

American Journal of Economics and Business Management

Vol. 9 Issue 11 | **pp.** 396-405 | **ISSN:** 2576-5973

Available online @ https://www.globalresearchnetwork.us/index.php/ajebm

Article

Improving the Management Mechanisms of Transport and Logistics Enterprises in the Context of Globalization

Ikromova Iroda Normurotovna[1]

1. Independent researcher, Bukhara State University.
iikromova81@gmail.com

Abstract: This study examines the improvement of management efficiency in transport and logistics enterprises under conditions of globalization and dynamic external environments. National indicators show rapid transformation, driven by expanding international trade, intense competition along transport corridors, the integration of digital technologies, and tightening environmental standards. However, traditional localized optimization of logistics operations is often insufficient, necessitating a systematic and integrated managerial approach. Using a mixed-method research design, this study proposes a five-block conceptual model for managing transport and logistics enterprises, integrating external environmental factors, management subjects, functional mechanisms, objects, and adaptation blocks. The findings highlight the digital-information basis as the core framework for aligning management mechanisms, while incorporating ESG criteria as cross-cutting principles across all operational directions. Furthermore, the study introduces a scenario-based approach to address external economic instability and applies a combined performance assessment framework utilizing OTIF, transit time, logistics costs, TLGI, and ESG-KPIs, prioritized via the Analytic Hierarchy Process. The proposed conceptual model and methodological tools serve as a robust theoretical foundation for enhancing the adaptability, resource efficiency, and international competitiveness of transport and logistics enterprises.

Keywords: *Transport and logistics enterprises, management efficiency, conceptual model, digital integration, ESG criteria, scenario-based management.*

Citation: Nurmurotovna, I. I. Improving the Management Mechanisms of Transport and Logistics Enterprises in the Context of Globalization. American Journal of Economics and Business Management 2026, 9(11), 396-405.

Received: 10th Oct 2026
Revised: 11th Oct 2026
Accepted: 24th Oct 2026
Published: 10th Nov 2026

Copyright: © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.0/)

1. Introduction

The globalization of the world economy, the expansion of international trade and economic ties, and the deepening of integration processes between production and consumption markets are steadily increasing the importance of transport and logistics enterprises in the national and international economic system. In particular, the growing complexity of global supply chains, the development of international transport corridors, and the widespread introduction of digital technologies into economic processes are creating new requirements for organizing and managing the activities of transport and logistics enterprises. Under these conditions, transport and logistics activity appears not merely as the delivery of cargo from one destination to another, but as an integrated management system aimed at coordinating the economic, organizational, and informational relations among all participants in the supply chain. This in turn heightens the need to adapt the existing management mechanisms of transport and logistics enterprises to modern economic conditions and to improve them.

In world practice, particular attention is paid, in organizing the activities of transport and logistics enterprises effectively, to integrated management approaches, digital logistics platforms, artificial intelligence, big data analytics, automated monitoring systems, and the use of human capital potential. At the same time, the geopolitical, institutional, technological, and environmental changes emerging in international logistics chains are making adaptability, prompt decision-making, rational use of resources, and the principles of sustainable development priority tasks in enterprise management. This situation calls for improving the scientific and methodological foundations for applying organizational-administrative, economic, socio-psychological, and digital mechanisms in the management of transport and logistics enterprises in a coordinated manner.

Literature Review

A number of scholars have conducted research on organizing the management of transport and logistics enterprises. Among them, J. Coyle proposes the extensive use of quantitative indicators in assessing the efficiency of a logistics system. In particular, he regards indicators such as on-time and in-full order fulfillment (OTIF – On Time In Full), the level of vehicle utilization, and the share of logistics costs in the unit cost of products as the principal evaluation criteria. His methodological approach makes it possible to measure the efficiency of logistics management through clear criteria [1].

S. Chopra and P. Meindl, developing the theory of supply chain design, substantiated the close interdependence among the strategic, tactical, and operational levels of management. In the authors' view, effective management is ensured by coordinating strategic decisions, such as shaping the transport network and determining warehouse locations, with the optimization of transport routes and day-to-day logistics operations, as they set out in their research [2].

