

Features of the logistics component of the just transition project for the coal microregion of Lviv region

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Purpose. To analyze the problems existing in coal microregions and to investigate and substantiate the importance of the components of the marketing and logistics dimension in projects implemented within the just transition process.

Methodology. The methodological framework of the study is based on systemic, place-based, and problem-oriented approaches. Structural and spatial analysis methods were applied to identify the components of the logistics sector and the spatial characteristics of its facilities; comparative analysis was used to assess the functional orientation of logistics projects; and synthesis was employed to develop an integrated approach to the logistics component of territorial marketing. The information base comprises research on regional development, transport logistics, and just transition, as well as the Action Plan for the Just Transition of the Coal Microregion of Lviv Region for the period up to 2030.

Results. It was established that the contraction of coal mining and the monofunctional nature of the economy lead to job losses, a decline in economic potential, and an increased risk of socioeconomic depression in the coal microregion. The importance of the logistics component as one of the avenues for diversifying its socioeconomic development is substantiated. The spatial (territorial), commercial, economic and infrastructural, social, security, and environmental components of the logistics sector are systematised, and the need for their integrated consideration in territorial marketing is identified. The spatial and functional features of transport and logistics centers, an agro-industrial hub, industrial parks, cross-border infrastructure, and railway infrastructure in the coal microregion of Lviv Region are determined.

Originality. An integrated approach to shaping the marketing and logistics dimension of the just transition of a coal microregion is further developed through the integration of spatial, commercial, economic and infrastructural, social, security, and environmental components.

Practical value. The research results may be used by local self-government bodies and regional authorities in implementing the Action Plan for the Just Transition of the Coal Microregion of Lviv Region, developing territorial community development strategies and comprehensive spatial development plans, and planning logistics centers, industrial parks, and transport infrastructure.

Keywords: coal microregion, just transition, transport logistics, Action Plan projects, territorial marketing, integrated approach, spatial component, commercial component, economic and infrastructural component, social component, security component, environmental component.

Introduction

Microregions, with their socioeconomic, production and economic, innovation and technological, natural and environmental, infrastructural, and other components, are formed on a common spatial and territorial basis. Within the administrative-territorial units and regions (oblasts) of a country, relatively monofunctional microregions emerge, characterised by distinctive patterns of socioeconomic development in which one or two areas of activity are particularly prominent. One of the most characteristic features of monofunctional microregions is the concentration within a single territory of mineral deposits, raw-material reserves, and other natural resources that may provide a basis for powerful industrial complexes, recreational areas, and other forms of development. The overall image of such microregions is often associated with the dominant activities of enterprises in the leading sector, giving rise to coal-mining, energy, metallurgical, agricultural, recreational, cross-border, and other types of microregions.

Literature Review

At particular stages of their development, microregions have functioned as areas of sustainable growth around which regional growth poles emerge, centers and

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adjacent territories and communities develop, and financial and economic potential increases. Alongside the leading enterprises of a microregion, small and medium-sized businesses develop in services, processing, and construction, while educational, healthcare, and cultural centers are established. Production, economic, and social linkages within a microregion form a relatively coherent regional complex that operates effectively until circumstances arise that disrupt its functioning. Resource depletion, changing market trends, and technological shifts compel territorial communities and regions to adopt new management approaches, including territorial marketing. As Snihova (2024) argues, the transformation problems of coal regions should be addressed within the framework of state regional policy, which enables place-based measures to stimulate their development while simultaneously taking into account economic, social, environmental, and energy objectives.

The marketing policy of microregions is relatively structured: the «territorial community» as a product is identified through recognisable characteristics, while the image and brand of the territory often remain stable for many years. This has led to the emergence of mining towns, energy-sector towns, metallurgical towns, resort towns, and other territories whose narrow designation nevertheless conveys extensive information to external and internal audiences. Some territories that were subsequently consolidated into territorial communities within microregions did not sufficiently anticipate inevitable processes, including the depletion of mineral resources or the declining efficiency of their extraction, changes in market trends and technologies for the use of final products, environmental risks, and threats associated with martial law. These processes require changes in approaches to marketing policy. For a long period, towns and settlements with a monofunctional orientation developed in the country's coal regions and consequently absorbed the negative effects of narrowly specialised development. Rapid economic and population growth up to a certain stage, combined with insufficient anticipation of resource depletion and the need to shift towards a diversified model, contributed to the problems observed today (Oleksyuk & Popadynets, 2023).

