the potential risks that may arise in external trade relations and in the digitization of logistics processes. Inconsistencies between systems, low levels of integration, electronic security (i.e., cybersecurity) issues, and a lack of investment funds have been observed.

Literature Review

Scientific sources on the digitization of logistics processes in international trade indicate that logistics efficiency and quality indicators have a positive impact on foreign trade and economic growth. (Gani, 2017) According to scholars, the Logistics Efficiency Index is linked to logistics costs, customs clearance procedures, and the quality of service sectors. Research scholars (Martikkot 2014, Shukur 2022) have emphasized that improving these systems increases the volume of international trade.

The rapid advent of the digitization process has also brought innovations to the logistics sector. According to Lechmacher (2021), innovative, digitized technologies enable a 16–28% saving in the time spent on delivery and customs clearance processes. Uzbek scholar Axmedov (2020) has highlighted the decisive role of digitalization in international relations and foreign economic development. Chinese scholar Wang (2021) has put forward the view that in the development of international trade and the economy, the level of internet connectivity is more effective than general digitalization. Another Chinese scholar, Fan Xin (2021), based on Chinese practice, found that the digital economy, in addition to creating opportunities for foreign trade, also gives rise to several problems in exports.

In their scientific works, Hi (2021) and Shibasaki (2021) emphasized the importance of always considering dynamics (variability) when evaluating the impact of international logistics on foreign trade.

Methodology

To conduct the research process clearly and effectively, to study practical and theoretical concepts, an empirical method was used, and scientific works on international trade relations and the digitization of logistics systems from the last 10 years were analyzed.

Additionally, comparative and statistical methods were used to assess the level of digital technologies in the logistics sector. Specifically, in 2023, the Logistics Performance Index (LPI) for 139 countries was analyzed.

The interrelationships between economic growth levels, the development of foreign trade, and digital technologies were examined through correlation analysis. The results of cross-country e-commerce indicators. The period from 2014 to 2028 was observed using an approximation method for an estimated assessment.

Result

The research results show that the digitization of logistics processes reduces the total cost, to increase delivery speed and enhance the legitimacy of regional trade. The application of modern technologies such as Blockchain, Lot, and AI reduces ambiguities in the database and increases trust and accountability among the parties. Lot and AI technologies are very well suited to accurately manage monitoring in the supply chain and improve routing.

The correlation and regression analysis showed a correlation between the Logistics Efficiency Index and its constituent elements. Specifically, the LPI and customs processes accounted for 95.2%, service for 93.6%, the international freight delivery system for 91.2%, and the logistics system quality indicators for 95.9%. and on-time product delivery accounted for 93.4%. The correlation between GDP growth and imports was 46.9%, and exports

According to forecasts, the volume of digital trade was $5.784 trillion in 2023, is expected to reach $6.877 trillion in 2025, and $8.482 trillion by 2028.

Internationally, e-platforms such as SME Agrodath, Mitigram Tre-e Consortium, and Consartium are laying the foundation for reducing logistics costs and for deep integration into the global market.

CONCLUSION AND RECOMMENDATIONS

In this context, for a developing country like Uzbekistan, improving the logistics facilitation system is considered a priority task. This can be seen in the fact that the logistics network has been identified as a key priority area among the Republic's strategic objectives for 2030. Advances have been made in effectively utilizing our country's favorable geographic location, digitizing customs clearance, expanding logistics information and innovations, and improving multimodal transport services.

In particular, in our country, the China–Kyrgyzstan–Uzbekistan Railway and the Trans-Caspian International Route are having a positive impact. The digitization of economic processes in foreign trade has revealed several risks, namely data security, issues such as transparency in information exchange and harmonization of the legal framework related to the system.

In conclusion, logistics is a system that automates services from the producer to the consumer, integrates modern technologies into a single system, and modernizes service delivery. It is a network that ensures the economic growth and balance of international trade.

Having studied several shortcomings and problems in the system, a number of proposals were developed to achieve better results on an international scale.

Establishing common standards and documentation – integrating all processes into a single system and taking control. To eliminate inconsistencies in cross-country data exchange, it is necessary to implement an information exchange algorithm. Additionally, it is necessary to actively implement modern technologies such as artificial intelligence and blockchain in processes to ensure data security and exchange. It was proposed to widely deploy lot sensors to monitor the condition of products during storage in the warehouse and their status during transportation.

It was recommended that developing countries like Uzbekistan reorganize their service delivery systems using modern technologies, enhancing them through high-quality, high-speed internet services.

Additionally, it was planned to introduce incentives to organize seminars and training courses to enhance staff qualifications—namely, to increase their experience with digital technologies—in order to boost work efficiency. Based on international experience, it was recommended to adapt to national standards and strengthen it within the legal framework.

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