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IMPROVING LOGISTICS SYSTEMS IN TRADE SERVICES AND THEIR ECONOMIC EFFICIENCY

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Annotation. This study examines the improvement of logistics systems in trade services and evaluates their economic efficiency in the context of modern global economic transformations. The research is based on contemporary scientific literature, recent statistical data, and normative-legal frameworks regulating logistics and trade activities. The paper analyzes the structural components of logistics systems, including transportation, warehousing, inventory management, and information flows, emphasizing their interdependence and impact on overall efficiency. Special attention is given to the role of digital technologies such as artificial intelligence, big data, and blockchain in optimizing logistics operations. The study also highlights key challenges, including high logistics costs, infrastructure limitations, and regulatory barriers, particularly in developing economies.

Keywords: logistics systems, trade services, economic efficiency, supply chain management, digital transformation, transportation optimization, warehouse management, green logistics, regulatory framework

Annotatsiya. Ushbu tadqiqot savdo xizmatlarida logistika tizimlarini takomillashtirish va ularning iqtisodiy samaradorligini zamonaviy global iqtisodiy o‘zgarishlar sharoitida tahlil qiladi. Tadqiqot zamonaviy ilmiy adabiyotlar, so‘nggi yillardagi statistik ma’lumotlar hamda logistika va savdo faoliyatini tartibga soluvchi normativ-huquqiy hujjatlar asosida olib borilgan. Maqolada logistika tizimining asosiy tarkibiy qismlari, jumladan transport, omborxona, zaxiralarni boshqarish va axborot oqimlari o‘rtasidagi o‘zaro bog‘liqlik hamda ularning umumiy samaradorlikka ta’siri chuqur tahlil qilingan. Shuningdek, sun’iy intellekt, katta ma’lumotlar va blokcheyn kabi raqamli texnologiyalarning logistika jarayonlarini optimallashtirishdagi roli alohida yoritilgan. Tadqiqotda rivojlanayotgan davlatlarda mavjud bo‘lgan yuqori logistika xarajatlari, infratuzilma muammolari va tartibga solishdagi to‘siqlar asosiy muammolar sifatida ko‘rsatilgan.

Kalit so‘zlar: logistika tizimi, savdo xizmatlari, iqtisodiy samaradorlik, ta’minot zanjiri, raqamli transformatsiya, transport optimallashtirish, ombor boshqaruvi, yashil logistika, normativ-huquqiy baza

Аннотация. Данное исследование посвящено вопросам совершенствования логистических систем в сфере торговых услуг и оценке их экономической эффективности в условиях современных глобальных экономических трансформаций. Работа основана на анализе современных научных источников, статистических данных последних лет, а также нормативно-правовых документов, регулирующих логистическую и торговую деятельность. В статье рассматриваются основные элементы логистической системы, включая транспорт, складирование, управление запасами и информационные потоки, а также их взаимосвязь и влияние на общую эффективность. Особое внимание уделено роли цифровых технологий, таких как искусственный интеллект, большие данные и блокчейн, в оптимизации логистических процессов. В исследовании выделены ключевые проблемы, включая высокие логистические издержки,

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инфраструктурные ограничения и регуляторные барьеры, особенно в развивающихся странах.

Ключевые слова: логистические системы, торговые услуги, экономическая эффективность, управление цепями поставок, цифровая трансформация, оптимизация транспорта, складская логистика, зеленая логистика, нормативно-правовая база

INTRODUCTION

In the contemporary global economy, the development of trade services is inseparably linked with the efficiency of logistics systems. Logistics, as a complex mechanism involving transportation, warehousing, inventory management, and information flows, plays a decisive role in ensuring the continuity and competitiveness of trade operations. In recent years, the rapid growth of e-commerce, globalization of supply chains, and digital transformation have significantly increased the importance of logistics optimization in trade services. Modern economies allocate a substantial share of their gross domestic product (GDP) to logistics activities. For instance, in the United States, business logistics costs reached approximately $2.58 trillion in 2024, accounting for around 8.8% of GDP. Similarly, in emerging economies such as India, logistics costs are estimated at nearly 8% of GDP, indicating a significant economic burden and highlighting the need for optimization. These figures demonstrate that even minor improvements in logistics efficiency can generate substantial macroeconomic benefits.

