

K. Mussa^{1*} , S. Akhmetkaliyeva¹  Jagan Jeevan² 

¹ Al-Farabi Kazakh National University, Kazakhstan, Almaty

² Universiti Malaysia Terengganu, Malaysia, Kuala Lumpur

*e-mail: musa_karlygash.kz@mail.ru

THE TERRITORIAL ASPECT OF THE DEVELOPMENT OF THE LOGISTICS SUPPLY CHAIN

This article explores the role of territorial logistics in the integration of Kazakhstan's regions into the global economy. The main purpose of the article is to consider the territorial aspect of the development of the logistics supply chain in Kazakhstan and its impact on ensuring sustainable and balanced economic growth. The analysis of the key problems and challenges facing the country is carried out, as well as recommendations for improving territorial logistics to support the development process are proposed.

The study includes an analysis of the concept and strategy for the development of the transport logistics industry in Kazakhstan until 2030. The authors consider government programs such as «Nurly Zhol» and the National Development Plan until 2025 to identify key challenges and opportunities related to the country's territorial logistics and transport system. To achieve this goal, various analysis methods are used, including document analysis, bibliometric analysis and structural synthesis of transport systems.

That article emphasizes the importance of territorial logistics to ensure sustainable development and increase the efficiency of the use of territorial resources. Territorial logistics is considered as an integrated approach to the management of spatial aspects of economic activity, including the organization and optimization of transport flows at the regional and urban levels. In conclusion, the article highlights new ways for the research and development of this field in Kazakhstan. A review of current research in the field of territorial logistics shows the versatility of research interest and the importance of further research for the development of effective strategies for managing logistics processes at the territorial level.

Key words: Territorial logistics, territorial transport systems, regional transport systems.

Қ.А. Мұса^{1*}, С.К. Ахметкалиева¹, Д. Джиган²

¹ Әл-Фараби атындағы Қазақ ұлттық университеті, Қазақстан, Алматы қ.

² Малайзия Теренггану Университеті, Малайзия, Куала-Лумпур қ.

*e-mail: musa_karlygash.kz@mail.ru

Логистикалық жеткізу желісін дамытудың аумақтық аспектісі

Мақалада Қазақстан өңірлерін жаһандық экономикаға кіріктірудегі аумақтық логистиканың рөлін зерттеуді қарастырады. Мақаланың негізгі мақсаты Қазақстанда жеткізілімдердің логистикалық желісін дамытудың аумақтық аспектісін және оның орнықты, әрі теңгерімді экономикалық өсуді қамтамасыз етуге әсерін қарастыру болып табылады. Ел алдында тұрған негізгі проблемалар мен сын-қатерлерге талдау жүргізілді, сондай-ақ даму процесін қолдау үшін аумақтық логистиканы жақсарту бойынша ұсыныстар берілді.

Зерттеу Қазақстанның көліктік логистикалық саласын дамытудың 2030 жылға дейінгі тұжырымдамасы мен стратегиясын талдауды қамтиды. Авторлар елдің аумақтық логистикасы мен көлік жүйесіне қатысты негізгі сын-қатерлер мен мүмкіндіктерді анықтау үшін «Нұрлы жол» және 2025 жылға дейінгі ұлттық даму жоспары сияқты мемлекеттік бағдарламаларды қарастырады. Осы мақсатқа жету үшін әртүрлі талдау әдістері қолданылады, соның ішінде құжаттарды талдау, библиометриялық талдау және көлік жүйелерінің құрылымдық синтезі.

Мақала тұрақты дамуды қамтамасыз ету және аумақтық ресурстарды пайдалану тиімділігін арттыру үшін, аумақтық логистиканың маңыздылығын көрсетеді. Аумақтық логистика экономикалық қызметтің кеңістіктік аспектілерін басқарудың кешенді тәсілі ретінде қарастырылады, соның ішінде аймақтар мен қалалар деңгейінде көлік ағындарын ұйымдастыру және оңтайландыру. Мақала зерттеуіндегі тұжырым бойынша Қазақстанда осы саланы зерттеу мен дамытудың жаңа жолдары айқындалады. Аумақтық логистика саласындағы заманауи зерттеулерге шолу зерттеу қызығушылығының жан-жақтылығын және аумақтық деңгейде логистикалық процестерді басқарудың тиімді стратегияларын әзірлеу, сонымен қатар зерттеулердің маңыздылығы айқындалды.

Түйін сөздер: Аумақтық логистика, аумақтық көлік жүйелері, өңірлік көлік жүйелері.

К.А. Муса^{1*}, С.К. Ахметкалиева¹, Д. Джиган²

¹Казахский национальный университет имени аль-Фараби, Казахстан, г. Алматы

²Университет Малайзии Тренгану, Малайзия, г. Куала-Лумпур

*e-mail: musa_karlygash.kz@mail.ru

Территориальный аспект развития логистической сети поставок

Данная статья исследует роль территориальной логистики в интеграции регионов Казахстана в глобальную экономику. Основной целью статьи является рассмотрение территориального аспекта развития логистической сети поставок в Казахстане и его влияние на обеспечение устойчивого и сбалансированного экономического роста. Проведен анализ ключевых проблем и вызовов, стоящих перед страной, а также предложены рекомендации по улучшению территориальной логистики для поддержки процесса развития.

Исследование включает анализ концепции и стратегии развития транспортной логистической отрасли Казахстана до 2030 года. Авторы рассматривают государственные программы, такие как «Нұрлы жол» и Национальный план развития до 2025 года, для определения ключевых вызовов и возможностей, связанных с территориальной логистикой и транспортной системой страны. Для достижения этой цели используются различные методы анализа, включая анализ документов, библиометрический анализ и структурный синтез транспортных систем.

