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INCREASING THE ECONOMIC EFFICIENCY OF POSTAL SERVICES THROUGH THE MODERNIZATION OF POSTAL SERVICE INFRASTRUCTURE

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Abstract: This article examines the possibilities of increasing the economic efficiency of postal services through the modernization of postal service infrastructure. In the context of the digital economy, the development of information and communication technologies, the rapid expansion of e-commerce, and changing customer expectations are creating new requirements for the organization and delivery of postal services. The study analyzes the importance of modernizing postal infrastructure, introducing digital technologies, automating operational processes, improving logistics systems, and optimizing resource utilization. Particular attention is paid to reducing operational costs, increasing labor productivity, improving service quality, shortening delivery times, and expanding the range of value-added postal services. The article also considers the role of digital platforms, automated sorting systems, electronic payment technologies, and intelligent logistics solutions in improving the economic performance of postal organizations. Based on the analysis, practical recommendations are proposed for ensuring sustainable development and increasing the competitiveness of postal services through infrastructure modernization.

Keywords: postal services, postal infrastructure, modernization, economic efficiency, digitalization, digital economy, logistics, automation, information and communication technologies, e-commerce, operational costs, labor productivity, service quality, digital transformation, competitiveness.

INTRODUCTION

The postal services sector plays an important role in ensuring communication, logistics, trade, and economic interaction between individuals, businesses, and public institutions. In recent years, the rapid development of the digital economy and information and communication technologies has significantly changed the traditional operating environment of postal organizations. The growth of e-commerce, increasing demand for parcel delivery, and customers' expectations for faster and more convenient services require postal operators to modernize their infrastructure and improve the efficiency of their operations.¹

Modernization of postal infrastructure is not limited to the replacement of outdated technical equipment. It represents a comprehensive process that includes the digitalization of business processes, automation of sorting and distribution operations, development of

¹ Universal Postal Union (UPU). *Postal Development Report 2024: Unlocking a New Era of Postal Development*. Bern: Universal Postal Union, 2024.

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logistics centers, introduction of electronic payment systems, improvement of information management, and expansion of digital customer services. These measures can contribute to reducing operational costs, increasing labor productivity, improving service quality, and strengthening the competitiveness of postal organizations.

The economic efficiency of postal services is closely connected with the effective utilization of material, financial, technological, and human resources. Traditional postal infrastructure often involves high operating costs, significant manual labor, and relatively long processing and delivery times. The introduction of modern technologies can help overcome these challenges by automating repetitive operations, optimizing logistics routes, improving resource allocation, and reducing unnecessary expenditures. According to the Universal Postal Union, digital transformation and modernization are becoming essential factors in adapting postal operators to changes in the global postal market.

At the same time, the development of e-commerce has increased the strategic importance of postal infrastructure. Postal organizations are increasingly performing not only traditional mail delivery functions but also providing logistics, fulfillment, parcel delivery, payment, tracking, and other value-added services. Therefore, improving the economic efficiency of postal services requires the formation of an integrated infrastructure capable of responding flexibly to changes in market demand.

In this regard, the modernization of postal infrastructure can be considered one of the key directions for ensuring the sustainable development of the postal sector. The introduction of innovative technologies, automation of operational processes, optimization of logistics, and development of digital services can create favorable conditions for reducing costs, increasing revenues, improving customer satisfaction, and strengthening the overall economic efficiency of postal organizations.

MAIN PART

Modernization of Postal Infrastructure as a Factor of Economic Efficiency

The modernization of postal infrastructure is one of the most important conditions for improving the economic efficiency of postal organizations. In the traditional postal system, a significant proportion of operational costs is associated with manual processing, transportation, sorting, storage, and administrative procedures. The introduction of modern technologies makes it possible to automate these processes and use available resources more efficiently.

An important component of modernization is the development of automated sorting and distribution centers. Automated equipment can process large volumes of postal items with greater speed and accuracy than traditional manual methods. This reduces processing time, minimizes human errors, and increases the productivity of postal employees. As a result, postal organizations can increase the volume of processed shipments without a proportional increase in operating costs.