This study focuses on the coal microregion of Lviv Region, which developed over more than seventy years in its north-western part, in an area containing underground hard-coal deposits. The development of this territory was determined by the operation of major coal-mining enterprises (mines) and numerous auxiliary facilities supporting coal extraction, including coal preparation and shipment, repair and transport enterprises, logistics, and material and technical supply. More than 30 enterprises provided employment for tens of thousands of residents of Chervonohrad (now Sheptytskyi) and the surrounding towns, settlements, and villages, thereby forming the basis of the coal microregion. The integrated complex of the microregion also includes the Dobrotvir Thermal Power Plant, which consumes coal from the mines; together, these facilities may be regarded as an energy cluster.

Similar microregions, particularly resource-based territories, face environmental degradation, economic and environmental risks, and the limitations inherent in monofunctional socioeconomic development. A stage eventually arrives when reserves are depleted and mines close, while the global trend towards reducing fossil-fuel use and transitioning to green energy intensifies. At the same time, territorial expenditures increase due to the need to restore natural potential, including land and spoil-heap reclamation, construct environmental protection facilities, provide social protection for people who lose their jobs, and diversify the regional economy. Thus, at a certain point, microregions with a monofunctional development model risk entering a state of socioeconomic depression from which renewed growth is difficult without substantial external assistance. Under such conditions, territorial marketing requires new management approaches and a reassessment of territorial potential.

A marketing approach to managing territorial communities affected by the activities of the coal microregion is based on interrelated priorities and strategies, effective integration, and cooperation. The logistics component plays an important role as a driver of the spatial and temporal dimensions of socioeconomic development in territories and regions. During wartime, transport logistics, particularly road transport and consequently road infrastructure, acquires special importance. The improvement of this area has been addressed by Bilonoh et al. (2026), Vlasenko and Makedon (2025), Hlynskyi (2023), Melnyk et al. (2024), Petrashevskaya et al. (2024), Salo et al. (2024), Snihova (2024), and Spaskyi (2018).

Research Objective

The objective of the article is to analyze the problems existing in coal microregions and to investigate and substantiate the importance of the components of the marketing and logistics dimension in projects implemented as part of the just transition process.

Achieving an optimal territorial development scenario requires a just transition of microregions that takes into account:

- the state of the economy, its sectoral structure, level of development, innovation achievements, technological condition, infrastructure, environmental pollution, and other relevant factors;
- socioeconomic trends, including the reduction of legacy jobs and the establishment of foundations for new employment, production diversification, and investment attraction;
- the enhanced role and potential of the spatial advantages of the coal microregion, particularly its geographical location at the intersection of major transport routes and its proximity to the border with the European Union;
- the use of the logistics component to support the economy both within the microregion and beyond it;
- the creation of a portfolio of alternative sources of electricity generation and supply based on wind and solar resources;
- the formation of an integrated socioeconomic complex of the coal microregion as a multifaceted entity combining the potential, specific features, and opportunities of each community, including industrial, agricultural, infrastructural, tourism, logistics, and other advantages.

Methodology

The methodological framework of the study is based on systemic, place-based, and problem-oriented approaches. Structural and spatial analysis methods were applied to identify the components of the logistics sector and the spatial characteristics of its facilities; comparative analysis was used to assess the functional orientation of logistics projects; and synthesis was employed to develop an integrated approach to the logistics component of territorial marketing. The information base comprises research on regional development, transport logistics, and just transition, as well as the Action Plan for the Just Transition of the Coal Microregion of Lviv Region for the period up to 2030.

Results and Discussion

The transformation of the coal microregion of Lviv Region is a complex and lengthy process requiring comprehensive research into the socioeconomic and environmental conditions of the territories, international market trends in commodity and energy sectors, particularly in Europe, as well as investment resources and investment attractiveness.

The geographical location of the territories within the coal microregion of Lviv Region provides a fundamental basis for using their potential to shape logistics at the territorial, regional, national, and international levels. In the context of implementing sustainable development principles, with efforts focused on the economic, environmental, and social dimensions, energy and resource conservation, and minimizing adverse environmental impacts, a number of modern logistics concepts are emerging, including city logistics. This is a scientific and applied field concerned with improving transport and logistics schemes and routes for freight and passenger movements in large cities (Bilonoh et al., 2026).

In «product-time-consumer (buyer)» logistics chains, where the characteristics of the product and its origin (producer, consignor, etc.) are known and consumer or institutional-buyer demand is relatively predictable in terms of assortment, price, quality, and other parameters, the most vulnerable element is time. Temporal movement depends not only on modern, well-organized logistics centers but also on external factors beyond the control of transport chains that nevertheless directly affect their efficiency. Road congestion, poor road-surface conditions, and insufficient warehousing capacity can substantially slow the movement of goods, increase logistics costs, and constrain access to regional markets (Vlasenko & Makedon, 2025).