The researchers led by D. Simchi-Levi identify the ability to manage risks and uncertainties as the principal condition of the efficiency of logistics systems under modern conditions. They emphasize that global supply chains must be able to adapt quickly to demand volatility, geopolitical factors, transport restrictions, and other external influences. Therefore, the stability and flexibility of a logistics system are important criteria of modern management [3].

The Russian scholar V. S. Lukinsky developed a four-stage model of the development of logistics systems. According to this model, logistics systems pass through the stages of fragmented management, partially integrated management, enterprise-level integration, and full integration. In the author's view, determining the stage of integration at which an enterprise stands serves as an important methodological basis for identifying the directions for improving the management mechanisms of transport and logistics enterprises [4].

The analysis of the theoretical approaches presented above shows that foreign scholars interpret the effective management of transport and logistics enterprises in two main directions. The first direction focuses on ensuring the integration of logistics systems, strategic management, and adaptability to changes in the external environment, while the second is based on assessing management results through clear economic and operational indicators. The mutual harmony of these two approaches forms the methodological foundation of the theory of modern transport and logistics enterprise management and serves as an important scientific basis for shaping the management mechanism proposed in this study.

After analyzing the scientific views of foreign scholars, it is appropriate also to consider the approaches of local researchers to the management of transport and logistics enterprises. Their scientific developments were designed with regard to the specific features of Uzbekistan's economy and national transport system, and they are significant in that they offer practical solutions to existing problems in the field.

In particular, the approaches of A. G. Yefimenko, V. P. Yefimenko, and V. Ye. Likhacheva to dividing costs in road transport enterprises into variable and semi-fixed types have been analyzed, and models adapted to the conditions of the national economy have been proposed. In the authors' view, grouping and analyzing transport costs according to their economic content makes it possible to use resources efficiently, reduce the cost of services, and improve the quality of transport services.

Studies carried out within the concept of integrated management have provided a scientific basis for modern methods of managing the transport system [5]. They analyze the existing problems in transport and logistics systems and put forward practical proposals for introducing managerial approaches to management. The authors stress the need to build systemic management that ensures not the activities of individual functional units but their mutual integration and coordination in the management of transport and logistics enterprises.

Studies devoted to organizing the activities of transnational companies also pay particular attention to improving the organizational structure of management. These studies note that in large companies operating in international markets the management system is, as a rule, based on a combination of centralized and decentralized management models [6]. Such an approach makes it possible to coordinate foreign economic activity effectively, make prompt decisions, and ensure the autonomy of regional divisions. This experience is also of great practical importance in shaping management mechanisms in transport and logistics enterprises.

R. Ballou interprets transport and logistics management as a functional management process [7]. D. Bowersox and D. Closs assess it as an integrated management system among the participants of the supply chain [8]. M. Christopher, in turn, interprets logistics as an important instrument for ensuring the strategic competitiveness of an enterprise [9]. In the studies of local scholars, the main attention is focused on the practical aspects of organizing transport and logistics systems, cost management, the introduction of proactive management methods, and the improvement of organizational mechanisms.

The results of the comparative study of foreign scholars' scientific views and theoretical approaches to the management of transport and logistics enterprises have shown that ensuring management efficiency in this field is developing on the basis of the mutual harmony of the systemic-integration approach and the approach of assessing performance.

Specifically, the first approach is based on the need to manage transport and logistics enterprises as an integral economic system composed of interrelated elements. Within this approach, management efficiency is explained by the degree of integration of logistics processes, the mutual consistency of strategic, tactical, and operational management decisions, and the capacity to adapt to changes in the external environment. In the research of Chopra and Meindl, Simchi-Levi, Ballou, Bowersox and Closs, Christopher, and Lukinsky, these issues are substantiated from different theoretical and methodological perspectives.

