



Інноваційні бізнес-моделі та економіка спільного споживання при управлінні логістичними процесами

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***Анотація.** Інноваційні бізнес-моделі та економіка спільного споживання стають важливими рушіями трансформації сучасної логістики та управління, сприяючи підвищенню ефективності, гнучкості та екологічної стійкості.. Основною **метою** дослідження є аналіз ключових інноваційних бізнес-моделей та принципів економіки спільного споживання у логістичних процесах, їхнього впливу на ефективність управління та можливостей адаптації до глобальних викликів. **Методи.** У процесі дослідження застосовано комплексний підхід, який включає використання таких методів, як системний аналіз для ідентифікації взаємозв'язків між компонентами бізнес-моделей; порівняльний аналіз для оцінки ефективності різних інноваційних підходів; методи статистичного аналізу для обробки емпіричних даних; контент-аналіз наукових публікацій і практичних кейсів; логічна дедукція для формулювання висновків; а також теоретичне узагальнення для визначення ключових тенденцій і перспектив розвитку. **Результати.** У статті визначено основні моделі, такі як циркулярна логістика,*



діджиталізовані підходи, логістика "останньої милі" та краудсорсинг. Доведено, що інтеграція цифрових технологій, таких як штучний інтелект, Інтернет речей та великі дані, сприяє оптимізації логістичних процесів. Показано значний потенціал економіки спільного споживання для раціонального використання ресурсів та підвищення екологічної стійкості. Виявлено основні бар'єри, включаючи фінансові витрати, адаптацію бізнес-моделей до локальних ринків та поведінкові аспекти споживачів. **Висновки.** Інноваційні бізнес-моделі сприяють створенню стійких логістичних рішень, підвищенню конкурентоспроможності компаній та мінімізації екологічного впливу. Подальші дослідження можуть бути спрямовані на порівняння ефективності різних моделей, а також на розробку стратегій їх масштабування для адаптації до локальних і глобальних умов.

Ключові слова: інновації, економіка спільного споживання, логістика, цифрові технології, циркулярна економіка, сталий розвиток, бізнес-моделі.

Innovative business models and the sharing economy in managing logistics processes

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Abstract. Innovative business models and the sharing economy are becoming key drivers of transformation in modern logistics and management, enhancing efficiency, flexibility, and environmental sustainability. The **primary aim** of this research is to analyze key innovative business models and the principles of the sharing economy in logistics processes, assess their impact on management efficiency, and explore their adaptability to global challenges. **Methods.** The



research employs a comprehensive approach incorporating various methods, including system analysis to identify interrelations among business model components, comparative analysis to evaluate the effectiveness of different innovative approaches, statistical analysis methods to process empirical data, content analysis of scientific publications and practical case studies, logical deduction for formulating conclusions, and theoretical generalization to determine key trends and development prospects. **Results.** The study identifies core models such as circular logistics, digitalized approaches, last-mile logistics, and crowdsourcing. It demonstrates that integrating digital technologies, including artificial intelligence, the Internet of Things, and big data, facilitates the optimization of logistics processes. The significant potential of the sharing economy for resource efficiency and environmental sustainability is highlighted. Key barriers have been identified, including financial costs, adaptation of business models to local markets, and consumer behavioral aspects. **Conclusions.** Innovative business models contribute to the creation of sustainable logistics solutions, enhancing companies' competitiveness and minimizing environmental impact. Future research could focus on comparing the effectiveness of different models and developing scaling strategies for adaptation to local and global conditions.

Keywords: innovations, sharing economy, logistics, digital technologies, circular economy, sustainable development, business models.

Problem statement. In the modern global economic environment, logistics and supply chain management are undergoing significant transformations driven by the implementation of innovative business models and the principles of the sharing economy. The increasing environmental standards, growing demand for fast and high-quality logistics services, and the need to optimize costs are compelling companies to adapt their business processes to new realities. Innovative approaches, including the digitalization of processes, the utilization of artificial intelligence technologies, the Internet of Things (IoT), robotics, and sharing economy platforms, are opening new opportunities for the efficient organization of logistics operations.



However, alongside opportunities, these transformations bring numerous challenges. The integration of circular economy principles, aimed at resource reuse, waste reduction, and the transition to sustainable business practices, remains a complex task. Particularly pressing is the issue of adapting these principles to diverse markets and conditions, considering significant differences between global and local contexts. Additionally, the implementation of digital technologies in small and medium-sized enterprises is accompanied by risks associated with high technology costs, organizational changes, and managerial barriers.