This also concerns border crossings in the performance of foreign trade contracts, border services, and subsequently the road-transport logistics component within the country, including security risks associated with martial law. Transport logistics therefore has a clear geographical basis that requires analysis from a human-geographical perspective. Such research is particularly important for identifying and assessing spatial imbalances in logistics development, optimizing transport flows, and developing innovative solutions in this field (Salo et al., 2024).

The logistics sector of a regional economy comprises several components that must be considered, investigated, and analyzed when preparing the principal planning documents of territorial communities in coordination with regional and national priorities. These include spatial (territorial), commercial, economic and infrastructural, social, security, and environmental components. In particular, Territorial Community Development Strategies and Comprehensive Spatial Development Plans for communities intending to develop logistics facilities such as logistics centers, warehouses, and hubs and to allocate appropriate sites (land plots) should apply an integrated systemic approach that accounts for the interactions among these components. Given the substantial transit potential of Lviv Region, transport infrastructure is becoming a strategic priority for positioning the region as part of global transport and logistics corridors, including the Baltic–Black Sea corridor and new logistics chains (Lysiak et al., 2022).

Such an approach primarily facilitates the attraction of external investment: a territorial community contributes its own investment resources, such as land plots and supporting infrastructure, which in combination can provide an effective basis for development. A problem-oriented approach involves coordinated decision-making concerning the coherent and integrated spatial development of settlements and territories beyond them (Melnik et al., 2024).

Logistics is both a driver and an instrument for moving goods, materials, services, and information from their point of origin to an organized or final consumer. It encompasses not only warehouses or centers but also the coordination of each stage of movement to ensure that the required product reaches the appropriate consumer at the required time and at a specified price (cost). Within territorial marketing, the distribution function of marketing policy is aimed at constructing a system of physical access to the «territorial community» as a product that makes it available to potential consumers and users as efficiently as possible in both space and time (Hlynskyi, 2023).

Movement through time and space can alter the cost and quality characteristics of a product because of unforeseen circumstances and additional expenditure. Complex road configurations, reduced travel speeds, obstacles in towns and villages, risks to residents, and the need to protect wildlife on roads through forest areas all increase fuel consumption, repair costs, and travel time, including labor and servicing costs. Rising costs constitute another serious challenge currently affecting the transport sector worldwide. These include higher fuel prices associated with the war in Ukraine, increased labor costs for qualified personnel, and higher prices for materials used in vehicle repair and maintenance (Vlasenko & Makedon, 2025).

The spatial (territorial) component is associated with the settlements of territorial communities, which must take account of the specific features of their geographical location in relation to international highways, railways, and other transport routes.

In practice, projects for the construction of international or regional highways may require routes to pass through settlements or bypass them, depending on technical and directional requirements. Priority is generally given to constructing direct routes on state- or municipally owned land, or to acquiring privately owned land for public needs at appropriate compensation. When preparing Comprehensive Spatial Development Plans and settlement master plans, territorial communities must consider future needs, the availability and feasibility of road reconstruction, and the construction of new bypasses, while reserving land for widening existing routes or building new ones. This is particularly important for communities whose strategic socioeconomic development plans envisage the creation of logistics centers. A Comprehensive Plan simultaneously constitutes urban-planning and land-management documentation at the local level and determines the planning organization and functional designation of the territory, as well as the main directions for developing an integrated public-service system, road network, and engineering and transport infrastructure (Melnyk et al., 2024).

The acquisition of privately owned land used by residents or businesses for public needs may become problematic, particularly for the construction of roads, interchanges, railways, and roadside service facilities, when owners disagree with the offered price or with the replacement of a plot by land in another location. In such cases, construction may be postponed or disputes may be resolved through judicial procedures governed by Ukrainian legislation. At the same time, it should be acknowledged that the need to acquire land for public purposes is often caused by ineffective land planning and parcel allocation within communities and the absence of an appropriate land reserve.

The logistics centers planned in several territorial communities of the coal microregion of Lviv Region can be viewed as nodes within an extensive network of international and national highways, local roads, railways, and other routes. The factors that most directly affect time performance are road quality and technical parameters, pavement condition, curve configuration, traffic safety in settlements, and the technical characteristics of road access and egress, including carriageway width and number of lanes. Population and building density, as well as the density of road and transport infrastructure relative to settlement area, must also be considered. At the same time, the war has posed a major challenge to transport logistics, increasing vulnerability to external shocks and infrastructure destruction, disrupting supply chains, and heightening transport security risks (Vlasenko & Makedon, 2025).