The second approach is aimed at assessing the results of managing transport and logistics enterprises through clear economic and operational indicators. According to this approach, the efficiency of management decisions is determined not only by whether organizational processes are properly established but also by their impact on final economic results. In particular, the indicators covered by Coyle, namely OTIF (delivery of cargo within the specified time and in full), the level of vehicle utilization, and the share of logistics costs in the unit cost of products, make it possible to assess the operational and economic results of an enterprise's activity. This shows that, in improving management mechanisms in transport and logistics enterprises, it is necessary to build a system for the quantitative assessment of achieved results alongside the level of integration.

The analysis of scientific approaches has shown that the issues of assessing the level of integration, digital development, adaptability to the external environment, and operational effectiveness in the management of transport and logistics enterprises on the basis of a unified methodological approach require further in-depth research. In particular, there is a need to shape the organizational-economic mechanisms of management in interconnection with digital technologies, human capital, and sustainable development factors.

2. Materials and Methods

The methodological basis of this study, which is aimed at improving the management mechanisms of transport and logistics enterprises under globalization, consists of systemic, comprehensive, integration, and process-based management approaches. These approaches make it possible to study transport and logistics enterprises as a complex economic system composed of interrelated organizational, economic, technological, informational, and social elements.

Through the systemic approach, the study examines the management subject and object of a transport and logistics enterprise, its organizational structure, its functional divisions, and its relations with the external economic environment as an integral system. The integration approach, in turn, is aimed at ensuring the mutual consistency of transport, warehouse, information, financial, and personnel management processes.

On the basis of the comprehensive approach, the economic, organizational, institutional, technological, and social factors affecting the activity of an enterprise are analyzed in their interconnection. Through the process-based approach, all stages of providing logistics services are studied, from accepting an order to delivering the cargo and evaluating the final results.

3. Results

In our country, too, extensive reforms are being carried out to modernize transport infrastructure, strengthen integration into international transport corridors, make effective use of transit potential, develop the logistics services market, and enhance the competitiveness of the national transport system. In particular, as a country with no direct geographic access to seaports, it is important for Uzbekistan to strengthen its position in the international transport and logistics system, develop alternative transport routes, and coordinate the activities of logistics centers in the Central Asian region. In these processes, increasing the management capacity of transport and logistics enterprises, ensuring their integration into international supply chains, and introducing modern management technologies are among the important factors for expanding the foreign trade opportunities of the national economy.

The performance efficiency of transport and logistics enterprises is determined, first of all, by the extent to which the management system has been formed in organizational and economic terms, by the efficiency of use of available resources, by the coordination of business processes, and by the ability to adapt to changes in the external environment. In practice, however, problems are observed such as the separate management of logistics processes, insufficient integration of digital information systems, the need to develop the capacity of qualified personnel in line with modern requirements, and a limited comprehensive approach to making management decisions. These problems require improving management mechanisms in transport and logistics enterprises not only through organizational or economic measures but in a way that covers digital technologies, human capital, the institutional environment, and sustainable development factors.

Under globalization, coordinating the relations between the subjects and objects of management in transport and logistics enterprises, introducing integrated digital management mechanisms, raising employees' professional and digital competencies, and

developing comprehensive criteria for assessing management efficiency are of urgent scientific and practical importance. This serves to align the internal management capabilities of transport and logistics enterprises with the demands of the external economic environment, to raise their competitiveness, and to expand the participation of the national transport and logistics system in international logistics chains.

Today, the institutional environment and the new requirements placed on management mechanisms are complex, and the approval of the Concept for the Development of the Transport and Logistics System until 2030 by Resolution No. PQ-28 of the President of the Republic of Uzbekistan dated January 27, 2025, is practical confirmation of this situation [10]. The document sets targets such as increasing the volume of international freight transport at least twofold, increasing the share of container transport at least 1.5-fold, increasing the cargo handling capacity of logistics centers at least threefold, reducing transport costs by 10–15 percent, and rising to at least 55th place in the World Bank's LPI ranking. The Concept also provides for encouraging national operators of the 3PL format and higher, and for developing electronic documents and the "E-logistics" information system.