Статья подчеркивает важность территориальной логистики для обеспечения устойчивого развития и повышения эффективности использования территориальных ресурсов. Территориальная логистика рассматривается как комплексный подход к управлению пространственными аспектами экономической деятельности, включая организацию и оптимизацию транспортных потоков на уровне регионов и городов. В заключение статьи выделяются новые пути для исследования и развития данной области в Казахстане. Обзор современных исследований в области территориальной логистики показывает многогранность исследовательского интереса и важность дальнейших исследований для разработки эффективных стратегий управления логистическими процессами на территориальном уровне.

Ключевые слова: территориальная логистика, территориальные транспортные системы, региональные транспортные системы.

Introduction

In the context of rapidly developing globalization and increasing international trade, the importance of an effective logistics supply chain is becoming increasingly apparent. In recent years, Kazakhstan's foreign trade turnover in January-December 2023 amounted to 139833.4 million US dollars and increased by 3.2% in nominal terms compared to January-December 2022. The territorial aspect of the development of the logistics network plays a key role in ensuring sustainable economic growth and increasing the competitiveness of the country. As emphasized by the President of Kazakhstan K. Zh. Tokayev, in his message to the people, the concept of fully utilizing the potential of the transport logistics industry and developing the country's logistics complex for the long term is one of the key areas of the development strategy until 2030.

The implementation of this concept includes a number of large projects for the construction and reconstruction of highways, modernization of railway infrastructure, as well as the development of airport and port infrastructure. These measures are aimed at improving the condition of the transport infrastructure and increasing its capacity and reliability.

Within the framework of the national development plan of Kazakhstan until 2025, special attention is paid to improving the quality of life and well-being of the population, taking into account the principle of «human centricity». The country's territorial development plan provides for reforms in the organization of the spatial structure, taking into account a number of key aspects, such as the absence of large domestic markets, low population density, the influence of neighboring countries and the concentration of population in urban and rural areas.

The aim of the plan is to increase the competitiveness of regions by supporting their potential, and various approaches are envisaged to achieve this goal, including providing institutional support and improving interregional ties.

In this article, we will consider the territorial aspect of the development of the logistics supply chain in Kazakhstan and its impact on ensuring sustainable and balanced economic growth. An analysis of the key problems and challenges facing the country will be conducted, as well as recommendations for improving territorial logistics to support the development process.

Because of natural market factors (agglomeration, migration, specialization). Centers of eco-

nomic growth are being formed in the regions on the basis of large cities. To ensure competitive advantages, local executive bodies will modernize regional infrastructure (transport, energy, etc.) as part of the implementation of national projects and plans for the development of regions, cities of republican significance, the capital, plans for the development of national management holdings, national holdings and national companies.

At the same time, at the local level in the regions, the entire range of public services by local executive bodies will be provided through the so-called support settlements (promising small towns and support villages). The list of emerging centers of economic growth and intraregional support settlements is given in Table 1 ((Instruction of the President of the Republic of Kazakhstan, 2025) February 21, 2022 No.812).

Table 1 – Territorial development Plan of the Republic of Kazakhstan until 2025

The list of emerging centers of economic growth and intraregional support settlements			
Centers of economic growth:			
I. Urban agglomerations:		IV. Small towns in urban agglomerations and FSDs:	
1	Metropolitan agglomeration centered in the city of Nursultan	1	Akkol city
2	Almaty agglomeration with the center in the city of Almaty	2	Alga city
3	Shymkent agglomeration centered in the city of Shymkent	3	Yesik city
4	Aktobe agglomeration with the center in the city of Aktobe	4	Kapshagay city
II. Centres of Functional Urbanised Areas (FUAs):		5	Kaskelen city
1	Kokshetau city	6	Talgar city
2	Taldykorgan city	7	Shchuchinsk city
3	Atyrau city	8	Lenger city
4	Ust-Kamenogorsk city	9	Khromtau city
5	Taraz city	10	Tekeli town
6	Uralsk city	11	Saran city
7	Karaganda city	12	Abay city
8	Kostanai city	13	Aksu city
9	Kyzylorda city	V. Small border towns:	
10	Aktau city	1	Zharkent city
11	Pavlodar city	2	Zaisan city
12	Petropavlovsk city	3	Saryagash city
13	Turkestan city	4	Shardara city
14	Semey city	5	Shemonaikha city
		6	Mamlyutka city
		7	Bulaevo city
		8	Zhetysay city
		9	Zhitikara city

Table continuation

Reference localities:		
III. Monotowns with a population of more than 50 thousand people:		VI. Supporting rural settlements (SRS) (including adjacent villages):
1	1.1 thousand reference (SRS)	1.1 thousand reference (SRS)
2	Zhezkazgan city	
3	Satpayev city	
4	Temirtau city	
5	Rudnyi city	
6	Zhanaozen city	
7	Ekibastuz city	
8	Kentau city	
9	Stepnogorsk city	
10	Ridder city	
11	Kulsary city	
12	Baikonyr city	
Note--(Instruction of the President of the Republic of Kazakhstan, 2025) February 21, 2022 №812).		

For the successful implementation of the tasks of territorial development of Kazakhstan, it is necessary to focus efforts on a balanced distribution of powers between the levels of executive power, the development of strategic infrastructure in macro-regions and ensuring equal access to basic public services for all regions of the country. Only such an integrated approach will make it possible to achieve the goals of sustainable and balanced development, reduce interregional differences in the level and quality of life of the population, as well as promote high-quality and sustainable economic growth.

Increasing the competitiveness of Kazakhstan's regions largely depends on the rational allocation of productive forces, effective use of the transport complex, and improvement of transport and economic ties between the regions. The most important problems are the formation of the main transport network and the development of transport and logistics infrastructure in Kazakhstan. Today, during the consideration of these issues, it became necessary to define such a concept as «territorial logistics».

Literature review

A literature review in a scientific article is an analysis of the work of domestic and foreign researchers on the topic of research. Territorial logistics is becoming an important area of research in modern logistics, focusing on the management of economic and human flows in order to most

effectively locate enterprises in a certain territory. The works of E. D. Konkova and Yu.I. Toluev highlight the main aspects of the concept of territorial logistics, including a set of methods and services, as well as the need to optimize spatial aspects to ensure effective placement of enterprises.

