

MUHANDISLIK

& IQTISODIYOT

ijtimoiy-iqtisodiy, innovatsion texnik,
fan va ta'limga oid ilmiy-amaliy jurnal

2025
oktyabr



TOSHKENT SHAHRIDAGI TURIN
POLITEXNIKA UNIVERSITETI

*Xalqaro ilmiy-amaliy onlayn konferensiya
materiallari to'plami*

“GLOBAL RAQAMLI INTEGRATSIYALASHUV:
2030-YILGACHA YASHIL IQTISODIYOTGA O'TISHDA
TEXNOLOGIK VA INDUSTRIAL SANOATNI RIVOJLANTIRISH
ORQALI MIKRO VA MAKROIQTISODIY BARQAROR
O'SISHNI TA'MINLASH DOLZARBLIGI”

“GLOBAL DIGITAL INTEGRATION: THE RELEVANCE OF
ENSURING MICRO AND MACROECONOMIC SUSTAINABLE
GROWTH THROUGH TECHNOLOGICAL AND INDUSTRIAL
DEVELOPMENT IN THE TRANSITION TO A GREEN
ECONOMY BY 2030”

«ГЛОБАЛЬНАЯ ЦИФРОВАЯ ИНТЕГРАЦИЯ:
АКТУАЛЬНОСТЬ ОБЕСПЕЧЕНИЯ УСТОЙЧИВОГО
МИКРО- И МАКРОЭКОНОМИЧЕСКОГО РОСТА ЧЕРЕЗ
РАЗВИТИЕ ТЕХНОЛОГИЧЕСКОЙ И ИНДУСТРИАЛЬНОЙ
ПРОМЫШЛЕННОСТИ В ПЕРЕХОДЕ К ЗЕЛЁНОЙ
ЭКОНОМИКЕ К 2030 ГОДУ»

7-MAXSUS SON



74-91 xalqaro daraja
ISSN: 2992-8982



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fan va ta'limga oid ilmiy-amaliy jurnal

Elektron nashr.
2025-yil, oktyabr.

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- 05.01.00 – Axborot texnologiyalari, boshqaruv va kompyuter grafikasi
- 05.01.01 – Muhandislik geometriyasi va kompyuter grafikasi. Audio va video texnologiyalari
- 05.01.02 – Tizimli tahlil, boshqaruv va axborotni qayta ishlash
- 05.01.03 – Informatikaning nazariy asoslari
- 05.01.04 – Hisoblash mashinalari, majmualari va kompyuter tarmoqlarining matematik va dasturiy ta'minoti
- 05.01.05 – Axborotlarni himoyalash usullari va tizimlari. Axborot xavfsizligi
- 05.01.06 – Hisoblash texnikasi va boshqaruv tizimlarining elementlari va qurilmalari
- 05.01.07 – Matematik modellashtirish
- 05.01.11 – Raqamli texnologiyalar va sun'iy intellekt
- 05.02.00 – Mashinasozlik va mashinashunoslik
- 05.02.08 – Yer usti majmualari va uchish apparatlari
- 05.03.02 – Metrologiya va metrologiya ta'minoti
- 05.04.01 – Telekommunikatsiya va kompyuter tizimlari, telekommunikatsiya tarmoqlari va qurilmalari. Axborotlarni taqsimlash
- 05.05.03 – Yorug'lik texnikasi. Maxsus yoritish texnologiyasi
- 05.05.05 – Issiqlik texnikasining nazariy asoslari
- 05.05.06 – Qayta tiklanadigan energiya turlari asosidagi energiya qurilmalari
- 05.06.01 – To'qimachilik va yengil sanoat ishlab chiqarishlari materialshunosligi
- 05.08.03 – Temir yo'l transportini ishlatish
- 05.09.01 – Qurilish konstruksiyalari, bino va inshootlar
- 05.09.04 – Suv ta'minoti. Kanalizatsiya. Suv havzalarini muhofazalovchi qurilish tizimlari
- 10.00.06 – Qiyosiy adabiyotshunoslik, chog'ishtirma tilshunoslik va tarjimashunoslik
- 10.00.04 – Yevropa, Amerika va Avstraliya xalqlari tili va adabiyoti
- 08.00.01 – Iqtisodiyot nazariyasi
- 08.00.02 – Makroiqtisodiyot
- 08.00.03 – Sanoat iqtisodiyoti
- 08.00.04 – Qishloq xo'jaligi iqtisodiyoti
- 08.00.05 – Xizmat ko'rsatish tarmoqlari iqtisodiyoti
- 08.00.06 – Ekonometrika va statistika
- 08.00.07 – Moliya, pul muomalasi va kredit
- 08.00.08 – Buxgalteriya hisobi, iqtisodiy tahlil va audit
- 08.00.09 – Jahon iqtisodiyoti
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- 08.00.12 – Mintaqaviy iqtisodiyot
- 08.00.13 – Menejment
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- 08.00.16 – Raqamli iqtisodiyot va xalqaro raqamli integratsiya
- 08.00.17 – Turizm va mehmonxona faoliyati