Table 1

Transformation of the 2030 institutional targets into enterprise management[1]

Direction set by PQ-28	2030 target	Enterprise-level management task	Recommended KPIs for Section 2.2
International transport	Increase total volume at least twofold	Managing the international route portfolio, partners, and permits	Share of international orders; route profitability; border waiting time
Containerization	Increase the share at least 1.5-fold	Coordinating the multimodal chain and terminal operations	Share of containerized cargo; reloading time; damage rate
Logistics centers	Increase handling capacity at least threefold	Efficient use of warehouse and terminal capacity	Capacity utilization; handling cost per tonne; terminal turnover time
Cost reduction	10–15 percent reduction	Optimizing route, fuel, empty-running, and subcontracting costs	Cost per tonne-kilometer; share of empty running; fuel consumption
LPI result	At least 55th place	Improving reliability, traceability, and on-time delivery	OTIF; share of tracked cargo; frequency of delays
3PL and digitalization	Expand 3PL+ operators and electronic exchange	Integrating TMS, WMS, the customer portal, and electronic documents	Share of integrated orders; share of additional services; data quality

As the items of the table show, in the World Bank's 2023 LPI results Uzbekistan ranked 88th among 139 countries [11]. This result is also recorded in the PQ-28 Concept as the starting position. The target of reaching 55th place depends not only on expanding transport infrastructure but also on indicators such as customs efficiency, organizing transport at competitive prices, the quality of logistics services, cargo tracking, and timely delivery. Considering that in 2025 the World Bank changed the LPI methodology to the LPI 2.0 format based on operational shipment data, methodological caution is needed when directly comparing future results with the 2023 ranking.

Among the existing problems, the Concept identifies the low participation of 3PL and 4PL operators, the insufficient development of logistics centers, the incomplete automation of warehouse processes, the level of digitalization, and the issue of qualified personnel. This official diagnosis means that enterprise management must shift from

1Author's own development based on Resolution No. PQ-28.

owning assets to coordinating processes and the partner ecosystem. For a 3PL operator, the main result is not the size of its own vehicle fleet but the ability to reduce the customer's total logistics cost, increase delivery reliability, and manage transportation, warehousing, forwarding, and information services within a single order.

Taking the above criteria into account, certain observations take shape. In particular, digitalization does not end with purchasing software. If TMS, WMS, GPS, telematics, accounting, and the customer database are not integrated with one another, data are duplicated, delayed, or interpreted differently in different departments. For this reason, we believe that the digital architecture of a transport and logistics enterprise should be based on the principle of "a single order identifier – a single data source – a single KPI." In this way, all stages are tracked from the moment an order is received until the settlement is closed.

Moreover, service quality must complement the financial indicators of management. For the customer, besides the lowest tariff, it is important that the cargo arrives at the specified time, in full, undamaged, and traceable. Therefore, on-time in-full delivery (OTIF), delays, damage, claim processing time, repeat orders, and customer retention indicators should be included in the overall management dashboard. The sustainable competitive advantage of an enterprise is formed through the combination of "price + speed + reliability + transparency."

In addition, risk management also requires a transition from a reactive to a preventive approach. External risks include border and customs processes, road and weather conditions, fuel prices, exchange rates, and geopolitical restrictions, while internal risks include technical failure, driver error, cargo damage, information system outages, and faulty planning. A risk register, a "probability–impact" assessment, a responsible person, and an alternative action plan should be mandatory elements of the management mechanism of a transport and logistics enterprise. Digital technologies such as big data analytics and advanced tracking systems also strengthen supply chain risk analytics and the control of disruptions [12].

Ensuring the efficiency of managing transport and logistics enterprises under globalization requires building an integral management system based on taking into account changes in the external environment, coordinating cooperation among management subjects, integrating functional mechanisms, and regularly assessing the results achieved. The management model of transport and logistics enterprises has been developed on the basis of the interaction of external environmental factors, management subjects, integrated management mechanisms, management objects, and the assessment and adaptation system. The first block is formed on the basis of external environmental factors and represents the external factors that directly and indirectly affect the activity of transport and logistics enterprises. It includes economic and trade, technological, legal-institutional, environmental, and geopolitical factors; changes in the volume of international trade, the development of transport corridors, the introduction of digital technologies, customs procedures, environmental requirements, and the geopolitical situation are important factors affecting the strategic goals and management decisions of transport and logistics enterprises. The main task of this block is to identify changes in the external environment, assess their probable impact, and create an information basis for forming the enterprise's adaptive management decisions.

