EXISTING PROBLEMS IN LOGISTICS SYSTEMS AND THEIR ANALYSIS

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Abstract. This study examines existing problems in logistics systems and analyses the level of digital technology usage in logistics operations, particularly in small enterprises. The research highlights that digital technologies play an important role in transportation management, warehouse operations, inventory control, order processing, and delivery planning and monitoring. The study shows that the use of digital technologies such as automated management systems, big data analytics, artificial intelligence, the Internet of Things, and cloud computing significantly improves logistics efficiency, reduces operational costs, and increases supply chain stability. The paper also identifies major logistics problems in small enterprises, including high transportation costs, insufficient warehouse equipment, lack of qualified logistics specialists, limited IT systems, and inefficient inventory management. The results indicate that the integration of digital technologies into logistics systems improves operational efficiency, decision-making quality, and overall competitiveness of enterprises. The study concludes that increasing the level of digitalisation in logistics systems is an important factor for improving logistics performance and ensuring sustainable economic development.

Keywords. Logistics system, digital technologies, supply chain, logistics efficiency, small enterprises, logistics costs, inventory management, digitalisation.

Introduction. Logistics systems play a vital role in ensuring the efficient movement of goods, information and financial resources from producers to consumers. Global trade development, supply chain expansion, and increased competition among enterprises have all significantly increased the importance of effective logistics management. Logistics systems now encompass not only transportation and warehousing activities, but also inventory management, order processing, information flow management, and delivery planning and control. Consequently, the efficiency of these systems directly impacts production costs, product prices, customer satisfaction, and the overall competitiveness of enterprises.

The rapid development of digital technologies has had a significant influence on logistics systems. Information technologies, automated management systems, big data analytics, artificial intelligence, the Internet of Things and cloud computing are now widely used in logistics operations. These technologies enable the real-time monitoring of transportation processes, the optimisation of transport routes, the efficient use of warehouse space, the improvement of inventory management and the acceleration of order processing. Consequently, digital technologies contribute to reducing logistics costs, improving service quality and enhancing the overall efficiency of logistics systems.

Assessing the extent to which digital technology is used in logistics systems has become an important scientific and practical issue. The degree of digitalisation affects the speed, accuracy, transparency and flexibility of logistics processes. Highly digitalised logistics systems are characterised by integrated information systems that connect transportation, warehousing, inventory management, order processing and delivery operations within a single system. This integration improves decision-making processes, reduces errors and increases operational efficiency.

Despite the advantages of digital technologies, many enterprises, particularly small businesses, still encounter various issues with their logistics systems. These issues often stem from limited financial resources, inadequate logistics infrastructure, a shortage of qualified logistics specialists, high transportation costs, inefficient warehouse management, poor inventory control and a low level

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of automation in logistics processes. These issues reduce the efficiency of logistics operations and have a negative impact on enterprises' overall performance.

Analysing existing problems in logistics systems and evaluating the role of digital technologies in improving logistics efficiency is an important research topic. Identifying these problems and developing digital technology-based solutions can help enterprises reduce costs, improve logistics performance and increase their competitiveness in the market.

Literature Review. The concept of logistics systems and their efficiency has been widely studied by many scholars in the fields of logistics, supply chain management, and digital economy. Researchers emphasize that logistics systems play a crucial role in ensuring the efficient movement of goods, services, information, and financial resources from the point of origin to the point of consumption.

According to Martin Christopher, logistics and supply chain management are key factors in creating competitive advantage for enterprises, as efficient logistics systems help reduce costs, improve customer service, and increase operational efficiency. He noted that modern competition is no longer between companies but between supply chains, which highlights the importance of effective logistics systems.

Donald J. Bowersox and David J. Closs emphasized that logistics systems consist of transportation, warehousing, inventory management, order processing, and information systems, and the integration of these elements determines the overall efficiency of logistics operations. They argued that information technologies play a critical role in integrating logistics processes and improving coordination between different logistics activities.

Research conducted by John T. Mentzer shows that the efficiency of logistics systems is closely related to the level of information exchange and coordination among supply chain participants. He highlighted that digital technologies improve information visibility, reduce uncertainty, and enhance decision-making processes in logistics management.

Research Methodology. This study uses a combination of qualitative and quantitative research methods to analyse existing problems in logistics systems and evaluate the role of digital technologies in improving logistics efficiency, particularly in small enterprises. The research methodology is based on the analysis of scientific literature, statistical data, and comparative analysis of logistics system indicators.