Ma'lumot uchun, OAK
Rayosatining 2024-yil 28-avgustdagi 360/5-son qarori bilan "Dissertatsiyalar asosiy ilmiy natijalarini chop etishga tavsiya etilgan milliy ilmiy nashrlar ro'yxati"ga texnika va iqtisodiyot fanlari bo'yicha "Muhandislik va iqtisodiyot" jurnali ro'yxatga kiritilgan.

Muassis: "Tadbirkor va ishbilarmon" MChJ

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IMPLEMENTATING INNOVATIVE SOLUTIONS IN SMALL BUSINESSES' TRANSPORT- LOGISTICS SYSTEM(UZBEKISTAN CASE)

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Abstract. In the context of the rapidly developing digital economy, improving the transport and logistics system plays a significant role in enhancing the competitiveness of small business entities. This thesis examines the importance and main directions of introducing transport and logistics innovations into the daily operations of small enterprises. The study highlights the opportunities for increasing operational efficiency through the digitalization of logistics processes. The results indicate that innovative logistics solutions are essential for optimizing costs and improving service quality.

Keywords: transport and logistics, small business, innovation, digitalization, IoT, GPS monitoring.

Annotatsiya. Hozirgi kunda jadal rivojlanib borayotgan raqamli iqtisodiyot sharoitida kichik biznes subyektlarining raqobatbardoshligini oshirishda transport-logistika tizimini takomillashtirish muhim ahamiyat kasb etadi. Ushbu tezisda kichik biznes korxonalarining kundalik faoliyatiga transport-logistika innovatsiyalarini joriy etishning ahamiyati hamda asosiy yo'nalishlari ko'rib chiqilgan. Logistika jarayonlarini raqamlashtirish orqali operatsion samaradorlikni oshirish imkoniyatlari ilmiy asosda yoritilgan. Tadqiqot natijalari innovatsion logistika yechimlari xarajatlarni optimallashtirish va xizmatlar sifatini oshirishda muhim omil ekanligini ko'rsatadi.

Kalit so'zlar: transport-logistika, kichik biznes, innovatsiya, raqamlashtirish, IoT, GPS monitoring.

Аннотация. В условиях стремительного развития цифровой экономики совершенствование транспортно-логистической системы приобретает важное значение для повышения конкурентоспособности субъектов малого бизнеса. В данной работе рассмотрены значение и основные направления внедрения транспортно-логистических инноваций в повседневную деятельность малых предприятий. Освещены возможности повышения операционной эффективности за счет цифровизации логистических процессов. Результаты исследования показывают, что инновационные логистические решения способствуют оптимизации затрат и повышению качества услуг.

Ключевые слова: транспортно-логистическая система, малый бизнес, инновации, цифровизация, IoT, GPS-мониторинг.