Figure 1.

Management model of transport and logistics enterprises

Effective, sustainable, and competitive management of a transport and logistics enterprise

Principles: systemic nature · adaptability · transparency · sustainability · digitalization

▼

1. EXTERNAL ENVIRONMENT

Economic and trade	**Technological and legal**	**Environmental and geopolitical**
– world trade, chains		

– competition among transit corridors	– digitalization, electronic documents – international standards and requirements	– decarbonization, ESG requirements – border and sanction risks

▼

2. MANAGEMENT SUBJECTS

State and regulators – strategy, norms – infrastructure, support	**Enterprise management** – goals and strategy – resources, allocation of responsibility	**Partner ecosystem** – cargo owners, forwarders – banks, financial institutions

▼

3. MANAGEMENT MECHANISMS

3.1. Digital-information basis (data layer)

single cargo identifier · TMS, ERP, WMS · GPS, IoT · electronic documents · control tower

Process-organizational – SCM, 3PL/4PL, SLA – Lean, multimodal operator	**Economic-financial** – ABC, dynamic pricing – leasing, "green" financing	**Risk and resilience** – scenarios, diversification – reserve capacity, liquidity	**Human capital** – qualifications, motivation – occupational safety, ethics

3.2. ESG cross-cutting criterion

environmental, social, and governance indicators (ESG-KPI) are applied to all mechanisms

▼

4. MANAGEMENT OBJECT: transport and logistics processes

Transportation	Forwarding	Terminal and warehouse	Customs and border	Multimodal transport	Document and information flow

▼

5. ASSESSMENT AND ADAPTATION (feedback)

Assessment system – OTIF, transit time, cost – TLGI and ESG-KPI	**Weights and priorities** – expert assessment (AHP) – priority of mechanisms	**Scenario-based adaptation** – baseline, optimistic, pessimistic – reconfiguring the mechanisms

▼

Costs and risks decrease, transparency and reliability increase, access to transit and financing expands

Based on the assessment results, the mechanisms, goals, and allocation of resources are improved

The second block consists of management subjects and defines the functions and mutual relations of the subjects that take part in organizing, regulating, and coordinating the activity of transport and logistics enterprises. Here, the state and regulatory bodies take part in shaping the strategic development directions, the legal and regulatory requirements, and the infrastructural conditions of the transport and logistics sector. The enterprise management is responsible for implementing the set strategic goals, allocating resources, making management decisions, and coordinating the activity of organizational divisions.

The third block is a component of the integrated management mechanisms and consists of three interrelated functional links.

The fourth block, the management object, covers the main business processes of a transport and logistics enterprise toward which management influence is directed. It includes cargo transportation, transport and forwarding services, the activity of terminals and warehouses, customs and border-crossing processes, multimodal transport, and the management of transport documents and information flows. These processes are coordinated through integrated management mechanisms, which ensure the efficiency of resource use, the quality of service, and the continuity of delivery processes.

The fifth block serves to assess results and to evaluate the outcomes of the operation of management mechanisms, analyze identified deviations, and review management decisions in line with changes in the external environment. It envisages the use of OTIF (the level of on-time and in-full cargo delivery), transit time, logistics costs, the efficiency of vehicle utilization, and ESG-KPI indicators. Combining environmental, social, and economic indicators in this way follows the logic of sustainable supply chain management [13]. The relative weights of these indicators can be set through expert assessment using the Analytic Hierarchy Process [14].

The proposed model operates on the basis of four interrelated management stages.

The first stage includes diagnostics and preliminary assessment. At this stage, the existing organizational-economic condition of the transport and logistics enterprise, external environmental factors, the degree of integration of management processes, digital potential, and the main performance indicators are analyzed. As a result, the enterprise's starting position and the areas requiring improvement are identified.