The area design process described by Goodrum highlights the importance of grouping geographic areas to create larger clusters based on planning criteria. This indicates the importance of territory design in the context of territorial logistics.

Studies by Gabbasova, Nikolaev and Magomedov indicate the importance of territorial transport and logistics systems (TTLS) to ensure the continuous movement of resources between the components of territorial public systems. These researches show the need for an integrated approach to the management of transport and logistics processes in the territory.

The management of territorial development, studied by Arapov and Sidorov, focuses on systemic actions to ensure sustainable and balanced development of territories. These studies highlight not only the economic, but also the social and environmental aspects of territorial logistics.

The bibliometric analysis of scientific publications on territorial logistics shows the versatility of research interest in this area. In the last decade, territorial analysis has become an important aspect of logistics research, especially in the context of globalization. A systematic search for the keyword «territorial logistics» in the Scopus

database revealed a significant volume of 685 scientific publications related to this topic. Using the VOSviewer program for bibliometric analysis, about 44 terms and concepts related to «territorial logistics» were identified, which indicates the multifaceted nature of research attention in this area (Figure 1).

Among these terms, the number of which exceeds 44, such as globalization, air transportation, efficiency, international trade, names of

organizations, names of countries, competitiveness, logistics efficiency and others are mentioned. This diversity highlights the interdisciplinary nature of research in the field of territorial logistics, covering various aspects of transport, trade and organizational management in specific geographical areas. For example:

The literary review in the scientific article is an analysis of the works of domestic and foreign researchers on the research topic.

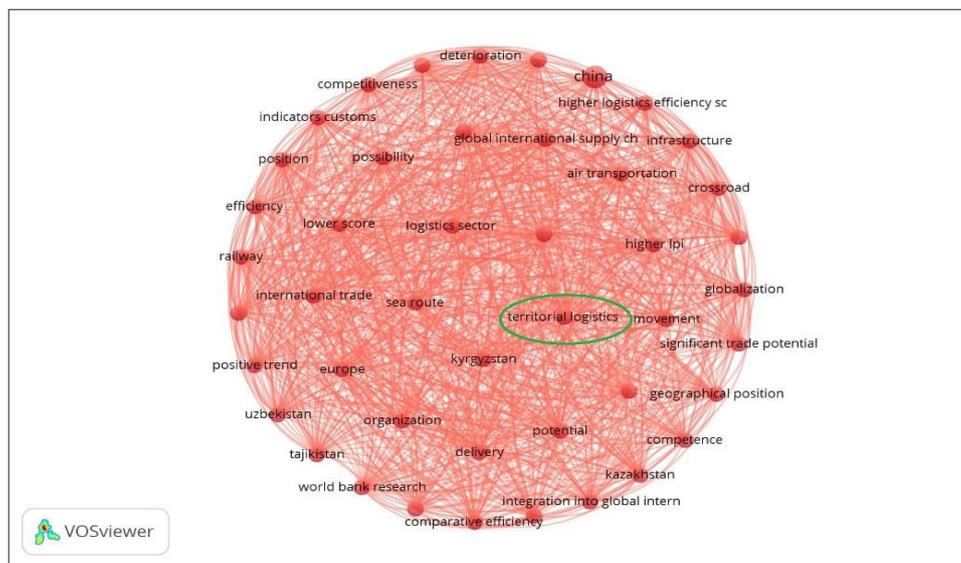


Figure 1 – Bibliometric analysis for the keyword «Territorial logistics»
Note – The result obtained using the Vosviewer platform

While researching the article, a search using the keywords “territorial logistics” in the Web of Science database revealed 9 articles published between 2016 and 2022. About 216 related terms were identified using the VOSviewer bibliometric

analysis program. The analysis revealed 8 clusters, 4038 links and a total number of links equal to 4046. The results of this analysis are shown in the image generated by the VOSviewer program below (Figure 2).

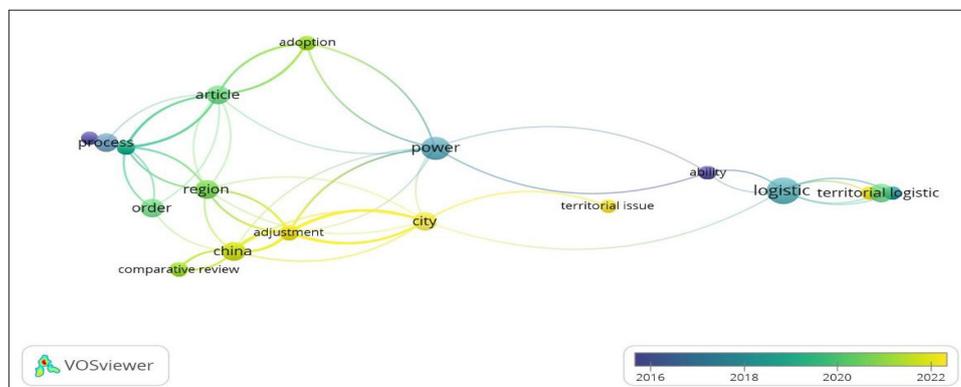


Figure 2 – Bibliometric analysis of the keyword «Territorial logistics» in the Web of Science database
Note – The result obtained using the Vosviewer platform

Finally, it should be noted that scientific research in the field of territorial logistics reflects the dynamic panorama of world trade and transport, while researchers explore various topics ranging from efficiency and competitiveness to the dynamics of international trade and air transport networks. By exploring these multifaceted topics, scientists contribute to a deeper understanding of territorial logistics and its implications for global supply chain management in an increasingly interconnected environment.

Methodology

An analysis of the structure of territorial transport systems is carried out to determine the composition, properties, nature and characteristics of the interaction of individual elements in the process of operation, which makes it possible to assess the adaptability of such systems to solve problems determined by their intended purpose.