The commercial component comprises the spatial network of existing logistics facilities within a territorial community or region, the distances between them, and their shared use of road and other infrastructure as factors of external competition. Internal competition within the logistics sector is determined by the comprehensiveness and breadth of services provided by logistics centers and

by their innovative and high-technology organization. Thus, the competitiveness of territorial logistics is shaped by factors combining the spatial advantages of territorial communities with the internal advantages of investors and logistics operators.

The economic and infrastructural components involve links with enterprises in the local production complex, plans for new production facilities and industrial parks, networks of shopping centers, and the intensity of small and medium-sized enterprise development. They also require an appropriate balance among inbound logistics (raw materials, components, other production inventories and goods), outbound logistics (finished products and redistribution of flows among institutional and final consumers), and reverse logistics (returns of goods and products by customers for various reasons). Supporting infrastructure for logistics centers and warehouses includes water supply and wastewater disposal, electricity, communications networks, heat supply, road access, railway tracks, and other facilities, which also depend substantially on the spatial component.

The economic activities of business entities operating within a logistics center, as an element of the logistics chain, increase the overall economic potential of the territory or region by generating value added, contributing revenues to budgets at all levels, and creating jobs.

The social component concerns employment for residents of the territorial community, the creation of jobs, and appropriate remuneration, which may be included among the conditions offered to an investor when land is allocated for the construction of a logistics center. It is also reflected in the intensification of commodity flows for final consumption through retail networks and in postal services that move goods between individual actors.

The security component encompasses the movement of vehicles along highways, traffic safety and control by public authorities, the installation and maintenance of safety infrastructure such as road signs, protection against criminal activity at parking areas, and high-quality roadside services. Logistics centers must ensure the secure storage and protection of goods and strengthen these arrangements under martial law to address the risk of hostile strikes. The spatial component also entails risks of damage to other facilities located near logistics centers but not belonging to them.

The environmental component concerns motor-vehicle traffic, particularly through settlements, which increases harmful exhaust emissions and raises dust and fine particles from road surfaces. Assessing the condition and potential of city logistics and incorporating it into logistics-chain design is essential for both enterprises and territorial communities. Growing demand for road construction, reconstruction, and widening requires additional land and may entail the removal of roadside vegetation. Additional environmental measures include protective infrastructure such as noise or protective barriers in settlements and fencing along roads through forest areas to prevent wildlife fatalities and injuries.

The need for an integrated approach to these components in shaping marketing and logistics policy by business entities, territorial communities, and regions is substantiated by the following challenges and unforeseen circumstances.

1. Rising fuel prices driven by market trends associated with international events, including regional wars and interstate relations among oil-producing countries.

2. Stricter environmental regulation of emissions in urban areas and the introduction of international carbon-footprint reporting systems, including tighter control over the technical composition and condition of vehicle fleets, traffic schedules, and movement through space and time.

3. Human-resource challenges, including labour shortages and human-factor issues, the effects of martial law, and increased road freight

and passenger flows due to reduced rail and air transport during the war.

4. Traffic safety, real-time vehicle tracking, and the prevention of adverse circumstances and threats that may cause delays, deterioration in product quality, disruption of logistics chains, and increased costs.

5. The interests of all logistics centers converge, to varying degrees, in the road-transport (spatial) component, which is largely a common and, in many cases, non-substitutable infrastructure for commodity flows.

Returning to the Action Plan for the Just Transition of Coal Regions developed in Lviv Region for the period up to 2030 and approved by Order No. 1095/0/5-24VA of the Head of the Lviv Regional Military Administration dated 15 October 2024, the following projects containing a logistics component can be identified (Lviv Regional Military Administration, 2024).

Strengthening the cross-border economic links of the coal microregion through the development of transport and logistics and engineering infrastructure – UAH 200,000 thousand. The project envisages improving border-crossing conditions through the development of the Belz–Budynin international border crossing point and the major rehabilitation of the relevant section of the T-14-08 Uhryniv–Khorobriv state road (Belz and Sokal urban territorial communities).

Construction of a transport and logistics center in the Velyki Mosty community – UAH 500,000 thousand. The project will support the effective development of transport and logistics infrastructure at the intersection of customs routes in Lviv and Volyn regions: Rava-Ruska–Hrebenne, Uhryniv–Dolhobyczyn, and Ustyluh–Zosin.