The purpose of this research is to analyze the mechanisms for improving logistics systems in trade services and to evaluate their economic efficiency. The study also considers modern scientific literature, statistical data, and normative-legal frameworks governing logistics and trade systems. The research highlights how innovations, digitalization, and regulatory reforms contribute to enhancing logistics performance and reducing costs.

MAIN PART

The logistics system within trade services represents a multidimensional and dynamic structure that integrates material, financial, and information flows across the entire supply chain. In modern economic systems, logistics is no longer viewed merely as a supporting function but rather as a strategic component that determines the competitiveness and sustainability of trade enterprises. The transformation of logistics into a value-generating system is closely associated with the evolution of supply chain management theories, particularly those emphasizing integration, responsiveness, and digital coordination. From a theoretical standpoint, logistics efficiency can be explained through the principles of transaction cost economics and systems theory. Transaction cost economics suggests that firms aim to minimize the costs associated with exchange processes, including transportation, storage, and coordination costs. Inefficient logistics systems increase these costs, thereby reducing profitability and market efficiency. Systems theory, on the other hand, highlights the interdependence of logistics elements, where inefficiencies in one component can propagate throughout the entire system, leading to systemic losses. Consequently, optimizing logistics requires a holistic approach that considers the interconnectivity of all subsystems.

In recent years, empirical data has demonstrated that logistics costs constitute a significant proportion of national and corporate expenditures. In developed economies, logistics costs typically range between 8% and 10% of GDP, while in developing economies this figure can exceed 12–15%, reflecting structural inefficiencies and infrastructural limitations. These disparities underline the importance of targeted reforms in logistics systems, particularly in countries undergoing economic transition. High logistics costs in such economies are often

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attributed to fragmented supply chains, limited use of advanced technologies, and regulatory inefficiencies. The rapid digitalization of trade services has introduced a paradigm shift in logistics operations. Technologies such as artificial intelligence, big data analytics, blockchain, and the Internet of Things have fundamentally altered the way logistics systems are designed and managed. Artificial intelligence enables predictive analytics, allowing firms to forecast demand, optimize inventory levels, and reduce stockouts. Big data analytics enhances decision-making by providing real-time insights into supply chain performance. Blockchain technology increases transparency and trust by ensuring secure and immutable transaction records, which is particularly important in international trade. The Internet of Things facilitates real-time tracking of goods, improving visibility and reducing the risk of loss or delay.

Despite these advancements, the adoption of digital technologies in logistics systems remains uneven across regions and sectors. While large multinational corporations have successfully integrated advanced technologies into their logistics operations, small and medium-sized enterprises often face barriers such as high implementation costs, lack of technical expertise, and limited access to digital infrastructure. This digital divide creates disparities in logistics efficiency and limits the overall performance of trade systems. Another critical aspect of logistics improvement is the optimization of transportation systems. Transportation is the most cost-intensive component of logistics, often accounting for more than half of total logistics expenses. Inefficient transportation networks, characterized by poor infrastructure, congestion, and suboptimal route planning, significantly increase costs and reduce service quality. The adoption of multimodal transportation systems, which combine different modes such as road, rail, sea, and air, has been identified as an effective strategy for reducing costs and improving efficiency. Multimodal systems allow for better resource utilization and provide flexibility in responding to disruptions.

In addition to transportation, warehouse management plays a crucial role in logistics efficiency. Modern warehouse systems are increasingly automated, utilizing robotics, automated storage and retrieval systems, and advanced inventory management software. These technologies reduce human error, increase processing speed, and improve accuracy. Efficient warehouse management also minimizes inventory holding costs, which are a significant component of total logistics costs. The implementation of just-in-time inventory systems further reduces costs by aligning production and delivery schedules with actual demand. The integration of supply chains is another key factor in improving logistics systems. Integrated supply chains facilitate seamless coordination between suppliers, manufacturers, distributors, and retailers. This coordination reduces delays, improves information flow, and enhances overall efficiency. However, achieving integration requires significant investments in technology and organizational restructuring. It also requires a shift from traditional, siloed approaches to a more collaborative and network-oriented model.