Behavioral aspects of consumers within the framework of the sharing economy represent another critical area requiring further investigation. The question of consumers' motivation to engage with sharing platforms, their trust in such solutions, and the barriers hindering the widespread adoption of these models remains unresolved. The lack of empirical data on user behavior across various regional contexts limits the scalability and broader implementation of these models.

Another unresolved issue is the assessment of the environmental impact of innovative business models. Most studies focus on their economic benefits, while the long-term ecological consequences remain insufficiently explored. A systematic approach to evaluating environmental sustainability could provide companies with new opportunities for implementing effective and sustainable solutions.

Thus, the relevance of the research is determined by the need for a deeper analysis of the key aspects of implementing innovative business models in logistics, including their environmental, economic, and social efficiency. Addressing these challenges will enable the development of strategies that meet modern market demands, enhance the competitiveness of companies, and contribute to the sustainable development of the logistics sector.

Analysis of the latest research and publications. In the current context of economic transformation, the importance of innovative business models and the sharing economy in management and logistics has garnered significant interest among researchers. Analyzing recent studies enables an assessment of the relevance



and prospects of these concepts within the framework of sustainable development, digital transformation, and the optimization of logistics processes.

Scientific works, such as the study on the implementation of the circular economy (Deryi Zh.et al., 2021) [1], highlight the key aspects of transitioning to sustainable business models. Particular attention is also given to the use of digital technologies in supply chains (Koliadenko S., 2021) [2] and the prospects for the digitalization of international logistics (Khmelevskyi O., 2019) [3]. Simultaneously, researchers emphasize the importance of organizational learning and the adaptation of innovative approaches in business models (Ademi B. et al., 2024) [7].

Research on innovative business models and the sharing economy focuses on several key areas that highlight similar approaches to analyzing these issues. One of the leading directions is the study of the circular economy and sustainable business models. Authors such as Deriy Zh., Butenko N., Zosymenko T. (2021) [1], Aldieri L., Brahmi M., Bruno B., Vinci C.P. (2021) [8], as well as Acquier A., Carbone V., Ezvan C. (2024) [5], explore the integration of circularity into modern business models, emphasizing its role in sustainable resource management and logistics. Their research also examines the interconnection between the circular economy and the sharing economy.

Another critical aspect is the impact of digital transformation and digitization on innovative business models. The studies by Koliadenko S. (2021) [2], Khmelevskyi O. (2019) [3], and Adama H.E., Okeke C.D. (2024) [6] highlight the role of digital technologies in optimizing supply chains, logistics processes, and enterprise management. These authors emphasize the importance of adapting businesses to digital changes and explore opportunities for leveraging cutting-edge technologies in this process.

Another significant direction involves the exploration of innovative approaches to business models through organizational learning. The works of Ademi B., Sætre A.S., Klungseth N.J. (2024) [7], Friedrich A., Lange A. And Elbert R. (2024) [10], and Feng T., Yang S., Sheng H. (2024) [9] emphasize the necessity of developing organizational capabilities for implementing innovations. These authors analyze



how organizations can adapt to pioneering approaches, such as additive manufacturing and supply chain integration, to enhance business efficiency.

Particular attention is drawn to research on the sharing economy and its role in the creation of innovative business models. The works of Shaik A.S., et al. (2024) [18] and Zhu X., Liu K. (2021) [23] explore the utilization of shared resources to reduce costs and enhance the environmental sustainability of businesses. The authors emphasize the importance of the sharing economy in modernizing business models within the contemporary global environment.

Among the studies that deserve special attention in the context of innovative business models and the sharing economy, several key scientific works stand out. These contributions make a significant impact on the development of this scientific field and offer promising approaches to addressing contemporary managerial and logistical challenges.

The research by Aldieri L. et al. (2021) [8] stands out for its in-depth analysis of the synergy between the circular economy, the sharing economy, and investments in eco-innovation. The authors convincingly demonstrate how these concepts interact to create an integrated platform for the sustainable development of business models, ensuring cost reduction and ecological sustainability.

The studies by Adama H.E. and Okeke C.D. (2024) [6], along with Ademi B., Sætre A.S., and Klungseth N.J. (2024) [7], collectively underscore pivotal aspects of innovation and sustainability in modern business models. Adama H.E. and Okeke C.D. emphasize the transformative potential of digitalization, portraying it as a catalyst for innovation within business frameworks. Their analysis reveals the profound influence of digital transformation on strategic processes and identifies key approaches for integrating digital solutions to enhance enterprise competitiveness. Complementing this perspective, Ademi B., Sætre A.S., and Klungseth N.J. focus on the critical role of organizational learning in fostering sustainable business models. They advocate for the integration of innovative methodologies and sustainable practices, highlighting these as indispensable elements for achieving effective management in the rapidly evolving global market. Together, these studies



present a comprehensive view of the intersection between digitalization, innovation, and sustainability, providing valuable insights for navigating contemporary business challenges.