Preparation of a feasibility study for modernizing the Sheptytskyi–Belz–Rava-Ruska railway line and constructing a European-gauge track – UAH 12,000 thousand. The purpose of the project is to prepare a set of analytical and calculation documents to support technical and organisational decisions on railway modernization (Belz and Sheptytskyi urban territorial communities).

Discussion of the transition to the European railway-gauge standard in Ukraine, including in the coal microregion of Lviv Region, has intensified in the context of European Union integration and the need to improve cross-border logistics operations. At the same time, implementation of such a project requires substantial investment and is considered feasible only after the end of hostilities (Petrashkevskaya et al., 2024).

Establishment of an agro-industrial hub for agricultural producers in the coal microregion – UAH 60,000 thousand. The project envisages supporting agricultural producers by creating modern infrastructure for primary processing, storage, and transportation of agricultural products and for their sale within and beyond the region.

The development of transport logistics should become an important and effective avenue for the socioeconomic development of agricultural enterprises. It addresses not only the optimization of transport flows, reduction of logistics costs, and relief of pressure on the road network, but also creates an impetus for the development of the regional agricultural sector and strengthens the territory's competitive advantages (Spaskiy, 2018).

Establishment of an eco-industrial park in the Belz community – UAH 52,000 thousand, with activities including the storage of liquid and grain commodities, logistics, processing, and related operations.

Support for the establishment and infrastructure development of the Chervonohrad Industrial Park – UAH 3,516,176.9 thousand; its functional profile includes logistics and warehousing activities (Sheptytskyi urban territorial community).

Establishment of a training and logistics center at the Chervonohrad Mining and Economics Professional College – UAH 15,000 thousand. The project aims

to stimulate new areas of vocational education specialization, including logistics (Sheptytskyi urban territorial community).

The total value of the proposed projects under the Action Plan for the Just Transition of the Coal Regions of Lviv Region that contain a logistics component is UAH 4,355,177 thousand, representing approximately 43% of the total project value of UAH 10,063 million (Lviv Regional Military Administration, 2024).

The project for the construction of a transport and logistics center in the Velyki Mosty territorial community of Sheptytskyi District, Lviv Region, which is currently at an initial stage of development, warrants more detailed consideration.

Urban-planning documentation is currently being prepared, a detailed territorial plan has been developed, and the designated land use has been regulated for a project comprising a shopping complex and a transport and logistics center. Determining the spatial location of the project enables further external studies of engineering, transport, and road infrastructure and of the potential for additional transport flows that currently exist and will increase once the logistics center becomes operational. Nearby logistics routes include the P-15 road (Kovel–Volodymyr–Sheptytskyi–Zhovkva), which provides direct access to the M-09 highway (Lviv–Rava-Ruska) and the border with the European Union (Poland). Thus, the logistics center in the Velyki Mosty community is located at the intersection of three directions: south towards Lviv, west towards the EU border, and north towards Sheptytskyi and Volyn. These roads pass through Sheptytskyi, Velyki Mosty, and rural settlements, which will affect vehicle speeds, emissions and air pollution, and the safety of local residents (Fig. 1).