The structure of the transport system in general may consist of three interconnected levels, differing in their composition and functions performed. However, the number of structural levels may be less than three, and the known methods of structural analysis do not allow us to unambiguously determine

their number and composition, which creates difficulties in solving practical problems, including those related to the choice of optimal modes of operation.

The method of structural analysis of territorial transport systems is carried out in several stages:

1. Based on the existing scheme and the known nature of the interaction of individual elements, the composition of the local, regional and interregional levels of the analyzed territorial transport system is established in an assumed form.

2. Taking into account the existing traffic volumes, as well as the characteristics of the transport routes, the structure of the system is being clarified. To do this, the indicators of paired proximity are calculated, the structural index is determined, and the need to combine overlapping sets on the YOX plane is estimated, if there is such an overlap.

3. After the implementation of all procedures related to the clarification of the composition of individual structural levels, their total number is determined.

The application of this methodology is illustrated by the example of territorial transport systems at the regional level (Slobodyanyuk & Gorobchenko, 2020; Slobodyanyuk, 2017).

The content of the territorial transport system, which includes both regional and transit cargo flows.

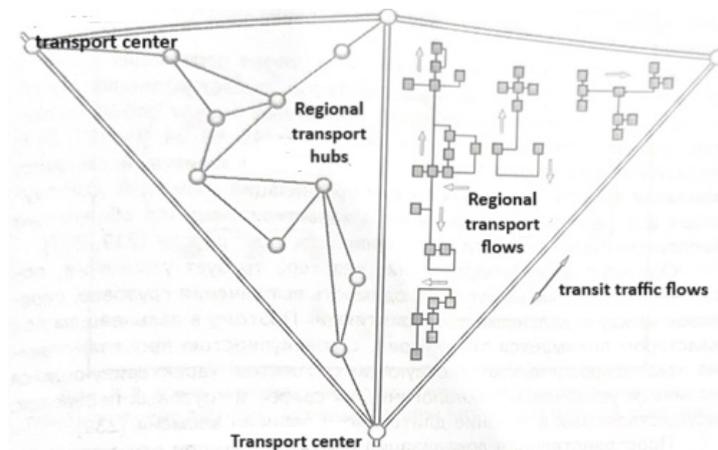


Figure 3 – The scheme of the territorial transport system, which includes both regional and transit cargo flows
Note – Slobodyanyuk, 2017

The features of the structural synthesis of multilevel transport systems are associated with the need to perform a number of sequential optimization

procedures at each level, starting from the lowest. This is due to the fact that the operation of such systems includes a number of operational features:

1. Local enterprises and their economic activities create cargo flows, localized mainly at the local level.

2. Transit cargo transportation takes place along transport corridors connecting different regions. These corridors pass through interregional transport centers and play a key role in general cargo flows.

These features simplify the process of structural synthesis of transport systems, allowing them to be consistently formed at the local, regional and interregional levels, while maintaining the integrity of the entire system.

Structural synthesis begins at the local level, which is the basic one for any territorial transport system, regardless of its purpose and the number of levels (Slobodyanyuk, 2017). According to table 1, the principles of territorial localization include the following levels of the transport system:

1. Local level.
2. Regional level.
3. Interregional level.

When creating regional transport and logistics networks, common methodological principles are used, such as a systematic approach, synergy, territorial localization, efficiency, quality and competitiveness management, as well as sustainability and adaptability.

Territorial logistics manifests itself in the optimization and organization of transport systems that take into account the territorial localization of cargo flows and the need for effective interaction at different levels of the transport network.

The implementation of the principle of the minimum total length of transport routes at the regional level is advisable, since it reduces the cost of creating and maintaining the entire transport system at this level. In this case, the solution of the problem of synthesis of the regional level is associated with the need to minimize the total length of all transport routes belonging to this level of the system (1):

$$I_p = \sum_i I_i - \min \quad (1)$$

where I_i is the distance between nodes combined into a single regional network.

The territorial transport system should take into account both local and transit cargo flows, ensuring their optimization at all levels: local, regional and interregional. This allows you to reduce costs and increase the efficiency of the transport network, taking into account the specifics of economic activity and key transport corridors.

The territorial approach is the main approach to managing the region. At the same time, the

«territory» component is the basis of the logistics complex used in supply chain management. In this regard, there is a need to clarify and supplement the theory and methodology of the territorial approach to managing both the region and supply chains (Tyapukhin, A. P., 2021).

F. Mantino identifies the following characteristics of the territorial approach:

- focus on specific places and their territorial scale;
- An endogenous development strategy firmly based on the natural and socio-cultural assets of the Territory and aimed at supporting the provision of public goods and services;
- A multi-level management system aimed at coordination and networking both in the vertical sense (relations between different levels of government) and in the horizontal sense (relations between subjects and stakeholders living and/or operating in a particular territory);
- Focus on investments rather than subsidies (Mantino, F., 2011).

In the context of the highlighted characteristics of the author F. Mantino's territorial approach, the following conclusions can be drawn:

Focusing on specific sites and territorial scale emphasizes the importance of an individual approach to each territory, taking into account its unique characteristics and needs.

The endogenous development strategy, based on the natural and socio-cultural assets of the Territory, emphasizes the need to use local resources to achieve sustainable and harmonious development.

A multi-level management system covering both vertical and horizontal relations implies the need for cooperation and coordination of various levels of government and stakeholders for effective management of territorial development.

The focus on investments, rather than subsidies, indicates the importance of attracting investments as a tool to stimulate the development of territories and create a favorable investment environment.

Thus, the territorial approach is a comprehensive and integrated approach to managing the development of territories, which takes into account their specifics and is aimed at achieving sustainable and harmonious development.

Considering the territorial approach to regional management, it is necessary to identify structural scientific and theoretical approaches to regional development in general and the regional economy in particular.