Particular attention should be given to the study by Zhu X., Liu K. (2021) [23], which offers a systematic approach to analyzing business models within the sharing economy. The authors not only provide a comprehensive review of operational insights but also examine the environmental aspects of these models, making a significant contribution to the scholarly discourse on sustainable development.

These studies showcase scientific novelty and an innovative approach to analyzing contemporary business models, establishing their indispensable role in future research on management, logistics, and innovative business strategies. Their theoretical and practical contributions expand opportunities for addressing global economic and environmental challenges.

Identification of previously unresolved parts of the overall problem.

Despite the extensive body of research devoted to innovative business models and the sharing economy, several critical issues remain insufficiently addressed. Specifically, the practical integration models of the circular economy and the sharing economy are still underexplored. While certain authors, such as Aldieri L., Brahmi M., Bruno B., and Vinci C.P. (2021) [8], emphasize the interconnections between these concepts, the mechanisms for their implementation in real business environments remain vague. This is particularly relevant when applying such approaches in logistics and supply chain management.

An equally significant issue is the adaptability of traditional business models to the conditions of digital transformation. Studies dedicated to this topic, such as the research by Adama H.E. and Okeke C.D. (2024) [6], provide only partial analysis, leaving open questions regarding the implementation of digital technologies in small and medium-sized enterprises (SMEs). This is particularly relevant given the financial and operational risks that may arise during the digitalization process.

Furthermore, the role of organizational learning in the development of sustainable business models requires more in-depth exploration. Despite the



emphasis in the works of Ademi B., Sætre A.S. and Klungseth N. J. (2024) [7], questions about the impact of learning on shifts in corporate culture and its effectiveness in the context of various methods remain underexplored. Empirical data on how these processes influence organizational productivity and adaptability are also limited.

Consumer behavior aspects in the context of the sharing economy represent another under-researched area. While Zhu X. and Liu K. (2021) [23] analyze operational insights of such models, questions regarding consumer motivation, trust in sharing platforms, and barriers to their adoption remain unanswered. Addressing these issues is crucial for the further development of sharing economy models, particularly considering their environmental and social implications.

The environmental impact of innovative business models also remains insufficiently explored. Most of the research focuses on their economic benefits, often overlooking issues related to ecological sustainability. The need for a systematic approach to evaluating the environmental consequences of such models constitutes a critical component for future scientific investigations.

It is also worth noting that most studies are focused on the global context of the sharing economy, while local specifics, such as cultural differences and regulatory constraints, remain insufficiently explored. This gap limits the potential for adapting these models to the conditions of individual countries or regions.

Another unresolved issue is the scaling of innovative business models. Studies such as those by Oguanobi V.U. and Joel O.T. (2024) [17] partially address this topic; however, aspects related to risk management, financing, and market entry strategies require further investigation. Consequently, deeper analysis of these dimensions will enable the development of practical recommendations for creating effective business strategies.

This article aims to address these issues through the analysis of innovative business models and the sharing economy to develop more efficient and sustainable logistics solutions that will contribute to the optimization of management processes, cost reduction, and minimization of the environmental impact of modern enterprises.



Particular attention is paid to examining the impact of digital technologies, such as artificial intelligence, big data, and the Internet of Things, on the transformation of logistics and its adaptation to contemporary challenges. The research highlights the importance of the circular economy, which facilitates resource reuse, waste minimization, and the enhancement of environmental sustainability. It also emphasizes the significance of implementing crowdsourcing models that enable community engagement in logistics processes and enhance their efficiency. The research findings underscore the necessity of developing scaling strategies for innovations, ensuring their effective implementation in both global and local contexts.

Formulation of the article's objectives (statement of the task). The purpose of the article is to study innovative business models and the sharing economy in the context of management and logistics transformation. This includes analyzing their impact on the efficiency, sustainability, and adaptability of logistics processes in modern economic conditions.