The second stage is the scenario-based selection and integration of priority mechanisms. Here, probable changes in the external environment are assessed on the basis of optimistic, baseline, and pessimistic scenarios. Depending on the characteristics of the selected scenario, the priority of functional mechanisms is determined and they are integrated into the enterprise's single management system. For example, under the pessimistic scenario, priority is given to ensuring financial liquidity, forming alternative transport routes, and diversifying risks. Under the optimistic scenario, expanding digital infrastructure, introducing innovative technologies, and developing the ESG-KPI system are set as priority directions. Scenario planning of this kind helps managers counter overconfidence and tunnel vision when facing an uncertain future [15].

The third stage is the comprehensive assessment of results. At this stage, the results of the operation of integrated management mechanisms are assessed on the basis of the set economic, operational, digital, and socio-environmental indicators. Differences between planned and achieved results are identified, and the efficiency of management decisions is evaluated.

The fourth stage is the improvement of management mechanisms. On the basis of the assessment results, necessary changes are made to the existing management mechanisms, strategic goals are reviewed, and the allocation of resources is optimized. This stage ensures the continuous improvement of the management system and increases the enterprise's adaptability to changes in the external environment.

4. Conclusion

In conclusion, the effective management of transport and logistics enterprises under globalization requires integrating their organizational and economic activity, using digital technologies, coordinating management processes on the basis of international requirements, and forming management mechanisms that are adaptable to changes in the external environment.

1. It is advisable to develop an integrated management system in transport and logistics enterprises. Here, coordinating the organizational, economic, technological, and information processes of the enterprise and strengthening cooperation among carriers, forwarders, warehouse and terminal operators, and other logistics participants are of great importance. It is also necessary, by coordinating the activity of 3PL and 4PL logistics providers, to ensure the continuity of management decisions at all stages of the transport chain.

2. The digital-information foundations of transport and logistics processes need to be improved. In particular, integrating TMS, WMS, and ERP platforms with GPS monitoring, Big Data, and artificial intelligence technologies makes it possible to monitor the movement of vehicles in real time, optimize routes, and coordinate cargo and information flows. At the same time, the use of electronic transport documents, including

the e-CMR and e-TIR systems, helps to speed up document circulation and to increase the efficiency of information exchange in international transport.

3. Mechanisms for risk management and adaptability to changes in the external environment should be formed in transport and logistics enterprises. Here, the systematic assessment of risks related to geopolitical and economic instability, disruptions along transport corridors, customs procedures, changes in fuel prices, and cybersecurity is important. Introducing mechanisms for identifying risks in advance, forming alternative transport routes, scenario planning, and reallocating resources in crisis situations makes it possible to ensure the stability of management.

4. Developing human capital and raising personnel capacity in transport and logistics enterprises should be regarded as an important component of management mechanisms. In modern logistics, the need for managers, IT engineers, data analysts, business analysts, and specialists in modeling transport processes is growing. It is therefore advisable to improve the system of training, retraining, and professional development of personnel in line with the requirements of digital logistics platforms, international transport standards, and modern management technologies.

5. Integrating ESG principles into the activity of transport and logistics enterprises is an important direction in forming sustainable management mechanisms. This requires the rational use of energy and fuel resources and the reduction of harmful emissions into the atmosphere under environmental responsibility, ensuring occupational safety and employees' rights in the social dimension, and strengthening transparency and accountability in corporate governance. Integrating ESG criteria into the organizational, economic, and technological management processes of the enterprise helps to increase its long-term sustainability and investment attractiveness.

6. A scenario-based approach and feedback mechanisms should be introduced in making management decisions. This requires adapting management decisions on the allocation of enterprise resources, the choice of transport routes, the development of digital infrastructure, and risk reduction to the favorable, stable, and unfavorable scenarios of the development of the external environment. Regular monitoring of management results on the basis of the set KPIs and redirecting the results obtained into subsequent management decisions ensures the continuous improvement of the mechanism.