INTRODUCTION

In Uzbekistan's economy, improving the transport and logistics system in small businesses has become a key priority in recent years. The expansion of digital transformation in the transport and logistics sector has demonstrated the critical role of information and communication technologies in economic and social development. This trend significantly affects production and service systems, as well as everyday business operations and management practices.

Small business entities are increasingly using integrated digital platforms and adapting their business models to meet the requirements of digital transformation. They focus on designing new workflows, improving existing processes, and adapting to evolving market conditions and customer expectations in order to enhance operational efficiency. Moreover, the creation of innovative working environments and customer-oriented services contributes to strengthening the competitiveness of small businesses. Digital technologies help reduce operational costs associated with transport and logistics while improving service quality and supporting sustainable growth in an expanding market environment [1].

The main innovative logistics solutions for small business development are presented in Table 1.

Table 1. Innovative logistics solutions for small business development¹

No	Factors	Key Elements
1	Digital and software innovation	Transparency of business processes
2	Cloud-based Transport Management Systems (TMS)	Elimination of expensive servers, real-time monitoring
3	Intelligent routing algorithms	Optimal route selection
4	Mobile applications and messenger bots	Automated communication
5	Green transport technologies	Cost efficiency and innovative business image
6	IoT sensors	Quality control of perishable goods

The digitalization of logistics operations provides opportunities for more efficient management of transportation, storage, and distribution costs. The advancement of information systems creates a unified digital space for all participants in the supply chain, ensuring faster, more reliable, and more transparent data exchange.

Uzbekistan's large geographical territory and the need to ensure efficient logistics services, particularly in remote regions, further increase the importance of developing innovative transport infrastructure.

Therefore, the implementation of innovative transport and logistics solutions in small businesses plays a crucial role not only in improving economic performance but also in strengthening regional economic connectivity and integration.

As shown in Table 1, innovative logistics solutions contribute to optimizing logistics processes, reducing operational costs, and improving service quality in the daily activities of small businesses. Digital innovations enhance transparency in business operations, while cloud-based TMS platforms reduce infrastructure costs and enable real-time monitoring of transport activities. In addition, artificial intelligence-based routing algorithms help determine optimal routes, reducing fuel consumption and improving delivery efficiency. Mobile applications and messenger bots improve communication and coordination within logistics processes. Furthermore, the use of environmentally friendly transport and IoT sensor technologies not only contributes to cost optimization but also ensures product quality control and strengthens the innovative capacity of enterprises.

Table 2 illustrates the effectiveness of logistics innovations and demonstrates their practical outcomes and efficiency gains. For example, GPS monitoring systems can reduce transport costs by approximately 15% through improved time management and fuel consumption control. Electronic document management systems significantly reduce paperwork and increase operational speed by around 30%. In addition, IoT sensor devices help maintain the quality of perishable goods and reduce the risk of losses by up to 40%.

Table 2. Economic impact of implementing logistics innovations²

Innovation type	Expected result	Efficiency
GPS monitoring	Time savings and fuel control	Costs -15%
Electronic document management	Reduced bureaucracy and paperwork	Process speed +30%
IoT sensors	Preservation of product quality	Loss risk -40%

The effective implementation of innovative logistics solutions requires a structured, step-by-step approach. Such an approach enhances the practical effectiveness of innovations by taking into account the company's existing resources and operational processes. From this perspective, the main stages of innovation adoption include the following:

Key stages of innovation implementation:

1. Audit: Identifying which components of current processes involve the highest time and cost expenditures.
2. Selection: Choosing cost-effective and efficient digital solutions that align with the company's financial capacity.
3. Employee training: Training drivers, logistics personnel, and warehouse staff to effectively use new digital systems.
4. Pilot testing: Conducting initial testing of innovations on a limited scale, such as a single route, before full-scale implementation [2].

¹ author's development

² author's development

Small businesses should consider innovation not only as the introduction of advanced robotics but also as the digital management of information and the efficient utilization of available resources. In Uzbekistan, integration with electronic logistics platforms represents one of the most practical and innovative initial steps for small enterprises. Since small businesses play a vital role in the national economy, their performance largely depends on the efficiency and innovativeness of transport and logistics systems. By adopting modern technologies, small business entities can deliver products and services faster, more safely, and more efficiently.