In accordance with this goal, the following research objectives have been identified:

- to analyze current trends in the adoption and implementation of innovative business models in logistics, including circular logistics, digitalized logistics, and shared economy platforms;
- to assess the economic, ecological, and operational benefits of integrating these models into logistics processes;
- to identify the key directions of transformation in the logistics industry under the influence of modern technologies;
- to analyze the influence of the key characteristics of innovative business models in logistics and examples of their implementation by leading companies across different logistics segments.

Summary of the primary research material. In the modern economic environment, innovative business models and the sharing economy play a pivotal role in ensuring sustainable development and enhancing the efficiency of



management and logistics processes. This study focuses on analyzing the implementation of these models across various industries, identifying their key features, and evaluating their potential for further development.

The foundation of the research involved examining contemporary scientific approaches to integrating the principles of the circular economy into business processes. The analysis of works by Aldieri L., Brahmi M., Bruno B. and Vinci C.P. (2021) [8] and Acquier A., Carbone V. and Ezvan C. (2024) [5] demonstrated that the circular economy is becoming a critical driver of business transformation aimed at optimizing resource utilization. This includes reuse, material recycling, and waste minimization, thereby creating added value for enterprises.

The research of digital transformation in business models, particularly the work of Adama H.E. and Okeke C.D. (2024) [6], highlights the importance of digital technologies in creating competitive advantages. The authors emphasize the need to integrate digitalization tools such as big data, artificial intelligence, and automation to enhance logistics operations. In our research, special attention was given to analyzing the challenges faced by small and medium-sized enterprises during the implementation of digital innovations.

Another critical aspect of the study was the role of organizational learning in the creation of sustainable business models. Based on the work of Ademi B., Sætre A.S., and Klungseth N.J. (2024) [7], it was determined that fostering a corporate culture focused on innovation is a key factor in enabling businesses to adapt to the dynamic market environment. Leveraging learning as a tool to engage employees in the implementation of innovations significantly enhances the overall efficiency of an organization.

Particular attention in the study was given to the behavioral aspects of consumers within the context of the sharing economy. The research conducted by Zhu X. and Liu K. (2021) [23] served as a foundation for analyzing consumer motivation, barriers, and levels of trust in sharing platforms. The findings revealed that to enhance the popularity of such business models, it is crucial to consider the social and cultural characteristics of the target audience.



Additionally, the study included an analysis of the environmental impacts resulting from the implementation of innovative business models. The findings indicate that adopting circular and shared models significantly reduces the carbon footprint of enterprises. However, further research is required to provide a systematic evaluation of their environmental effects.

Moreover, special attention was given to strategic approaches for scaling business models, particularly through the research conducted by Oguanobi V.U. and Joel O.T. (2024) [17]. The study revealed that effective scaling requires meticulous planning, integration of innovative technologies, and consideration of local market specificities. These factors form the foundation for enterprise development within a global context.

In today's rapidly evolving economic and technological environment, logistics is undergoing significant transformation driven by the implementation of innovative business models. These models aim to optimize processes, reduce costs, minimize environmental impact, and enhance flexibility in supply chain management. The adoption of digital technologies, sharing economy principles, and circular economy practices unlocks new opportunities for developing sustainable and efficient logistics solutions.

To systematize the approaches, table 1 presents the key innovative business models in logistics along with examples of their implementation. These models illustrate how modern enterprises adapt to market demands, enhance the efficiency of their processes, and create added value for customers.

Table 1

Innovative business models in logistics

Type of Business Model	Description	Examples
Circular Logistics	Utilization of principles of reuse, recycling, and waste minimization.	Reverse logistics: collection and recycling (e.g., UPS).
Sharing Economy Logistics	Shared use of vehicles, warehouses, and other logistics resources.	Uber Freight, Flexe (shared warehouse access).




Digitalized Logistics	Use of digital technologies to optimize processes and reduce costs.	DHL SmartTruck, Amazon Robotics (warehouse automation).
Data-Driven Logistics	Application of big data (Big Data) for supply chain forecasting and management.	Maersk's Tradelens (blockchain for logistics).
Flexible Logistics	Models adapting to real-time demand fluctuations.	On-demand delivery: Glovo, Postmates.
Last-Mile Logistics	Efficient delivery of goods to the end consumer.	Amazon Prime Air (drone delivery), FedEx SameDay Bot.
Green (Sustainable) Models	Reduction of CO ₂ emissions and implementation of sustainable transport solutions.	DB Schenker Green Logistics, Tesla Semi (electric trucks).
Outsourced Logistics	Delegation of logistics operations to external service providers.	3PL (Third Party Logistics): XPO Logistics, C.H. Robinson.
Crowdsourced Logistics	Involvement of the community in performing logistics tasks.	Deliv, Instacart (community-based delivery).

