

K.S.Karimov
associate professor, Azerbaijan State University of Oil and Industry PLE,
International professional economist
karimliceyla2023@gmail.com
R.C.Rustamov
master student, Azerbaijan State University of Oil and Industry PLE
rustamovravan1@gmail.com

Məqalə redaksiyaya daxil olub 08.01.2026

The article was received by editorial board on 08.01.2026

Статья принята к печати 08.01.2026

ECONOMIC AND ORGANIZATIONAL FUNDAMENTALS OF MANAGEMENT OF TRANSPORT - LOGISTICS SYSTEMS IN THE OIL AND GAS INDUSTRY

Abstract

The article examines the correct and purposeful management of transport and logistics systems in the oil and gas industry in modern global economic conditions, the specific features of its functioning, the formation of logistics costs, the efficiency of resource use, and the impact of investment decisions on management processes. Here , the strategic role of the processes of uninterrupted and safe transportation of oil and gas from production areas to processing enterprises and end consumers is explained in a scientifically logical sequence, the organization of interaction between transport and distribution structures, the improvement of management mechanisms and the importance of functional coordination are analyzed and a new conceptual model of management of transport

Key words: *oil and gas industry, transport, logistics, system, management, economic efficiency, conceptual model.*

INTRODUCTION

The growing demand for energy resources in the modern global economic environment, the intensification of international competition and the rapid introduction of technological innovations pose new and complex tasks for the oil and gas industry. The successful solution of these tasks is closely related not only to the improvement of production and processing processes, but also to the effective management of transport and logistics systems. Transportation of oil and gas from production sites to processing plants, export terminals and end consumers requires a large amount of financial resources, complex infrastructure and high organizational coordination. For this reason, the management of transport and logistics systems acts as one of the main areas of strategic importance in the oil and gas industry. Transport and logistics processes in the oil and gas industry are multifaceted and complex in nature. The integration of different modes of transport, such as pipelines, sea and land transport, rail and road transport, within the same system requires an integrated approach in management. At the same time, factors such as safety, environmental requirements, international standards and Risk Management in this area directly affect the functioning of transport and logistics systems. Failure to take these factors into account can lead to production interruptions, an increase in costs and a weakening of competitiveness. One of the main problems facing oil and gas enterprises in the current conditions is the

optimization of transport and logistics costs and increasing the efficiency of resource use. This, along with economic mechanisms, necessitates the improvement of the organizational structure, management methods and decision-making processes. In particular, the strengthening of interactions between production, transport and distribution units and the formation of a unified management model are of paramount importance. In this regard, the purpose of the presented study is to explore the economic and organizational foundations of managing transport and logistics systems in the oil and gas industry, analyze existing problems and develop a conceptual management model in the direction of their solution. It is expected that the results of the study will contribute to the improvement of transport and logistics management in the oil and gas sector, both from a scientific-theoretical and practical point of view.

Scientific part

The main purpose of this study is to examine in detail the economic and organizational foundations of managing transport and logistics systems in the oil and gas industry, identify existing problems and shortcomings in this area, and develop a conceptual management model to optimize the functioning of systems. As part of the study, first of all, an analysis of the features of transport and logistics processes at oil and gas enterprises, their impact on economic indicators and their role in the structure of costs will be carried out. Along with this, organizational aspects will also be examined, including coordination between production, transport and distribution units, integration of logistics functions and the effectiveness of the management structure. To achieve the objectives of the study, the interaction of economic and organizational mechanisms, optimization of decision-making processes, increasing the efficiency of resource use and application opportunities of information technologies will be analyzed. At the same time, through this study, Strategic and tactical approaches that ensure the effective management of transport and logistics systems will be determined, optimal management tools and methods will be developed. As a result, the purpose of the study is to develop practical recommendations that will make the activities of transport and logistics systems at oil and gas enterprises more efficient both from an economic point of view and more flexible and coordinated from an organizational point of view. This is of paramount importance in terms of reducing the costs of enterprises, increasing the reliability of logistics processes and strengthening their overall competitiveness.

Methods and conceptual model of problem solving

Various scientific methods were used in this study to explore the economic and organizational foundations of managing transport and logistics systems in the oil and gas industry. The methodological base of the study is based on a systematic and multilevel approach, which covers both economic, organizational and technological aspects.

1. Analytical and comparative methods – an analysis of existing literature, scientific articles and domestic and foreign research was carried out. Through this method, the basic principles that proceed from the existing approaches, problems and successful practices in the management of transport and logistics systems in the oil and gas field are identified.

2. Systematic and structured approach – the components of transport and logistics systems and their interactions were investigated, the role of economic and organizational factors within the system was analyzed. Through this approach, a complex management model was developed and the relationships between the components were visualized.

