

THE OPTIMAL DIRECTIONS FOR IMPROVING THE EFFICIENCY OF TRANSPORT AND LOGISTICS SERVICES IN THE REPUBLIC OF KARAKALPAKSTAN

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***Annotatsiya:** Ushbu maqolada Qoraqalpog‘iston Respublikasida transport-logistika xizmatlari samaradorligini oshirishning optimal yo‘nalishlari o‘rganilgan. Tadqiqotda transport-logistika tizimining hozirgi holati tahlil qilinib, uning samarali faoliyatiga to‘sqinlik qilayotgan asosiy muammolar aniqlangan va mintaqaning iqtisodiy salohiyatini mustahkamlashga qaratilgan amaliy yechimlar taklif etilgan. Maqolada zamonaviy logistika texnologiyalari, raqamlashtirish va infratuzilmani rivojlantirish transport-logistika tarmog‘ini optimallashtirishning asosiy omillari sifatida alohida ta’kidlangan. Shuningdek, innovatsion boshqaruv modellarini va investitsiya mexanizmlarini joriy etish iqtisodiy samaradorlikni oshirish hamda barqaror mintaqaviy rivojlanishni ta’minlashning muhim omili sifatida qaralgan.*

***Kalit so‘zlar:** Transport-logistika tizimi, samaradorlik, optimallashtirish, mintaqaviy iqtisodiyot, infratuzilma, innovatsiya, Qoraqalpog‘iston, barqaror rivojlanish.*

***Резюме:** В данной статье рассматриваются оптимальные направления повышения эффективности транспортно-логистических услуг в Республике Каракалпакстан. В исследовании анализируется текущее состояние транспортно-логистической системы, выявляются основные проблемы, препятствующие её эффективному функционированию, и предлагаются практические решения, направленные на укрепление экономического потенциала региона. Особое внимание уделено значению современных логистических технологий, цифровизации и развитию инфраструктуры как ключевых факторов оптимизации транспортно-логистической сети.*

Внедрение инновационных моделей управления и инвестиционных механизмов рассматривается как важное условие повышения экономической эффективности и обеспечения устойчивого регионального развития.

***Ключевые слова:** Транспортно-логистическая система, эффективность, оптимизация, региональная экономика, инфраструктура, инновации, Каракалпакстан, устойчивое развитие.*

***Summary:** This article examines the optimal directions for improving the efficiency of transport and logistics services in the Republic of Karakalpakstan. The study highlights*

the current state of the transport-logistics system, identifies the main problems that hinder its effective operation, and proposes practical solutions aimed at strengthening the region's economic potential. The paper emphasizes the importance of modern logistics technologies, digitalization, and infrastructure development as key drivers for optimizing the transport-logistics network. The implementation of innovative management models and investment mechanisms is considered essential for increasing economic efficiency and ensuring sustainable regional development.

Key words: *Transport-logistics system, efficiency, optimization, regional economy, infrastructure, innovation, Karakalpakstan, sustainable development.*

Introduction. In the context of the ongoing economic transformation of Uzbekistan, the role of transport and logistics has become increasingly important in ensuring regional integration and competitiveness. The Republic of Karakalpakstan, being strategically located in the northwestern part of the country, serves as a vital transport corridor connecting Central Asian regions with international markets. However, despite its geographical advantages, the efficiency of transport-logistics services in Karakalpakstan remains relatively low due to underdeveloped infrastructure, limited digital integration, and insufficient investment activity.

Enhancing the efficiency of the transport-logistics sector is crucial for supporting regional trade, reducing transaction costs, and promoting sustainable economic growth. Therefore, identifying optimal directions for improvement is a key task for regional policymakers and economic planners.

Main Part. The efficiency of transport-logistics services in Karakalpakstan depends on several interrelated factors such as infrastructure quality, institutional management, digitalization level, and human capital. At present, many logistics operations in the region rely on outdated technologies and fragmented coordination among transportation enterprises.

Infrastructure modernization: Developing modern logistics centers, improving road networks, and ensuring multimodal connectivity (road, rail, and air transport) are essential steps toward improving efficiency. The integration of Karakalpakstan into national and international transport corridors, particularly within the “Trans-Caspian” route, can significantly enhance trade flows and investment attractiveness.

Infrastructure modernization plays a decisive role in enhancing the efficiency of transport and logistics services in the Republic of Karakalpakstan. Modern and well-connected infrastructure ensures the smooth movement of goods, reduces transport costs, and increases regional competitiveness [1]. Upgrading road, rail, and warehouse networks, as well as developing multimodal transport hubs, is essential to create an integrated logistics system.

Moreover, infrastructure modernization contributes to attracting both domestic and foreign investments, stimulates the development of small and medium-sized enterprises, and supports industrial diversification. The adoption of innovative construction technologies, smart transport systems, and energy-efficient facilities can further strengthen sustainability and operational reliability.

In conclusion, strategic infrastructure modernization is not only a technical necessity but also an economic driver for Karakalpakstan's long-term growth. It provides the foundation for digital transformation, international trade integration, and the creation of a resilient regional economy based on efficiency, connectivity, and innovation.