Source: author's own development

The analysis of innovative business models in logistics reveals that modern enterprises are actively adapting to global changes by implementing technological, environmental, and social solutions. The presented models encompass a wide range of approaches that contribute to process optimization, cost reduction, and improved customer engagement.

Circular logistics and green models demonstrate the potential for adopting sustainable practices that reduce environmental impact through waste minimization and the use of eco-friendly transportation. For instance, Aldieri L., Brahmi M., Bruno B. and Vinci C.P. (2021) [8] emphasize the importance of investments in eco-innovations to integrate circular approaches into business processes.

The sharing economy generates added value by enabling the efficient utilization of shared resources, such as vehicles and warehouses. Zhu X. and Liu K. (2021) [23] highlight the operational insights of these models, particularly their impact on business sustainability and consumer behavior.



Digitalized logistics, data-driven logistics, and flexible models exemplify how technologies are transforming traditional supply chain management approaches. Adama H.E. and Okeke C.D. (2024) [6] emphasize the importance of digital transformation in creating competitive advantages, particularly through the application of artificial intelligence and automation.

“Last mile” models and crowdsourcing demonstrate effective solutions for rapid delivery and community engagement in logistics processes. Oguanobi V.U. and Joel O.T. (2024) [17] highlight that these models enhance customer experience and create new opportunities for service personalization.

Logistics outsourcing remains an effective strategy for businesses aiming to focus on their core competencies by delegating complex logistics operations to specialized companies. Friedrich A., Lange A. And Elbert R. (2024) [10] emphasize that such models enhance efficiency while maintaining focus on primary business activities.

Thus, innovative business models in logistics enhance efficiency, sustainability, and process flexibility. Their implementation fosters the creation of competitive advantages and meets the growing demands of the modern market. The further evolution of these models, particularly through the approaches described by Ademi, B., Sætre A.S. and Klungseth N.J. (2024) [7], opens new avenues for improving management solutions in the logistics sector.

Innovations in logistics processes play a crucial role in ensuring the efficiency, precision, and sustainability of supply chains. The adoption of advanced technologies such as robotics, artificial intelligence (AI), and the Internet of Things (IoT) enables businesses to enhance operations, reduce costs, and improve customer service quality.

The automation of warehousing, the integration of electric vehicles and drones in transportation, as well as the adoption of innovative approaches to monitoring and demand forecasting, open new opportunities for logistics companies. In the context of contemporary challenges, adapting logistics processes to new conditions, such as



rapid last-mile delivery and the implementation of flexible models that account for demand variability, has become increasingly significant.

Table 2 highlights significant innovations at different stages of logistics processes and provides examples of their application in the operations of top companies. These advancements contribute to operational efficiency and enhance customer value, making them essential for maintaining competitiveness in the global market. Reference to this table emphasizes the role of innovation in reshaping logistics and driving sustainable business growth.

Table 2

Innovations in logistics processes

Process	Innovation	Example
Warehousing	Automation of processes and use of robotics	Amazon Robotics, AutoStore
Transportation	Use of electric vehicles, drones, and autonomous transport	Tesla Semi, Amazon Prime Air
Monitoring and Control	Integration of IoT (Internet of Things) for cargo tracking	SenseAware by FedEx
Planning and Forecasting	Utilization of AI (Artificial Intelligence) for demand analysis	JDA Software for planning
Delivery	Flexible delivery models: last-mile and on-demand delivery	Glovo, Uber Freight

Source: author's own development

The analysis of innovations in logistics processes, presented in the table, highlights the key directions of industry transformation driven by modern technologies. Warehouse automation through robotics (e.g., Amazon Robotics, AutoStore) significantly enhances the efficiency of warehouse management operations, reducing both time and labor costs.

Innovations in transportation, particularly the use of electric vehicles, drones, and autonomous transport (e.g., Tesla Semi, Amazon Prime Air), not only enhance the speed and accuracy of delivery but also contribute to reducing environmental



impact. This is especially relevant in the context of striving to lower CO₂ emissions and ensuring sustainable development.

The integration of IoT (SenseAware by FedEx) into monitoring and control processes enables companies to ensure precise real-time tracking of shipments, minimizing risks and enhancing the reliability of logistics operations. The use of AI (artificial intelligence) in demand forecasting (JDA Software) allows for more accurate planning, contributing to cost reduction and improved customer service.

Flexible delivery models, such as “last-mile” solutions (Glovo, Uber Freight), highlight the importance of adapting to the needs of modern consumers who demand fast and personalized logistics solutions.