3. Methods of statistical and economic analysis – cost structure, resource utilization efficiency, investment effectiveness and economic indicators of logistics processes were evaluated. These methods have been applied for optimization of decision-making processes and forecasting of economic results.

4. Organizational methods – coordination between production, transport and distribution units, Organization of management structures and integration of logistics functions were analyzed. Through these methods, mechanisms have been identified that increase the efficiency of management.

5. Development of a conceptual model-a conceptual model of management of transport and logistics systems was developed using a combination of the above methods. The Model reflects the integration of economic, organizational and technological components and serves as the basis for the development of practical recommendations.

6. Analysis and evaluation methods – a comparative analysis was carried out on existing practical samples in order to check the effectiveness of the model and determine the possibilities of its application. This approach is aimed at increasing the efficiency of decision-making processes.

The oil and gas industry is one of the areas of strategic importance in the economic development of countries, and effective management of transport and logistics systems plays an important role for its sustainable functioning. In modern economic conditions, the intensification of competition in energy markets, fluctuations in the price of raw materials, the introduction of international standards and the rapid development of technological innovations necessitate the optimization of transport and logistics processes for oil and gas enterprises. As a result, improper management of transport and logistics systems can lead to an increase in costs, interruption of production and a decrease in overall competitiveness. The relevance of the problem is also due to the complexity of the infrastructure in the oil and gas field and the reality that production facilities are geographically widespread.

The integration of pipelines, maritime transport, railways and highways in the same logistics network requires high organizational coordination and efficient decision-making mechanisms. At the same time, safety requirements, environmental standards and risk management directly affect the functioning of transport and logistics systems. For this reason, the analysis of systems from economic and organizational aspects and the development of their management model are of urgent scientific and practical importance. In the field of related research, the work of a number of foreign and domestic scientists is considered.

For example, Christopher (2016) studied the role of strategic approaches in logistics and supply chain management, Rushton et al. (2017) examined methods for increasing the efficiency of Transport-Logistics Systems. Azerbaijani and Turkish researchers presented special approaches to the oil and gas industry, focusing on the issues of logistics infrastructure and resource utilization efficiency in the region (Maharramov, 2015; Yilmaz, 2018).

Local studies also examined the issues of transportation of raw materials through pipelines and sea transport, cost optimization and improvement of management mechanisms. All these studies show that the development of the economic and organizational foundations of managing transport and logistics systems in the oil and gas industry is of high relevance not only for scientific interest, but also from the point of view of practical application. The current situation requires the elimination of existing shortcomings, optimization of processes and increasing the competitiveness of enterprises (Fig/1).

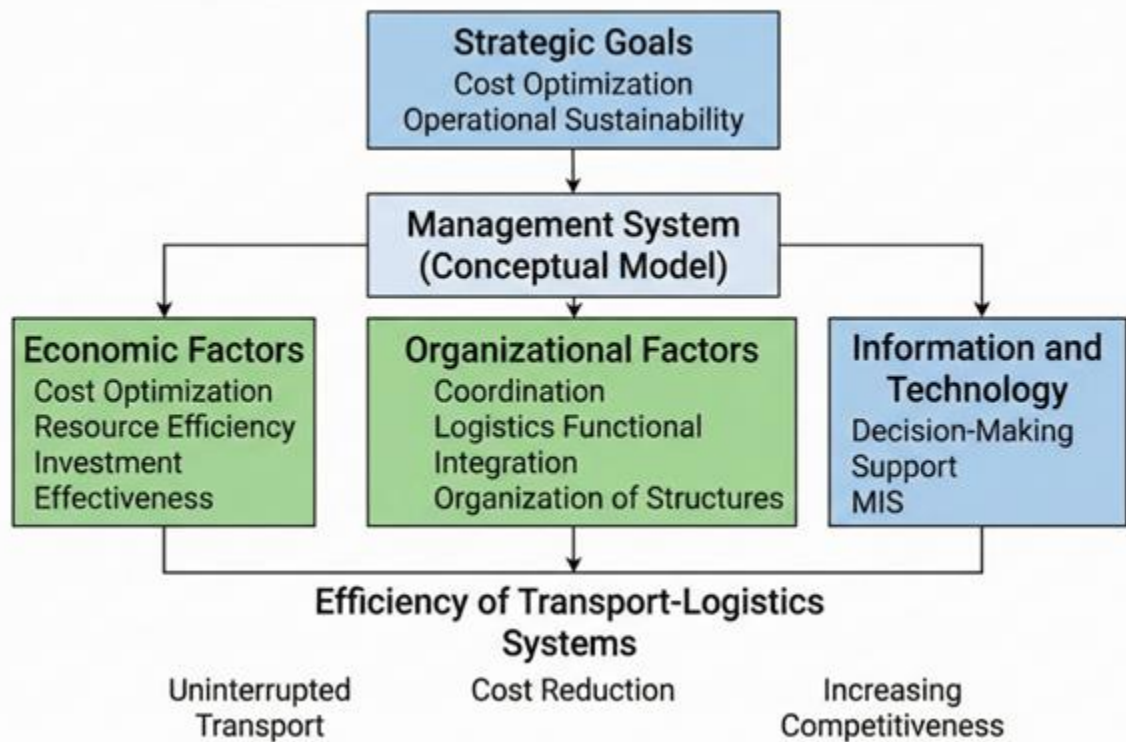


Fig. 1. Conceptual model of management of transport logistics systems in the oil and gas industry

The proposed methods and conceptual model cover the theoretical and practical aspects of transport and logistics systems and create the basis for improving management efficiency.