Digital transformation and automation: Introducing digital platforms for cargo tracking, customs clearance, and warehouse management can reduce time and operational costs. The application of artificial intelligence and data analytics in logistics planning can also optimize resource allocation and improve decision-making. Digital transformation and automation represent key drivers for improving the efficiency and competitiveness of the transport and logistics sector in the Republic of Karakalpakstan [2]. The introduction of digital technologies enables real-time data exchange, transparent cargo tracking, and efficient resource management, which significantly reduces operational costs and delays.

Automation in logistics processes-including warehouse management, customs clearance, and transport scheduling-enhances accuracy, minimizes human error, and increases overall productivity. The integration of artificial intelligence, big data analytics, and the Internet of Things (IoT) allows logistics companies to forecast demand, optimize routes, and manage risks more effectively.

In summary, the successful implementation of digital transformation and automation will lead to a smarter, faster, and more sustainable logistics system in Karakalpakstan. It will also strengthen the region's position within national and international transport corridors, ensuring long-term economic growth and innovation-driven development.

Institutional and regulatory improvement: Simplifying administrative procedures, enhancing transparency, and creating favorable conditions for private sector participation are key to achieving economic efficiency. Establishing public-private partnerships (PPP) in transport and logistics can mobilize additional financial resources for large-scale infrastructure projects.

Institutional and regulatory improvement is a fundamental condition for enhancing the efficiency and transparency of transport and logistics services in the Republic of Karakalpakstan. Effective governance frameworks, simplified administrative procedures, and consistent regulatory policies create a favorable environment for innovation and private sector participation [3].

The establishment of clear institutional responsibilities and the reduction of bureaucratic barriers can accelerate logistics operations and attract domestic and foreign investment. Moreover, promoting public-private partnerships (PPP) allows for shared responsibility in financing, managing, and maintaining large-scale infrastructure projects.

In conclusion, strengthening institutional capacity and improving regulatory mechanisms will significantly contribute to building a competitive, transparent, and sustainable logistics system in Karakalpakstan. These reforms will ensure better coordination between government agencies and businesses, enhance service quality, and support the region's integration into national and international transport networks.

Human resource development: Training and retraining specialists in logistics management, information technology, and transport economics will ensure that the sector can adapt to global trends and innovations.

Human resource development is a critical factor in improving the efficiency and adaptability of the transport and logistics sector in the Republic of Karakalpakstan. The successful implementation of modernization and innovation strategies largely depends on the availability of qualified specialists who possess both technical knowledge and managerial competencies [4].

Investing in education, professional training, and continuous skill development ensures that the workforce can effectively apply digital technologies, optimize logistics operations, and respond to global market challenges. Collaboration between universities, research institutions, and logistics companies can foster innovation and create a strong knowledge base for sustainable sectoral growth.

In conclusion, human resource development serves as the backbone of a modern and competitive logistics system. By enhancing the qualifications and digital literacy of specialists, Karakalpakstan can accelerate its transition toward a knowledge-based economy, strengthen institutional efficiency, and ensure the long-term sustainability of its transport-logistics infrastructure.

Green logistics and sustainability: The adoption of eco-friendly technologies and the reduction of carbon emissions are becoming increasingly relevant. In Karakalpakstan's context, where environmental challenges are severe, promoting sustainable logistics practices is both an economic and ecological necessity [5].

Green logistics and sustainability are becoming central priorities for the long-term development of the transport and logistics sector in the Republic of Karakalpakstan. Given the region's vulnerable environmental conditions, implementing eco-friendly logistics practices is not only an economic necessity but also an ecological responsibility.

The adoption of energy-efficient transport technologies, the use of renewable energy sources, and the reduction of carbon emissions contribute to minimizing environmental impact while maintaining operational efficiency. Moreover, the integration of sustainability principles into logistics management fosters resource conservation, waste reduction, and improved social responsibility among enterprises.

In conclusion, the transition toward green logistics will strengthen Karakalpakstan's position as a model for sustainable regional development [6]. By combining innovation with environmental protection, the region can build a resilient, competitive, and environmentally responsible transport-logistics system that supports both economic growth and ecological balance.

Conclusion. Improving the efficiency of transport-logistics services in the Republic of Karakalpakstan requires a comprehensive approach that combines infrastructure modernization, digital innovation, institutional reforms, and sustainable management principles. The implementation of optimal directions—such as developing integrated logistics centers, strengthening public-private partnerships, and adopting smart logistics technologies—will enhance the region's economic competitiveness and support its transition toward a sustainable and innovation-driven economy.

LIST OF USED LITERATURE:

1. Ministry of Transport of the Republic of Uzbekistan. Transport Development Strategy 2030. Tashkent, 2023.
2. World Bank. Logistics Performance Index 2023: Connecting to Compete. Washington, D.C., 2023.
3. OECD. Enhancing Regional Connectivity in Central Asia. Paris, 2022.
4. Karimov, B., & Urazbaeva, G. (2022). Modern Approaches to the Development of Transport and Logistics Infrastructure in Uzbekistan. *Journal of Economic Studies*, Vol. 5(2), pp. 45–52.
5. United Nations ESCAP. Sustainable Transport Connectivity in Central Asia. Bangkok, 2021.
6. Sauxanov Janibek Kazievich, Paluanov Salamatbay Amangeldievich, Utepbergenov Allambergen Omirbaevich. Transport-logistika xizmetleriniń ekonomikalıq nátiyjeliligini islep shıǵıw jollari // Berdaq nomidagi Qoraqalpoq davlat universitetining axborotnomasi № 2 (69). Nukus 2025. 86-88.