Thus, the presented innovations confirm that the implementation of technological solutions is a key driver for enhancing efficiency, sustainability, and competitiveness in the logistics sector. Further advancement of these technologies opens new opportunities for businesses to adapt to contemporary challenges and meet the demands of the global market.

Logistics innovations have emerged as a pivotal factor in advancing modern business operations by enhancing efficiency, promoting sustainability, and enabling operational flexibility. Figure 1 showcases the main categories of innovative business models within the logistics sector and their influence on the industry's dynamics. The displayed data cover critical areas such as contract logistics, the establishment of large-scale fulfillment centers, improvements in vehicle efficiency, and the adoption of advanced platforms to streamline logistics processes. The figure emphasizes the monetary value of each category, measured in billions of dollars, offering insights into their overall contribution to the global logistics landscape.

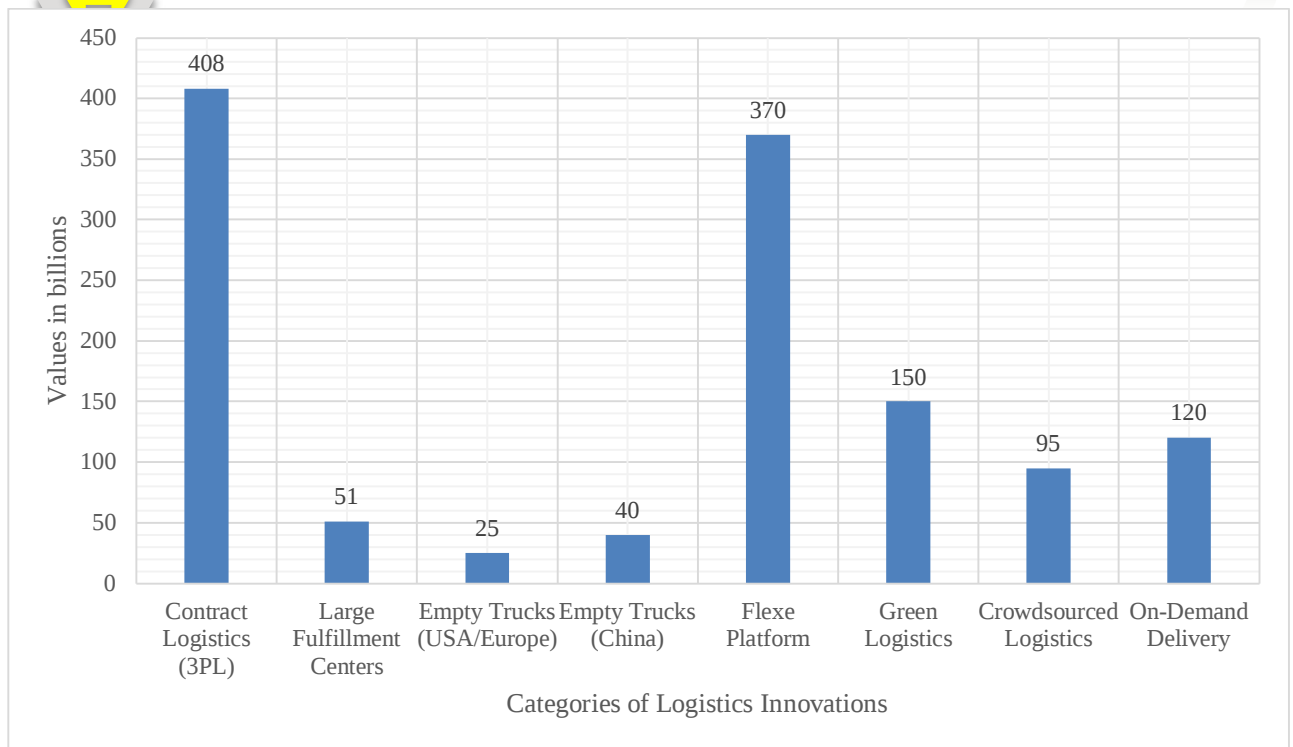


Fig. 1. Key categories of logistics innovations and their values

Source: author's own development

The chart illustrates the value of various categories of innovative business models in logistics, expressed in billions of dollars. The most significant contribution to the logistics sector comes from Contract Logistics (3PL), amounting to \$408 billion. This underscores its critical role in delegating logistics functions to third-party service providers, thereby optimizing operations and enhancing overall efficiency.