In this context, the development of transport and logistics systems in small businesses through innovation represents a strategic priority. The digital transformation of logistics operations—including order processing, warehouse management, vehicle tracking, and delivery coordination within a unified integrated platform—helps reduce operational costs and improve overall efficiency. Technologies such as GPS monitoring, IoT applications, artificial intelligence-based forecasting, and route optimization tools significantly enhance resource utilization and accelerate delivery processes.

Furthermore, integration with electronic logistics platforms enables small enterprises to effectively utilize multimodal transport services, quickly identify logistics partners, and coordinate cargo flows efficiently. As a result, market access expands, export potential increases, and overall business competitiveness strengthens. Continuous modernization of transport infrastructure in Uzbekistan is creating favorable institutional and technological conditions for the successful implementation of logistics innovations in small businesses.

At the same time, the modernization of transport and logistics processes in small enterprises is closely linked to the adoption of innovations, in which improved financial support mechanisms play a crucial role. Public–private partnerships, government subsidies, startup initiatives, and targeted funding programs contribute to accelerating the development and implementation of advanced technologies and increasing investment in logistics infrastructure. Consequently, these measures facilitate cost optimization, improve service quality and delivery speed, and enhance the overall reliability of logistics operations.

Regulatory frameworks and public policies also play a significant role in promoting innovative development in the transport and logistics sector. In particular, the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 305 (April 12, 2019) established the activities of the Transport and Logistics Development Studies Center, defining key tasks such as developing innovative proposals, preparing research and grant projects, and coordinating innovation initiatives within the transport sector [3]. Furthermore, several strategic policy documents have been adopted to stimulate innovation in transport logistics and support the development of small businesses. Specifically, the “Uzbekistan–2030” Strategy and the Concept for Transport and Logistics Development until 2030 emphasize the modernization of transport infrastructure, acceleration of digital transformation, expansion of multimodal transport systems, and strengthening of logistics infrastructure to enhance small business performance [4].

These strategic documents set ambitious targets, including doubling international freight volumes, increasing transit cargo to 22 million tons, expanding container transportation capacity by 1.5 times, and strengthening the operational capacity of logistics centers. Such policy measures are aimed at accelerating digital transformation and promoting the widespread adoption of innovative logistics solutions among small enterprises.

According to the projected indicators outlined in the Transport and Logistics Development Concept until 2030, the volume of international freight transportation is expected to reach approximately 119.2 million tons, significantly expanding logistics opportunities for small businesses. Achieving these strategic objectives is closely associated with the adoption of innovative technologies, the digitalization of logistics operations, and the modernization of transport infrastructure. Therefore, the large-scale implementation of logistics innovations is essential not only for improving economic efficiency but also for strengthening the global integration and competitiveness of the national transport system.

CONCLUSION AND RECOMMENDATIONS

The formation of innovative transport and logistics systems in small businesses significantly enhances economic efficiency at the enterprise level while simultaneously supporting the stability of production and trade processes within the national economy.

Accordingly, the expansion of logistics innovations, deeper integration with digital platforms, and the development of modern business models in logistics services should be regarded as strategic priorities for the sustainable development of small businesses.

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muhandislik **& iqtisodiyot**

ijtimoiy-iqtisodiy, innovatsion texnik,
fan va ta'limga oid ilmiy-amaliy jurnal

Ingliz tili muharriri: Feruz Hakimov

Musahhih: Zokir Alibekov

Sahifalovchi va dizayner: Iskandar Islomov

2025

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"Muhandislik va iqtisodiyot" jurnali 26.06.2023-yildan
O'zbekiston Respublikasi Prezidenti Adminstratsiyasi huzuridagi
Axborot va ommaviy kommunikatsiyalar agentligi tomonidan
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