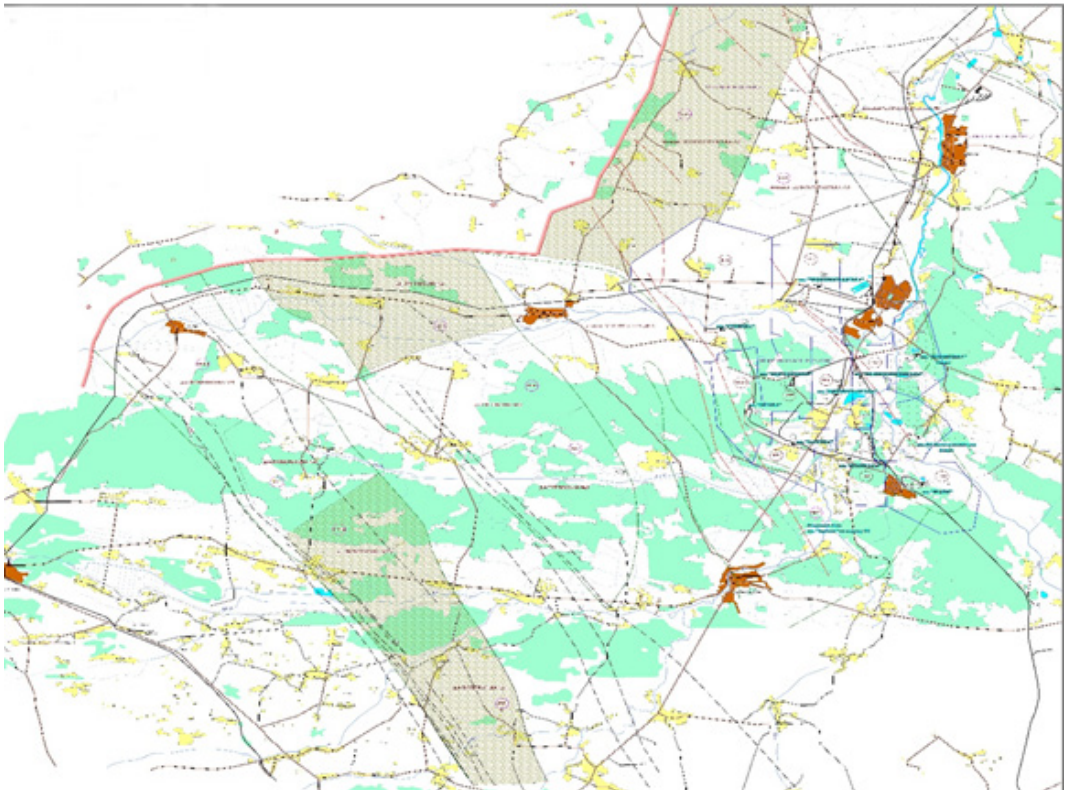


Figure 1. Underground space of mine fields of coal-mining enterprises in Lviv Region (Popadynets et al., 2025)

The market (commercial) component of the logistics center can be characterized as follows. The external competitive environment comprises the coal microregion, including the Belz and Sheptytskyi urban territorial communities, as well as existing logistics facilities in Lviv and Yavoriv districts located along the M-09 highway. The internal structure and functional profile include warehouse and production-and-warehouse buildings, a shopping complex and retail enterprises, parking areas for passenger and freight vehicles, a vehicle service station, a rest area for employees and drivers, and supporting infrastructure for electricity, water supply, wastewater disposal, and other utilities. The proposed integrated internal planning and design are competitive; at the same time, the structure of the logistics center's activities should ensure innovation, optimal functional solutions, efficient internal management, and comfort for service users.

The logistics component of the Belz urban territorial community is being developed around agricultural logistics and a dry port – a hub for the accumulation, sorting, and storage of cargo to be dispatched outside Ukraine through nearby border crossing points. An elevator complex is planned to serve local grain producers. The creation of a logistics center in this community is one of the largest investment projects in the coal microregion under the just transition program for the coal microregion of Lviv Region. An integrated approach to project implementation will contribute to the development of the regional agricultural sector, diversification of production and economic activity, and more intensive use of natural-resource potential, particularly land resources.

The spatial location and functional orientation of the logistics complex provide important geographical advantages and relatively low external competition due to the absence of comparable facilities in the region. At the same time, agricultural products from regional farms will be transported near or through Sheptytskyi, Belz, Sokal, Radekhiv, the settlement of Lopatyn, and rural settlements. The spatial component will therefore entail adverse environmental impacts owing to increased transport flows from farms located predominantly in the north-eastern part of the coal microregion, while the road and transport network requires corresponding modernization and improvement (Fig. 1).

The logistics center in Sheptytskyi is one of the functional components of the Chervonohrad Industrial Park and is directly integrated into the park's infrastructure alongside manufacturing sectors. Given the spatial characteristics of logistics activities, design and cost-estimate documentation for the industrial park's logistics center is being prepared under a separate project. The potential use of rail transport is also considered, using a nearby railway line originally built to serve a mine that is currently being closed. Road access is provided by the P-15 Kovel–Volodymyr–Sheptytskyi–Zhovkva route, including access towards the EU border. An advantage for the logistics center is the availability of tax incentives for logistics residents similar to those granted to other industrial park participants under applicable legislation.

Efficient land-use planning and the optimization of transport flows from other directions and logistics centers support the integrated development of the coal microregion, including its rural settlements. Balancing the advantages of spatial location and time-related movement factors with economic, environmental, and security considerations is an important principle of the marketing policy of businesses, territorial communities, and microregions that identify logistics as one of their principal development sectors.

The logistics centers of the coal microregion are located within approximately 50 kilometers of one another and use a shared network of international, regional,

and local roads; consequently, transport pressure increases and becomes one of the negative factors affecting their operation. Under martial law, road freight activity has intensified, while logistics chains have been supplemented by transit flows to other regions. Large and oversized vehicles are used in these operations, requiring appropriate technical parameters such as bridge clearances, road widths, and other standards that enable their safe movement.