The Flexe Platform also demonstrates substantial figures, with a value of \$370 billion, highlighting the popularity of the sharing economy model for managing logistical resources. Such platforms provide flexibility and cost reduction for companies facing seasonal demand peaks.

The categories of Green Logistics (\$150 billion) and On-Demand Delivery (\$120 billion) reflect the industry's commitment to environmental sustainability and rapid delivery in response to growing demand. This underscores the importance of implementing eco-friendly solutions and meeting customer needs in modern logistics.



At the same time, Large Fulfillment Centers (\$51 billion) and the optimization of Empty Truck Usage in the US/Europe (\$25 billion) and China (\$40 billion) highlight the increasing automation of processes and efforts to address resource inefficiencies.

The conclusions drawn from the chart emphasize that modern logistics is a multidimensional industry where innovations play a pivotal role in enhancing efficiency, environmental sustainability, and adaptability to changing demand. Leading models, such as Contract Logistics and Flexe Platform, set the direction for industry development, while other categories highlight specialized approaches to addressing both local and global challenges.

These business models are classified as innovative because they fundamentally transform traditional approaches to logistics through the application of cutting-edge technologies, process optimization, and the integration of the sharing economy. They deliver greater efficiency, sustainability, and customer-centricity, creating new opportunities for businesses and consumers alike.

Contract Logistics (3PL) is a business model that involves outsourcing logistics functions (such as transportation, warehousing, and inventory management) to third-party service providers (3PL). This approach allows companies to focus on their core business processes. The innovation of this model lies in the implementation of digital solutions to optimize operations and enhance efficiency. Examples include logistics providers such as DHL and XPO Logistics.

Large fulfillment centers are a key component of modern e-commerce. They are responsible for automated warehousing, order picking, and the delivery of goods to end consumers. The innovation of these centers lies in the use of robotics, automated inventory management systems, and flexible planning models. For example, Amazon employs robots to accelerate order processing.

In many countries, a significant portion of trucks return empty after delivering goods. This business model focuses on reducing empty hauls through innovative platforms that optimize routes and maximize vehicle utilization. This approach helps lower costs, reduce CO₂ emissions, and enhance overall efficiency. One such



platform is Uber Freight. In China, the issue of empty trucks is even more pronounced compared to the U.S. and Europe. Innovative solutions in this region include the use of platforms that facilitate interaction between logistics companies and service providers, minimizing empty runs and improving logistics efficiency.

The Flexe Platform exemplifies an innovative business model within the "sharing economy." Flexe provides flexible access to warehouses in various regions without the need for long-term leases. This approach is particularly beneficial for companies experiencing seasonal sales peaks or fluctuating demand. Flexe manages a network of hundreds of warehouses across the country.

Green logistics models focus on environmental sustainability by reducing CO₂ emissions, employing electric vehicles, and integrating renewable energy sources. A notable example is DB Schenker Green Logistics, which emphasizes eco-friendly solutions in transportation and warehousing.

The crowdsourced logistics business model leverages solutions where the community participates in logistics processes, such as delivery or transportation. This approach helps reduce costs, shorten delivery times, and increase system flexibility. An example is Instacart, which engages local residents for grocery delivery.

On-demand delivery models provide customers with fast and flexible real-time delivery services. These models are particularly relevant in urban areas with high demand for last-mile delivery solutions. Companies like Glovo and Uber Freight are prominent examples implementing this business model.

The classification of innovative business models in logistics, including their main categories, key characteristics, and practical examples of application, is illustrated in figure 2. These models respond to modern logistics challenges, such as the need to improve efficiency, reduce environmental impact, and adopt digital solutions. Each category highlights unique approaches to organizing logistics processes, including the use of Internet of Things (IoT) technologies, shared resource platforms, autonomous transportation, and other advanced solutions. The

examples provided showcase real-world applications by leading companies across various segments of the logistics industry.