Analysis and results. Digital technologies are particularly evident in the management of transportation processes, warehouse operations, inventory management, order processing, and the planning and monitoring of delivery operations. Digital technologies allow logistics companies to track shipments in real time, optimise transport routes, utilise warehouse space efficiently, maintain optimal inventory levels and reduce delivery times. This increases the overall efficiency of logistics systems and improves the quality of logistics services.

In the modern economic context, assessing the level of use of digital technologies in logistics systems is of significant scientific and practical importance, as it is directly linked to improving the efficiency of logistics processes, reducing costs and ensuring supply chain stability. The process of digitalisation in logistics has developed rapidly in recent years, with information technologies, automated management systems, big data analytics, artificial intelligence, the Internet of Things and cloud computing being widely adopted for logistics management. These technologies facilitate the transition of logistics systems from traditional management methods to digital management systems, thereby increasing the transparency, speed, and accuracy of logistics processes.

The introduction of digital technologies into logistics systems also plays a key role in reducing costs. These costs generally include transportation and warehouse expenses, inventory holding costs, order processing costs, and management expenses. Digital technologies help to optimise these costs by reducing human error, minimising excessive inventories, optimising transport routes and

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accelerating logistics processes. Consequently, the economic efficiency of logistics systems improves.

There are several important indicators that can be used to assess the level of digital technology used in logistics systems. These include the degree of process automation, electronic document management, real-time monitoring, warehouse and transportation management system implementation, data analysis and forecasting, and overall integration. Together, these indicators provide a comprehensive assessment of the level of digital development in logistics systems.

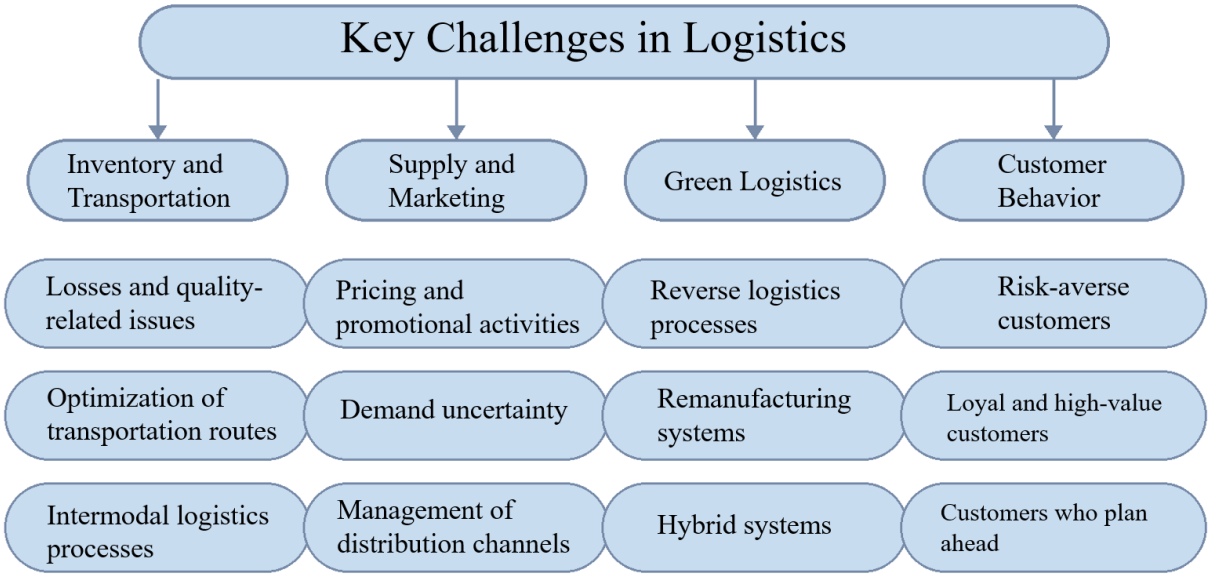

Figure 1. Main Challenges in Modern Logistics Systems

The ability of logistics systems to handle data is also a key factor when evaluating digital technology usage. Modern logistics systems must be capable of collecting, storing and analysing large volumes of data. Data analysis enables demand forecasting, logistics process planning, transport flow management, inventory optimisation and risk reduction. Therefore, the extent to which analytical systems are utilised is also a key indicator of the adoption of digital technology in logistics systems.

The level of digital technology use is also linked to the degree of integration within logistics systems. A logistics system is considered highly digitalised if transportation, warehouse, inventory, order processing and delivery systems are integrated into a single information system. Conversely, if these systems operate separately with limited information exchange, the level of digital technology use is low.