The main principles that must be observed in the distribution of functions between the levels of the territorial administration structure are:

- the principle of subsidiarity, i.e. the maximum approximation of a specific function of territorial administration to the consumer of the function;

- the principle of sufficiency of powers, i.e. the powers of the management level implementing the function, must be necessary and sufficient for its effective implementation;

- the principle of the correspondence of powers and responsibilities, i.e. responsibility for the performance of a certain function should not exceed the amount of authority granted, but should not be less than these powers;

- the principle of resource availability, i.e. the implementation of a specific function at the appropriate level of territorial administration should be provided with the necessary information, material, financial, and human resources (Lyapina, I. R., 2011).

The principle of subsidiarity emphasizes the importance of keeping territorial government functions as close as possible to the end users of services, which helps to increase efficiency and meet local needs.

The principle of sufficiency of powers ensures that the management level performing a certain function has the necessary and sufficient powers to effectively perform this function, which prevents unnecessary bureaucracy and speeds up decision-making processes.

The principle of compliance of powers and responsibilities ensures that the level of responsibility for the performance of the function corresponds to the powers granted, which contributes to transparency and efficiency of management.

The principle of resource provision emphasizes the importance of providing the necessary resources at the local level for the successful implementation of the functions of territorial administration, which

ensures the sustainable and harmonious development of territories.

In general, compliance with these principles in the distribution of functions between the levels of the territorial administration structure contributes to the effective and balanced development of regions, meeting the needs of the population and improving the quality of life of citizens.

The author (Sassi, E., Benabdelhafid, A., 2020) presents the territory as a complex system that includes space, society and an ecological system, and defines the territorial system as a set of gateways and flows. He describes the territorial system as «an interface system combining place and connection, networks and territory, points and lines, doors and corridors» which emphasizes its complexity and variety of interconnections.

When it comes to the territorial logistics system, the author points out the various strategic decisions needed to improve its overall efficiency. At the same time, he emphasizes the importance of taking into account each spatial feature and the requirements of economic activity when evaluating these decisions.

Thus, territorial logistics becomes a key aspect of the management of the territorial system, where strategic decisions and innovations are necessary to ensure optimal functioning and development.

Results and discussion

In table 2, you can see the formulation of the term «territorial logistics» as «an area of logistics research that includes a set of interrelated methods, factors and principles of managing economic and human flows, ensuring the optimal (most economically profitable) placement of enterprises in the logistics territory.»

Table 2 – Formulation of the term «territorial logistics»

№	Formulation of the term	The main idea of the author	A source
1	By territorial logistics, we will understand the field of logistics research, which includes a set of interrelated methods, factors and principles of managing economic and human flows, ensuring the optimal (most economically profitable) placement of enterprises in the logistics territory.	The main idea of the author is to define territorial logistics as an area of logistics research, which covers a set of methods, factors and principles of managing economic and human flows in order to ensure optimal placement of enterprises in a logistics territory, taking into account economic benefits.	(Konkova, E.D., 2012)

Table continuation

№	Formulation of the term	The main idea of the author	A source
2	A logistic territory is a complex economic system consisting of elements-links interconnected by economic flows (material, financial, information, etc.), and located in a certain territory, the boundaries and tasks of which are determined by the internal and external goals of this macrological system	The main idea of the author is that the logistic territory is a complex economic system consisting of interconnected elements-links that provide flows of various types: material, financial, information and others. These elements are located in a certain area and perform their functions in accordance with the internal and external goals of the macrological system.	(Konkova, E.D., 2012)
3	The concept of territorial logistics is associated with a complex of logistics services that are performed in some specific territory (starting from the city and ending with the globe) by a logistics enterprise, which itself cannot be represented as a node in the structure of material flows.	The main idea of the author is that territorial logistics includes a complex of logistics services provided in a certain territory, whether it is a city or the whole planet. These services are performed by logistics companies and cover various aspects of material flow management. It is important to note that a logistics enterprise in itself is not a node in the structure of material flows, but it plays a key role in ensuring the effective functioning of the logistics system in a certain area.	(Toluev, Yu.I. (2008)
4	Territory design is the problem of grouping small geographical territories (so-called base territories) into a fixed number of larger clusters (so-called districts or territories) in such a way that the latter are acceptable in accordance with relevant planning criteria such as balance, compactness and contiguity.	The main idea of the author is that the design of a territory is the task of grouping small geographical areas, called base territories, into a certain number of larger clusters, or districts, taking into account various planning criteria such as balance, compactness and contiguity. This task includes determining the optimal structure and distribution of territories in order to ensure efficient use of resources and compliance with specified planning criteria. The design of the territory, aimed at the optimal use of resources and ensuring compliance with planning criteria, is an important aspect of territorial logistics.	(Butsch, A., Kalsics, J., 2022)
5	Territorial design is the process of distributing the population of a region according to a set of service providers.	The main idea of the author is that territorial design includes the distribution of the region's population among various service providers, which is directly related to territorial logistics, which is engaged in organizing and managing the flows of resources and services in the territory to ensure the effective functioning of regional infrastructure and meet the needs of the population.	(Goodrum, R. A., 2013)
6	Territorial design of logistics systems is an important aspect in the field of logistics, which deals with the organization and optimization of spatial aspects in the economy of trade and catering.	The main idea of the author is that the territorial design of logistics systems is an important aspect of logistics, since it focuses on the organization and optimization of spatial aspects in the economics of trade and catering, which is directly related to territorial logistics.	(Toluev, Yu.I., Plankovsky, S.I., 2009)
7	The territorial transport and logistics system (TLS) is understood as a complex of elements of transport and logistics systems that ensure the constant movement of material and non-material flows in space and time between the components of territorial public systems (TPS).	The main idea of the author is that the territorial transport and logistics system (TTLS) is a complex of elements of transport and logistics systems that ensure the continuous movement of material and non-material flows between the components of territorial public systems (TPS). This is directly related to territorial logistics, which deals with the effective management of flows and resources in a particular territory, including the organization of transport processes and logistics operations to ensure mobility and availability of resources.	(Gabbasova, V.V., 2019)