Category of Business Model													
Circular Logistics	Sharing Economy	Digitalized Logistics	Data-Driven Logistics	Last-Mile Logistics	Green Logistics	Third-Party Logistics (3PL)	Crowdsourced Logistics	Hybrid Logistics Models	On-Demand Delivery	Sharing Economy Platforms	Autonomous Transportation	IoT Integration in Logistics	E-commerce Logistics
Key Characteristics													
Utilizing principles of reuse, recycling and waste minimization	Sharing transportation, warehouses, and other resources	Implementation of digital solutions for automation and process optimization	Leveraging Big Data for forecasting and supply chain management	Efficient delivery of goods to end consumers	Reducing CO ₂ emissions and implementing sustainable transportation solutions	Outsourcing logistics operations to external service providers	Utilizing the community to perform logistics tasks	Combining multiple logistics approaches for flexible delivery	Real-time delivery services	Flexible access to storage without long-term commitment	Deployment of autonomous vehicles and drones	Real-time cargo monitoring	Optimization of supply chains for online retail
Examples													
Reverse Logistics, UPS	Uber Freight, Flexe	DHL SmartTruck, Amazon Robotics	Maersk's Tradelens	Amazon Prime Air, FedEx SameDay Bot	DB Schenker Green Logistics, Tesla Semi	XPO Logistics	Deliv, Instacart	Walmart Supply Chain	Glovo, Uber Eats	Flexe	Tesla Semi, Amazon Prime Air	SenseAware by FedEx	Shopify Fulfillment Network

Fig. 2. Categories, key characteristics, and examples of innovative business models in logistics

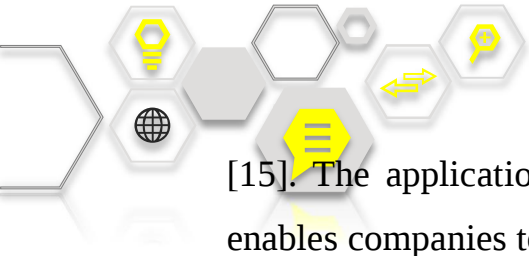
Source: author's own development

Innovative business models in logistics are at the core of transformative processes in the industry, driving improvements in efficiency, flexibility, and sustainability of logistics operations. Research highlights various aspects of these models, which significantly impact the logistics sector.

Circular logistics, focused on resource reuse and waste minimization, has been extensively analyzed in studies by Deriy Zh., Butenko N., Zosymenko T. (2021) [1] and Acquier A., Carbone V., Ezvan, C. (2024) [5]. The application of circular economy principles to logistics processes reduces environmental footprints and promotes sustainable development.

Sharing economy models, such as the shared use of vehicles and warehouses, have been explored in the studies of Zhu X. and Liu K. (2021) [23] and Strulak-Wójcikiewicz R., Wagner N. (2021) [20]. These models enhance resource efficiency and contribute to environmental sustainability.

Digitalized logistics, based on the implementation of digital technologies, has been thoroughly analyzed in the research of Koliadenko S. (2021) [2], Adama H.E., Okeke C.D. (2024) [6], and Mikl J., Herold D.M., Ćwiklicki M., Kummer S. (2021)



[15]. The application of automation technologies, IoT, and artificial intelligence enables companies to optimize supply chains.

Last-mile logistics, which ensures efficient delivery to end consumers, has been highlighted in the works of Toraman Y., Bayirli M. and Ramadani V. (2024) [21] and Hellström D. and Olsson J. (2024) [12]. These models emphasize the importance of delivery speed and customer-centricity.

Environmental logistics models aimed at reducing CO₂ emissions have been thoroughly examined in the works of Shostak L., Pavlova O. and Nazarenko L. (2024) [4] and Aldieri L., Brahmi M., Bruno B., Vinci C.P. (2021) [8]. These models integrate eco-friendly solutions into logistics processes.

In summary, contemporary research highlights that innovative business models are a key driver of logistics development, facilitating its adaptation to the demands of the modern market. The importance of their implementation is emphasized in numerous studies, which outline both their advantages and the challenges they present.

Conclusions. The analysis of innovative business models and the sharing economy in management and logistics demonstrates their significant impact on the development of the sector. Modern business models, such as circular logistics, digitalized approaches, flexible delivery models, and the sharing economy, facilitate process optimization, enhance efficiency, and reduce environmental impact.

Circular logistics showcases the potential for waste reduction and resource reuse, aligning with the goals of sustainable development. The sharing economy contributes to resource optimization and environmental sustainability through models that utilize shared transportation vehicles and warehouses.

Digitalized logistics and the application of big data enable the automation and optimization of supply chains. Last-mile logistics ensures convenience for end consumers through innovative solutions such as delivery drones.

At the same time, green logistics models emphasize the importance of reducing CO₂ emissions and implementing sustainable transportation solutions, which are critical aspects for the global economy.



Despite significant progress in the research of innovative business models, there remain key issues requiring further investigation. In particular, the scalability of circular models in a global context and their integration into local markets remain unresolved challenges.

The adaptability of traditional business models to the conditions of digital transformation also requires deeper analysis, particularly in the context of small and medium-sized enterprises (SMEs).

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