Digital technologies also enhance the flexibility of logistics systems. In modern markets, demand can change rapidly, transport routes can face various challenges and supply chains can experience disruptions. Digital logistics systems facilitate quick adaptation to such changes by analysing data in real time and supporting optimal decision-making. This improves the resilience and stability of logistics systems.

Digital technologies also impact environmental efficiency in logistics systems. For example, optimising transport routes reduces fuel consumption, while efficient use of warehouse space decreases energy consumption and electronic document management reduces paper usage. Consequently, the environmental impact of logistics systems is reduced, thereby promoting the development of green logistics.

Evaluating the extent to which digital technologies are used in logistics systems enables us to determine their level of development, efficiency, competitiveness and innovation potential. Digital technologies are becoming an essential tool for logistics management, and the efficiency of logistics

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systems will largely depend on the level of digitalisation in the future. Therefore, evaluating and enhancing the use of digital technologies in logistics systems is crucial for advancing logistics operations.

Small enterprises often face challenges with their logistics systems that are primarily related to limited financial resources, underdeveloped infrastructure and low adoption of modern technologies. Such firms usually lack the funds or technological capabilities to manage transportation, warehousing, inventory and delivery processes effectively. Consequently, logistics costs tend to increase and delivery times become longer, negatively affecting overall business performance.

Another important issue is the inefficient organisation of inventory management. In many small enterprises, inventory is not properly controlled, leading either to excessive stock accumulation or product shortages. Excess inventory increases storage costs and ties up financial resources, while shortages lead to lost sales and reduced customer satisfaction. Therefore, effective inventory planning and control are essential for improving logistics performance in small businesses.

Table 1.

Distribution of logistics system problems in small enterprises

No	Analysis Criteria	High Problem (%)	Medium Problem (%)	No Problem (%)
1	Condition of transport vehicles	39%	39%	22%
2	Warehouse technical equipment	50%	35%	15%
3	Shortage of qualified logistics specialists	41%	41%	18%
4	Availability of IT systems	60%	30%	10%
5	High logistics costs	65%	25%	10%

Logistics processes in small enterprises are often managed manually or using very simple methods. This means that automated systems, real-time monitoring and electronic document management are not widely implemented. This slows down the exchange of information, increases the probability of errors and reduces the overall efficiency of management and decision-making processes.

The main logistics problems in small enterprises are generally related to high transportation costs, inefficient warehouse operations, poor inventory management, a lack of automation in logistics processes and insufficient logistics infrastructure. Solving these problems requires introducing digital technologies into logistics operations, optimising logistics costs and implementing effective supply chain management practices. Improving these areas can help small businesses to increase efficiency, reduce costs and improve the quality of customer service.

Conclusion. The analysis of logistics systems demonstrates that the integration of digital technologies is essential for enhancing the efficiency, flexibility, and competitiveness of modern logistics operations. Digitalisation, through tools such as automated management systems, real-time monitoring, data analytics, artificial intelligence, the Internet of Things, and cloud computing, significantly improves the management of transportation, warehousing, inventory, and order processing. As highlighted by the research, digital technologies enable logistics companies to optimise transport routes, efficiently utilise warehouse space, maintain optimal inventory levels, and reduce delivery times, ultimately increasing the overall efficiency and quality of logistics services.

Small enterprises, however, face substantial challenges in adopting digital logistics solutions due to limited financial resources, underdeveloped infrastructure, and low technological readiness. These limitations result in high logistics costs, inefficient warehouse operations, poor inventory management, and extended delivery times, all of which negatively impact business performance and customer satisfaction. The study's statistical analysis shows that key problem areas include

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inadequate transport vehicles, insufficient warehouse equipment, shortage of qualified logistics specialists, limited IT system availability, and high operational costs.

Addressing these challenges requires a strategic approach that combines the implementation of digital technologies with effective logistics planning, inventory control, and supply chain management practices. Digital integration within logistics systems enhances real-time decision-making, improves resilience against market disruptions, and supports environmentally sustainable practices by reducing fuel consumption, energy use, and paper waste.

In conclusion, the future competitiveness and efficiency of logistics systems, particularly in small enterprises, will depend largely on the successful adoption and utilisation of digital technologies. Investing in digitalisation not only reduces operational costs but also strengthens supply chain stability, increases service quality, and promotes sustainable logistics practices. Therefore, enhancing digital technology adoption is a critical step toward solving existing logistics problems and advancing overall logistics system performance.

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