Table continuation

№	Formulation of the term	The main idea of the author	A source
8	A territorial transport and logistics system is a set of elements of transport and logistics complexes that ensure the continuous movement of material and non-material flows in space and time between the components of territorial social systems, aimed at meeting the needs arising in them.	The main idea of the author is that the territorial transport and logistics system is a complex of elements of transport and logistics complexes that ensure the continuous movement of material and non-material flows between the components of territorial public systems in order to meet their needs. This is directly related to territorial logistics, which is focused on the effective management of flows and resources in a specific territory, including the organization of transport processes and logistics operations to meet the needs of residents and businesses.	(Nikolaev, R.S., 2013)
9	At its core, the territorial (regional) logistics system is a new level of development of macrologistics.	The main idea of the author is that the territorial (regional) logistics system represents a new level of development of macrologistics. This means that the organization of logistics processes at the regional level is becoming an important aspect in the field of logistics, which is directly related to territorial logistics. Such systems usually include the management of flows and resources at the territorial level, taking into account the specifics of the region and its needs.	(Magomedov, A.M., 2008)
10	Territorial development management is a specially organized system of actions aimed at ensuring sustainable and balanced reproduction of the social, economic and natural potentials of the territory with positive dynamics of the parameters of the level and quality of life of the population.	The main idea of the author is that the management of territorial development is a specially organized systemic action aimed at ensuring sustainable and balanced development of the social, economic and natural potential of the territory while improving the quality of life of the population. This is directly related to territorial logistics, since effective management of territory development requires optimal allocation of resources, organization of logistics flows and creation of conditions for the sustainable functioning of infrastructure and social services.	(Arapov, S.V., Kurochkina, A.A., Petrova, E.E., 2021)
11	The territorial transport system (TTS) is a geographical system that includes transport hubs and transport points connected by stretches of the transport network; engineering structures; service organizations and personnel (infrastructure components); vehicles (rolling stock), as well as passengers, shippers and consignees, cargo, that is, consumers of transport services.	The main idea of the author is that the territorial transport system (TTS) is a geographical system that includes various components such as transport hubs, stretches of the transport network, engineering structures, service organizations, personnel, vehicles and various users of transport services. This concept is directly related to territorial logistics, since the effective functioning and management of the transport system play a key role in ensuring the flow of goods and services in the territory.	(Sidorov, V.P., 2011)
Note – compiled by the author			

This table discusses the main aspects of territorial logistics and its relationship with other areas of activity, such as territorial design, territorial development management and transport systems. The authors stressed the importance of effective management of resources and flows in the territory to ensure the sustainable development of the regions and improve the quality of life of the population. As a result of the analysis, it was revealed that territorial logistics plays a key role in the organization of economic and social activities at the regional and city levels. This confirms the need to develop and apply modern

methods and technologies for managing territorial systems in order to achieve optimal results in the field of enterprise placement, transport infrastructure and the social environment. In general, the table highlights the relevance and importance of the topic of territorial logistics in the modern world and calls for further research and development of this area. Based on these conclusions, it can be concluded that an in-depth study and practical implementation of the principles of territorial logistics are necessary to achieve the goals of sustainable development of the regions.

Territorial logistics deals with the optimal placement of enterprises in a certain logistics area in order to minimize total costs in the logistics chain. It includes a set of methods and principles for managing economic and human flows. One of the main areas of interaction between territorial logistics and logistics science is distribution logistics, which seeks to reduce costs at all stages of the logistics chain by optimizing the location of enterprises and their size (Carlucci, F., Cirà, A., Forte, E., Siviero, L., 2017).

And also, territorial logistics is based not only on logistical principles and methods. It takes into account a wider range of indicators used in related scientific fields, which include:

- socio-economic composition of the population,
- demographic indicators of the area;
- indicators of the territorial organization of production and public services;
- indicators of the dynamics of economic development;
- the nature, volume and structure of supply and demand in the market under study, etc.

Territorial logistics covers strategic planning, systematic organization and effective management of the movement of goods, information and resources within a specific geographical region or territory. This discipline focuses on the coordination of various logistical functions such as transportation, storage, distribution and inventory management to facilitate the smooth and efficient movement of goods within a specific area.

Territorial logistics is an integrated approach to the management of spatial aspects of economic activity, including the organization and optimization of the movement of resources, transport flows and infrastructure at the regional and urban levels, in order to ensure sustainable development and increase the efficiency of the use of territorial resources.

The main goal of territorial logistics is to optimize supply chain operations and improve communication between different points in the territory. By optimizing logistics processes, territories can support economic activity, promote industrial development and stimulate regional growth. Effective ter-

ritorial logistics not only ensures timely delivery of goods, but also helps to reduce costs and operational efficiency.

As such, area logistics plays a vital role in building a region's competitiveness and resilience by improving the overall performance of supply chain operations and facilitating seamless interactions among the various stakeholders involved in the logistics network.

Conclusion

In conclusion of this article emphasize the importance of rational allocation of productive forces and effective use of the transport complex to enhance the integration of the regions of Kazakhstan. The main problems requiring attention are the formation of a backbone transport network and the development of transport and logistics infrastructure in the country. In the context of these tasks, there is a need to define and further study territorial logistics.

Territorial logistics, in accordance with the analysis, is an integrated approach to managing the spatial aspects of economic activity. It covers the organization and optimization of the movement of resources, transport flows and infrastructure at the regional and urban levels, in order to ensure sustainable development and increase the efficiency of the use of territorial resources. At its core, territorial logistics strives to improve supply chain operations and improve connections between different points in the territory, which contributes to the smooth and efficient movement of goods within a certain area.

The article also revealed the need for further research in the field of territorial logistics to develop effective strategies for managing logistics processes at the territorial level in Kazakhstan. The bibliometric analysis of scientific publications on this topic highlights the versatility of research interest and the interdisciplinary nature of this field, which opens up prospects for further development of research in this direction.