Conclusions and Directions for Further Research

Ukraine contains a number of microregions whose socioeconomic development has historically been based on similar factors, including the availability of mineral deposits and other natural resources, particular sectors of activity such as energy and metallurgy, and geographical location. The overall image of such regions reflects the dominant activities of leading enterprises in a particular industry. The coal microregion of Lviv Region developed over more than seventy years on the basis of hard-coal extraction and mining, primarily for energy-sector consumption, as an integrated complex of mines and other enterprises employing residents of towns, settlements, and villages in the surrounding territorial communities of Sheptytskyi District, Lviv Region.

Over time, environmental degradation becomes increasingly evident, underground hard-coal reserves are depleted, mines close, and approaches to the electricity-generation market change. The coal microregion loses economic potential, incomes decline, jobs disappear, and signs of socioeconomic depression emerge. This creates the need for a just transition of coal regions, the implementation of which is defined by government decisions.

Reconfiguring the use of territorial-community potential in line with current conditions and market trends, including those in the energy sector, creates new tasks for the marketing of businesses and territorial communities. Territorial marketing is closely linked to logistics because logistics chains and their temporal dimension are formed within the spatial environment of territorial communities and their settlements. The logistics sector inherently integrates spatial (territorial), commercial, economic and infrastructural, social, security, and environmental components. A marketing approach to territorial management based on the integrated use of these components can help address the adverse challenges of martial law and create conditions for efficient logistics as a driver of economic activity.

In implementation of the relevant government decision and in response to the situation in the coal region, the Action Plan for the Just Transition of the Coal Microregion of Lviv Region was developed. Among other initiatives, the Action Plan includes seven projects worth more than UAH 4 billion that incorporate a logistics component in the relevant territorial communities. These include the construction of a transport and logistics center in the Velyki Mosty territorial community, a hub for agricultural producers in the Belz community, and the development of logistics activities within industrial parks in the Sheptytskyi and Belz communities.

Thus, the logistics dimension of the just transition project for the coal microregion of Lviv Region is becoming an important area of socioeconomic development for territorial communities and the region, providing a basis for the efficient movement of freight and passenger flows through space and time.

References

1. Bilonoh, O. Ye., Halak, I. I., Dobrovol'ska, A. M., Yanishevskyi, S. V. (2026). Systemni aspekty zabezpechennya efektyvnosti sitilohistyky [Systemic aspects of ensuring city logistics efficiency]. *Management and Entrepreneurship: Trends of Development*, 2(32), 221-235. <https://doi.org/10.26661/2522-1566/2025-2/32-18> [in Ukrainian].