THE RESULT

As a result of the research carried out, the economic and organizational foundations of managing transport and logistics systems in the oil and gas industry were examined in detail, existing problems and ways to solve them were identified. The study shows that in this area, cost optimization, increasing the efficiency of resource use, targeted planning of investment decisions and strengthening coordination between production, transport and distribution units are among the main factors. At the same time, the multifaceted and complex nature of transport and logistics processes at oil and gas enterprises, the integration of various modes of Transport, Safety and environmental requirements, international standards and risk management are the main factors that directly affect the functioning of the systems. Therefore, the implementation of a complex management model that ensures the integration of economic and organizational mechanisms is of strategic importance. The conceptual model developed within the framework of the study combines economic, organizational and technological components, making it possible to optimize decision-making processes in the management of transport and logistics systems. The implementation of the model contributes to reducing logistics costs, increasing the reliability and safety of transport processes, as well as improving the overall competitiveness of enterprises. As a result, the results of the presented study, both from a scientific and theoretical and practical point of view, make a significant contribution to improving the management of transport and logistics systems in the oil and gas industry, more efficient use of resources and sustainable development of enterprises. These results also determine the main directions for future scientific research and practical applications.

References:

1. Maharramov, A. (2015). Management Decision-Making: Theoretical and Practical Approaches. Baku: Science and Education.
2. Mammadova, E. (2019). Logistics and Transportation Systems Management in the Oil and Gas Industry. Baku: Azerbaijan State Oil and Industry University.
3. Aliyev, R. (2017). Efficient management of resources in the energy sector. Ahh
4. Christopher, M. (2016). Logistics & Supply Chain Management. 5th Edition. Pearson Education.
5. Rushton, A., Croucher, P., Baker, P. (2017). The Handbook of Logistics and Distribution Management. Kogan Page.
6. Yılmaz, T. (2018). Oil and Gas Logistics Management in Turkey. Istanbul: Beta Publications.
7. Mammadov, F. (2020). Methods for Optimizing Transportation Costs in the Oil and Gas Industry. Baku: Law Publishing.
8. Chopra, S., Meindl, P. (2019). Supply Chain Management: Strategy, Planning, and Operation. 7th Edition. Pearson.
9. Mahmudov, S. (2016). Prospects for the development of logistics infrastructure in the oil and gas sector of Azerbaijan. Ahh
10. Ballou, R. H. (2018). Business Logistics/Supply Chain Management. 6th Edition. Pearson.

K.S.Kərimov

*i.e.n., dosent, Azərbaycan Dövlət Neft və Sənaye Universiteti PHŞ,
Beynəlxalq ixtisaslı iqtisadçı*

R.C.Rüstəmov

magistrant, Azərbaycan Dövlət Neft və Sənaye Universiteti PHŞ

Neft-qaz sənayesində nəqliyyat-logistika sistemlərinin idarə edilməsinin iqtisadi və təşkilati əsasları

Xülasə

Məqalədə müasir global iqtisadi şəraitdə neft-qaz sənayesində nəqliyyat-logistika sistemlərinin düzgün və məqsədyönlü idarə olunması, onun fəaliyyətinin spesifik xüsusiyyətləri, logistika xərclərinin formalaşması, resurslardan istifadənin səmərəliliyi və investisiya qərarlarının idarəetmə proseslərinə təsiri araşdırılmışdır. Burada neft-qazın hasilat sahələrindən emal müəssisələrinə və son istehlakçılara fasiləsiz və təhlükəsiz daşınması proseslərinin strateji rolu elmi cəhətdən məntiqi ardıcılıqla izah edilməklə , nəqliyyat və paylama strukturları arasında qarşılıqlı əlaqələrin təşkili, idarəetmə mexanizmlərinin təkmilləşdirilməsi və funksional koordinasiyanın vacibliyi təhlil olunmuş və nəqliyyat-logistika sistemlərinin idarə edilməsinin yeni konseptual modeli təklif edilmişdir.

***Açar sözlər:** neft-qaz sənayesi, nəqliyyat, logistika, sistem, idarəetmə, iqtisadi səmərəlilik, konseptual model.*