Digital information systems also play an important role in improving economic efficiency. The integration of postal offices, sorting centers, transportation units, warehouses, and customer service platforms into a unified information system allows management to monitor operational processes in real time. Such systems provide reliable



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information for making managerial decisions and help identify inefficient processes and unnecessary expenditures.

Digitalization and Automation of Postal Services

Digitalization is one of the main directions for increasing the efficiency of postal services. Electronic registration, digital payment systems, online shipment tracking, electronic notifications, and mobile applications can significantly reduce the time and resources required for servicing customers.

The introduction of automated technologies also contributes to reducing labor-intensive operations. Artificial intelligence, optical character recognition, barcode systems, and automated sorting technologies allow postal organizations to process shipments more efficiently. These technologies are particularly important when the volume of postal items increases as a result of the expansion of e-commerce.

In addition, the use of big data analytics provides postal organizations with opportunities to forecast demand, identify customer preferences, optimize delivery routes, and plan resources. Data-driven management can help reduce unnecessary transportation costs and improve the utilization of postal infrastructure. According to the International Telecommunication Union, digital transformation can contribute to greater efficiency and innovation in sectors that traditionally rely on physical infrastructure and manual processes.

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Optimization of Logistics and Transportation Costs

Transportation represents one of the major components of postal operating costs. Therefore, optimizing logistics processes is essential for improving economic efficiency. Modern logistics management systems make it possible to determine optimal transportation routes based on delivery volumes, geographical location, traffic conditions, and available transportation capacity.

The implementation of intelligent logistics systems can reduce fuel consumption, transportation time, and vehicle operating costs. GPS technologies and real-time monitoring systems allow postal organizations to track vehicles and optimize their movement. Preventive maintenance systems can also reduce unexpected vehicle breakdowns and associated operational expenses.

The development of regional distribution and logistics centers is another important direction. Properly located logistics facilities can reduce the distance between sorting centers and final delivery points, thereby decreasing transportation costs and delivery times. The World Bank emphasizes that efficient logistics infrastructure and reliable transport systems are important factors in improving the overall performance of supply chains. ³

CONCLUSION

The modernization of postal service infrastructure is an important factor in increasing the economic efficiency, competitiveness, and sustainability of postal organizations in the

² International Telecommunication Union (ITU). *Measuring Digital Development: Facts and Figures 2023*. Geneva: International Telecommunication Union, 2023.

³ World Bank. *Connecting to Compete 2023: Trade Logistics in an Uncertain Global Economy*. Washington, DC: World Bank, 2023.



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digital economy. The analysis demonstrates that the effective modernization of postal infrastructure should combine technological innovation, digital transformation, logistics optimization, and improvement of customer-oriented services.

The introduction of automated sorting and distribution systems, digital information platforms, electronic payment technologies, shipment tracking systems, and intelligent logistics solutions can significantly reduce operational costs and improve labor productivity. At the same time, the optimization of transportation routes and effective utilization of vehicles, warehouses, and other infrastructure facilities can contribute to reducing logistics costs and shortening delivery times.

The development of digital services and integration with e-commerce platforms creates additional opportunities for increasing postal revenues. The expansion of parcel delivery, fulfillment, express delivery, electronic payment, return management, and other value-added services allows postal organizations to diversify their sources of income and make more effective use of existing infrastructure.

Another important result of modernization is the improvement of service quality and customer satisfaction. Digital platforms and mobile applications provide customers with convenient access to postal services, real-time shipment tracking, electronic payments, and timely notifications. Consequently, digitalization contributes not only to economic efficiency but also to increasing the accessibility and attractiveness of postal services.

In conclusion, increasing the economic efficiency of postal services requires a comprehensive approach to infrastructure modernization. The coordinated implementation of digital technologies, automation, modern logistics systems, human resource development, and customer-oriented management can create favorable conditions for reducing costs, increasing revenues, improving service quality, and strengthening the competitiveness of postal organizations. Therefore, continued investment in digital and physical postal infrastructure should be considered a strategic priority for the sustainable development of the postal sector.

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