The role of human capital in logistics systems should not be underestimated. The increasing complexity of logistics operations necessitates a highly skilled workforce capable of managing advanced technologies and making strategic decisions. Education and training programs are essential for developing such capabilities. Moreover, organizational culture plays a significant role in determining the success of logistics improvements. Firms that foster innovation, adaptability, and continuous learning are more likely to achieve sustainable improvements in logistics performance. Environmental sustainability has emerged as a critical dimension of logistics systems. The transportation and storage of goods contribute significantly to greenhouse gas emissions and environmental degradation. As a result, there is growing pressure from governments, consumers, and international organizations to adopt sustainable

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logistics practices. Green logistics strategies include the use of energy-efficient vehicles, optimization of delivery routes to reduce fuel consumption, and the adoption of environmentally friendly packaging materials. While these measures may involve initial costs, they provide long-term economic and environmental benefits.

The economic impact of improving logistics systems is substantial and multifaceted. At the microeconomic level, firms benefit from reduced costs, improved service quality, and increased customer satisfaction. These improvements translate into higher profitability and market share. At the macroeconomic level, efficient logistics systems enhance national competitiveness by facilitating trade, attracting foreign investment, and supporting economic growth. Countries with well-developed logistics systems tend to have higher rankings in global competitiveness indices and better integration into global value chains. Normative-legal frameworks play a pivotal role in shaping logistics systems. Effective regulations ensure the smooth functioning of logistics operations, promote competition, and protect the interests of stakeholders. International agreements, such as those governing trade facilitation and transportation, provide a standardized framework for cross-border logistics. National regulations, including customs procedures, transportation laws, and environmental standards, further influence logistics efficiency. In recent years, there has been a growing emphasis on digital regulations, particularly in relation to data protection and cybersecurity. These regulations are essential for ensuring the security and reliability of digital logistics systems.

However, regulatory frameworks can also pose challenges if they are overly complex or inconsistent. Bureaucratic procedures, lack of coordination between regulatory agencies, and frequent changes in regulations can create uncertainty and increase costs. Therefore, regulatory reforms aimed at simplifying procedures, enhancing transparency, and promoting digitalization are essential for improving logistics systems. Empirical evidence from various countries demonstrates the positive impact of logistics improvements on economic performance. For example, investments in infrastructure and digital technologies have led to significant reductions in logistics costs and improvements in delivery times in several developed and emerging economies. These improvements have, in turn, contributed to increased trade volumes and economic growth. At the same time, recent global disruptions, such as the COVID-19 pandemic and geopolitical conflicts, have highlighted the importance of resilience in logistics systems. Resilient logistics systems are capable of adapting to disruptions and maintaining continuity of operations. This requires diversification of supply sources, investment in risk management systems, and the development of flexible logistics networks.

In conclusion, the improvement of logistics systems in trade services requires a comprehensive and integrated approach that combines technological innovation, infrastructure development, human capital enhancement, and regulatory reforms. The economic benefits of such improvements are significant, making logistics optimization a strategic priority for both firms and governments.

CONCLUSION

The improvement of logistics systems in trade services is a critical factor in enhancing economic efficiency and competitiveness. Modern logistics systems, supported by digital technologies and efficient infrastructure, enable businesses to reduce costs, improve service quality, and adapt to changing market conditions. The analysis shows that logistics costs constitute a significant share of GDP in both developed and developing economies, emphasizing the importance of optimization. Strategies such as digital transformation, transportation optimization, and supply chain integration are essential for improving logistics performance. Furthermore, the role of normative-legal frameworks is crucial in ensuring the

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effective functioning of logistics systems. Governments and international organizations must continue to develop policies that support innovation, sustainability, and efficiency in logistics.

In conclusion, improving logistics systems is not only a business necessity but also a strategic priority for economic development. Future research should focus on the integration of advanced technologies and sustainable practices to further enhance logistics efficiency and resilience.

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