Therefore, the understanding and development of territorial logistics play a key role in ensuring the sustainable development of the region and increasing their competitiveness in a global context.

References

1. Арапов С.В., Курочкина А.А., Петрова, Е.Е. – Региональное управление и территориальное планирование. Санкт-Петербург: РГГМУ. – 2021 – УДК [338.2:332.146](075.8) http://elib.rshu.ru/files_books/pdf/rid_18750322f0344be39075d55e85997e88.pdf
2. Бутч А., Кальчикс Дж. Новые Модели, Алгоритмы И Приложения // Для Территорий. Немецкое Общество Содействия Развитию (DFG)// . https://dol.iior.kit.edu/english/Projects_415.php

3. Карлуччи Ф., Сир А., Форте Э., Сивьеро Л. // Различия в инфраструктуре и логистике: региональные сравнения между северо-восточной и южной Италией. Технологическое и экономическое развитие экономики. – 2017 – 23 (2), 243-269 file:///C:/Users/Acer/Downloads/Infrastructure_and_logistics_divide_regi.pdf
4. Сидоров В.П. // Возможность применения логистики в географии транспорта. Вестник Удмуртского университета, . – 2021 – №.2. <https://cyberleninka.ru/article/n/vozmozhnost-primeneniya-logistiki-v-geografii-transporta/viewer>
5. Габбасова В.В. Территориальная организация транспортной логистики города. Башкирский государственный университет, г. Уфа. . – 2019 – <https://elib.bsu.by/bitstream/123456789/232462/1/97-98.pdf>
6. Гудрам Р. А. Алгоритмы и показатели для территориального проектирования. Южный методистский университет. Издательство диссертаций ProQuest, . – 2013 –3606999.<https://www.proquest.com/openview/e02b0325d50a8f04d5476fe652e7a6b3/1?pq-origsite=gscholar&cbl=18750>
7. Конькова, Е.Д. Территориальная логистика как область логистических исследований в экономике торговли. file:///C:/Users/Acer/Downloads/territorialnaya-logistika-kak-oblast-logisticheskikh-issledovaniy-v-ekonomike-torgovli.pdf
8. Ляпина, И. Р. Содержание территориального подхода к управлению регионом.// – 2011 – № 3-4 (025-026). file:///C:/Users/Acer/Downloads/soderzhanie-territorialnogo-podhoda-k-upravleniyu-regionom.pdf
9. Мантино, Ф. Разработка территориального подхода для САР. Институт европейской экологической политики. – 2019 – https://mpr.aub.uni-muenchen.de/49298/1/MPRA_paper_49298.pdf
10. Магомедов, А.М. Логистический подход к оценке уровня развития региона. [Online]. Доступно: <https://cyberleninka.ru/article/n/logisticheskij-podhod-k-otsenke-urovnya-razvitiya-regiona>
11. Николаев, Р.С. Пространственно-функциональная структура территориальной транспортно-логистической системы Пермского края. – 2013 –http://www.psu.ru/files/docs/autoreferaty/2013/Nikolaev_24_12_13-2.pdf
12. Президент Республики Казахстан К. К. Токаев. Послание народу Казахстана. 1 сентября 2023 г. Официальный сайт Президента РК. https://akorda.kz/ru/speeches/internal_political_affairs/poslanie-prezidenta-respubliki-kazahstan-k-k-tokaeva-narodu-kazahstana-1-sentyabrya-2023-goda
13. Сасси Э., Бенабдельхалид А. Сложность территориальной логистической экосистемы.// . – 2020 –<https://hal.archives-ouvertes.fr/hal-03190663/MOSIM'20> – 12: 14 ноября 2020 года
14. Статистический комитет Республики Казахстан, извлеченный из <https://stat.gov.kz/>
15. Ха, М.-Х., Янг, З., & Лам, Дж. С. Л. Эффективность портов в логистике контейнерных перевозок: взгляд многих заинтересованных сторон. Транспортная политика, // – 2019 – 73, 25-40. <https://doi.org/10.1016/j.tranpol.2018.09.021>
16. Тарарышкин, А. А., Слободянюк, М. Е., Нечаев, Г. И. Методы структурного анализа и синтеза территориальных транспортных систем. – – 2020 –М.: -Горячая линия – Телеком, . – 2016 –.184 с.
17. Толуев Ю.И. Имитационное моделирование логистических сетей. <http://simulation.su/uploads/files/default/toluev.pdf>
18. Толуев, Ю.И., Планковский, С.И. Моделирование и симуляция логистических систем. Курс лекций для высших технических учебных заведений. Киев: «Миллениум». // . – 2009 –<http://simulation.su/uploads/files/default/2009-lection-toluev-plankovsky-1.pdf>
19. Тяпухин, А. П. (2021). Теоретические аспекты территориального подхода к управлению регионами и цепочками поставок. Административный консалтинг, Российская академия народного хозяйства и государственной службы при президенте Российской Федерации. Северо-Западный институт управления. – 2021 –.<https://ideas.repec.org/a/acf/journal/y2021id1824.html>