Overall, the comprehensive introduction of management mechanisms for transport and logistics enterprises based on integrated, digital, and ESG principles serves to coordinate their operational activity, reduce disruptions and risks in logistics processes, increase the efficiency of resource use, and improve the quality of services. An important aspect of the proposed approach is that the digital-information provision is regarded as the basis of management processes, while the ESG criteria are regarded as a cross-cutting criterion for assessing all functional mechanisms. It also envisages the possibility of adapting management mechanisms to changes in the external environment through the results assessment and feedback system. This in turn serves to strengthen the scientific and methodological foundations for increasing the integration of transport and logistics enterprises into international transport corridors, their investment attractiveness, and their long-term competitiveness.

REFERENCES

[1] J. J. Coyle, C. J. Langley, R. A. Novack, and B. J. Gibson, *Supply Chain Management: A Logistics Perspective*, 10th ed. Boston, MA, USA: Cengage Learning, 2013.

[2] S. Chopra and P. Meindl, *Supply Chain Management: Strategy, Planning, and Operation*, 6th ed. Boston, MA, USA: Pearson, 2016.

[3] D. Simchi-Levi, P. Kaminsky, and E. Simchi-Levi, *Designing and Managing the Supply Chain: Concepts, Strategies, and Case Studies*, 3rd ed. New York, NY, USA: McGraw-Hill/Irwin, 2008.

[4] V. S. Lukinsky, V. V. Lukinsky, and N. G. Pletneva, *Logistika i upravlenie tsepyami postavok: teoriya i praktika* [Logistics and Supply Chain Management: Theory and Practice]. Moscow, Russia: Yurayt, 2021.

[5] J. T. Mentzer, W. DeWitt, J. S. Keebler, S. Min, N. W. Nix, C. D. Smith, and Z. G. Zacharia, "Defining supply chain management," *J. Bus. Logist.*, vol. 22, no. 2, pp. 1–25, 2001.

[6] C. A. Bartlett and S. Ghoshal, *Managing Across Borders: The Transnational Solution*. Boston, MA, USA: Harvard Business School Press, 1989.

[7] R. H. Ballou, *Business Logistics/Supply Chain Management: Planning, Organizing, and Controlling the Supply Chain*, 5th ed. Upper Saddle River, NJ, USA: Pearson Prentice Hall, 2004.

[8] D. J. Bowersox and D. J. Closs, *Logistical Management: The Integrated Supply Chain Process*. New York, NY, USA: McGraw-Hill, 1996.

[9] M. Christopher, *Logistika i upravlenie tsepochkami postavok* [Logistics and Supply Chain Management], Russian ed., 2016.

[10] Resolution of the President of the Republic of Uzbekistan No. PQ-28 "On approval of the Concept for the Development of the Transport and Logistics System until 2030," Jan. 27, 2025.

[11] J.-F. Arvis, L. Ojala, B. Shepherd, D. Ulybina, and C. Wiederer, *Connecting to Compete 2023: Trade Logistics in an Uncertain Global Economy—The Logistics Performance Index and Its Indicators*. Washington, DC, USA: World Bank, 2023.

[12] D. Ivanov, A. Dolgui, and B. Sokolov, "The impact of digital technology and Industry 4.0 on the ripple effect and supply chain risk analytics," *Int. J. Prod. Res.*, vol. 57, no. 3, pp. 829–846, 2019, doi: 10.1080/00207543.2018.1488086.

[13] C. R. Carter and D. S. Rogers, "A framework of sustainable supply chain management: Moving toward new theory," *Int. J. Phys. Distrib. Logist. Manag.*, vol. 38, no. 5, pp. 360–387, 2008, doi: 10.1108/09600030810882816.

[14] T. L. Saaty, *The Analytic Hierarchy Process*. New York, NY, USA: McGraw-Hill, 1980.

[15] P. J. H. Schoemaker, "Scenario planning: A tool for strategic thinking," *Sloan Manage. Rev.*, vol. 36, no. 2, pp. 25–40, 1995.