References

1. Arapov S.V., Kurochkina A.A., Petrova E.E. (2021). Regional'noe upravlenie i territorial'noe planirovanie. Sankt-Peterburg: RGGMU. http://elib.rshu.ru/files_books/pdf/rid_18750322f0344be39075d55e85997e88.pdf (in Russian).
2. Butsch A., Kalcsics J. New Models, Algorithms, And Applications For Territory. Deutsche Forschungsgemeinschaft (DFG). https://dol.ior.kit.edu/english/Projects_415.php (in English)
3. Carlucci F., Cirà, A., Forte, E., Siviero, L. (2017). Infrastructure and logistics divide: Regional comparisons between north eastern & southern Italy. Technological and Economic Development of Economy, 23(2), 243–269. file:///C:/Users/Acer/Downloads/Infrastructure_and_logistics_divide_regi.pdf (in English)
4. Sidorov V.P. (2011). Vozmozhnost' primeneniya logistiki v geografii transporta. Vestnik Udmurtskogo universiteta, vyp. 2. <https://cyberleninka.ru/article/n/vozmozhnost-primeneniya-logistiki-v-geografii-transporta/viewer> (in Russian)
5. Gabbasova V.V. (2019). Territorial'naya organizaciya transportnoj logistiki goroda. Bashkirskij gosudarstvennyj universitet, g. Ufa. <https://elib.bsu.by/bitstream/123456789/232462/1/97-98.pdf> (in Russian).
6. Goodrum R. A. (2013). Algorithms and metrics for territorial design. Southern Methodist University. ProQuest Dissertations Publishing, 3606999. <https://www.proquest.com/openview/e02b0325d50a8f04d5476fe652e7a6b3/1?pq-origsite=gscholar&cbl=18750>(in Russian).
7. Konkova E.D. Territorial'naya logistika kak oblast' logisticheskikh issledovaniy v ekonomike trgovli. file:///C:/Users/Acer/Downloads/territorialnaya-logistika-kak-oblast-logisticheskikh-issledovaniy-v-ekonomike-torgovli.pdf (in Russian).
8. Lyapina I. R. (2011). Soderzhanie territorial'nogo podhoda k upravleniyu regionom. № 3-4 (025-026). file:///C:/Users/Acer/Downloads/soderzhanie-territorialnogo-podhoda-k-upravleniyu-regionom.pdf(in Russian).
9. Magomedov, A.M. Logisticheskij podhod k ocenke urovnya razvitiya regiona. [Online]. Dostupno: <https://cyberleninka.ru/article/n/logisticheskij-podhod-k-otsenke-urovnya-razvitiya-regiona>(in Russian).

10. Mantino F. (2011). Developing a Territorial Approach for the CAP. Institute for European Environmental Policy. https://mpra.ub.uni-muenchen.de/49298/1/MPRA_paper_49298.pdf (in Russian).
11. Nikolaev R.S. (2013). Prostranstvenno-funkcional'naya struktura territorial'noj transportno-logisticheskoy sistemy Permskogo kraya. http://www.psu.ru/files/docs/autoreferaty/2013/Nikolaev_24_12_13-2.pdf (in Russian).
12. Prezident Respubliki Kazahstan K. K. Tokaev. Poslanie narodu Kazahstana. 1 sentyabrya 2023 g. Oficial'nyj sajt Prezidenta RK. https://akorda.kz/ru/speeches/internal_political_affairs/poslanie-prezidenta-respubliki-kazahstan-k-k-tokaeva-narodu-kazahstana-1-sentyabrya-2023-goda (in Kazakh).
13. Sassi E., Benabdelhafid, A. (2020). The complexity of the territorial logistics ecosystem. MOSIM'20 – 12 au 14 novembre 2020. <https://hal.archives-ouvertes.fr/hal-03190663/> (in English)
14. Statistical Committee of the Republic of Kazakhstan, Retrieved from <https://stat.gov.kz/> (in Kazakh).
15. Ha, M.-H., Yang, Z., & Lam, J. S. L. (2019). Port performance in container transport logistics: A multi-stakeholder perspective. *Transport Policy*, 73, 25-40. <https://doi.org/10.1016/j.tranpol.2018.09.021> (in Russian)
16. Tararychkin, A., Slobodyanyuk, M. E., & Nechaev, G. I. (2016). Methods of structural analysis and synthesis of territorial transport systems. –M.:Hotline – Telecom, 184 p. (in Russian)
17. Toluev, YU.I. Imitacionnoe modelirovanie logisticheskikh setej. <http://simulation.su/uploads/files/default/toluev.pdf> (in Russian)
18. Toluev YU.I., Plankovskij S.I. (2009). Modelirovanie i simulyaciya logisticheskikh sistem. Kurs lekcij dlya vysshih tekhnicheskikh uchebnyh zavedenij. Kiev: «Millenium». <http://simulation.su/uploads/files/default/2009-lecture-toluev-plankovsky-1.pdf> (in Russian)
19. Tyapukhin A. P. (2021). Theoretical Aspects of the Territorial Approach to Region and Supply Chain Management. Administrative Consulting, Russian Presidential Academy of National Economy and Public Administration. North-West Institute of Management, issue 11. DOI: 10.22394/1726-1139-2021-11-40-60. URL: <https://ideas.repec.org/a/acf/journal/y2021id1824.html> (in Russian)

Авторлар туралы мәлімет:

Мұса Қарлығаш Асылқызы – (корреспондент автор) PhD докторант, Бизнес технологиялар кафедрасы, әл-Фараби атындағы Қазақ ұлттық университеті (Алматы қ., Қазақстан, e-mail: musa_karlygash.kz@mail.ru)

Ахметкалиева Сандыгуль Қусмановна – техника ғылымдарының кандидаты, «Бизнес-технологиялар» кафедрасының доцент м.а., әл-Фараби атындағы Қазақ ұлттық университеті (Алматы қ., Қазақстан, e-mail: sandygula@yandex.ru)

Джиган Дживан – PhD, қауымдастырылған профессор, Малайзия Теренггану Университеті, (Куала-Лумпур, Малайзия, e-mail: jagan@umt.edu.my)

Information about the authors:

Mussa Karlygash Asylovna – (corresponding author) PhD student, Department of Business Technologies, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: musa_karlygash.kz@mail.ru)

Akhmetkalieva Sandygul Kusmanovna – Candidate of technical sciences, Acting Associate Professor, Department of Business Technologies, Al-Farabi Kazakh National University (Almaty, Kazakhstan, e-mail: sandygula@yandex.ru)

Jagan Jeevan – PhD, Associate Professor, Universiti Malaysia Terengganu (Kuala Lumpur, Malaysia, e-mail: jagan@umt.edu.my)

Received: 18 December 2023

Accepted: 06 June 2024