2. Hlynskyi, N. Yu. (2023). Implementatsiya marketynhovoho instrumentariyu v protsesi stratehichnoho upravlinnya mistsevym rozvytkom [Implementation of marketing tools in the process of strategic management of local development]. *Economy and Society*, 56. <https://doi.org/10.32782/2524-0072/2023-56-63> [in Ukrainian].
3. Lviv Regional State Administration (2024, Oct 15). Action plan for the just transition of the coal-mining micro-region of the Lviv region for the period up to 2030 (Order No. 1095/0/5-24BA). URL: <https://loda.gov.ua/documents/119606> [in Ukrainian].
4. Lysiak, N. M., Habrel, M. M., Khromiak, Y. Ya. (2022). Skhema planuvannya terytoriyi oblasti yak stratehichna osnova obgruntuvannya kontseptsii integrovanoho rozvytku terytorial'noyi hromady [Regional territory planning scheme as a strategic basis for substantiating the concept of integrated territorial community development]. *Regional Economy*, 3 (105), 24-36. <https://doi.org/10.36818/1562-0905-2022-3-2> [in Ukrainian].
5. Melnyk, M., Leshchukh, I., Tymkiv, D. (2024). Prostorove planuvannya yak instrument formuvannya integrovanoho ekonomichnoho prostoru v umovakh povoyennoyi vidbudovy [Spatial planning as a tool for shaping an integrated economic space in the context of post-war reconstruction]. *Galician Economic Bulletin*, 89, 4, 19-27. https://doi.org/10.33108/galicianvisnyk_tntu2024.04.019 [in Ukrainian].
6. Oleksiuk, H. V., Popadynets, N. M. (2023). Vid restrukturyzatsiyi vuhil'noyi haluzi do spravedlyvoyi transformatsiyi vuhil'nykh rehioniv: dosvid i perspektyvy [From coal industry restructuring to the just transformation of coal regions: experience and prospects]. *Economy of Ukraine*, 9 (742), 30-54. <https://doi.org/10.15407/economyukr.2023.09.030> [in Ukrainian].
7. Petrashevska, A. D., Kolontai, S. M., Pletos, S. V. (2024). Tendentsiyi rozvytku transportnoyi lohistyky v Ukrayini [Trends in the development of transport logistics in Ukraine]. *Economy and Region*, 2 (93). [https://doi.org/10.26906/EiR.2024.2\(93\).3391](https://doi.org/10.26906/EiR.2024.2(93).3391) [in Ukrainian].
8. Popadynets, N., Oleksyuk, H., Rostyslav, B., Zalutskyi, I., & Plotnyska, S. (2025). Environmental safety issues in coal mining regions: the impact of economic activity and environmental challenges. *IOP Conference Series: Earth and Environmental Science*, 1457, 1. <https://doi.org/10.1088/1755-1315/1457/1/012010>
9. Salo, Ya. V., Tarasova, K. I., Novak, H. V. (2024). Rol' innovatsiy v rozvytku transportnoyi lohistyky [The role of innovation in the development of transport logistics]. *Economy and Society*, 70. <https://doi.org/10.32782/2524-0072/2024-70-54> [in Ukrainian].
10. Snihova, O. Yu. (2024). Vuhil'ni hromady yak terytoriyi z osoblyvymy umovamy dlya rozvytku: stvorennia tochk zrostannya v protsesi dekarbonizatsiyi [Coal communities as territories with special development conditions: creating growth poles during decarbonization] *Regional Economy*, 4, 30-38. <https://doi.org/10.36818/1562-0905-2024-4-4> [in Ukrainian].
11. Spaskyi, H. V. (2018). Rozvytok transportnoyi lohistyky na pidpryemstvakh sil's'koho hospodarstva zakhidnykh rehioniv Ukrayiny [Development of transport logistics at agricultural enterprises in the western regions of Ukraine]. *Economy of Agro-Industrial Complex*, 11, 65-74. <https://doi.org/10.32317/2221-1055.201811065> [in Ukrainian].
12. Vlasenko, D. O., Makedon, H. M. (2025). Suchasni vyklyky v systemi transportnoyi lohistyky v konteksti voyennoho stanu v Ukrayini ta yikh podolannya [Modern challenges in the transport logistics system amidst martial law in Ukraine and ways to overcome them]. *Economic Achievements: Prospects and Innovations*, 17. <https://doi.org/10.5281/zenodo.15313371> [in Ukrainian].

Попадинець Н. М., Олексюк Г. В. Особливості логістичної складової проєкту справедливої трансформації вугільного мікрорегіону Львівщини

Мета. Проаналізувати проблеми, що існують у вугільних мікрорегіонах, дослідити та обґрунтувати важливість складових маркетингового логістичного напрямку у проєктах процесу справедливої трансформації.

Методологія. Методологічну основу дослідження становлять системний, територіально орієнтований і проблемно-орієнтований підходи. Застосовано методи структурного і просторового аналізу для визначення складових логістичної сфери та особливостей розміщення її об'єктів; порівняльний аналіз – для оцінювання функціонального спрямування логістичних проєктів; метод синтезу – для формування комплексного підходу до розвитку логістичної складової територіального маркетингу. Інформаційну базу становлять наукові дослідження з проблем регіонального розвитку, транспортної логістики та справедливої трансформації, а також План дій зі справедливої трансформації вугільного мікрорегіону Львівської області на період до 2030 р.

Результати. Встановлено, що згортання вуглевидобування та монофункціональний характер економіки зумовлюють втрату робочих місць, зниження економічного потенціалу та посилення ризиків депресивності вугільного мікрорегіону. Обґрунтовано значення логістичної складової як одного з напрямів диверсифікації його соціально-економічного розвитку. Систематизовано просторову (територіальну), комерційну, економічну та інфраструктурну, соціальну, безпекову й екологічну складові логістичної сфери та визначено необхідність їх комплексного врахування у територіальному маркетингу. Визначено просторові та функціональні особливості транспортно-логістичних центрів, агропромислового хабу, індустріальних парків, транскордонної та залізничної інфраструктури вугільного мікрорегіону Львівщини.

Оригінальність. Розвинуто комплексний підхід до формування маркетингового логістичного напрямку в процесі справедливої трансформації вугільного мікрорегіону на основі інтеграції просторової, комерційної, економічної та інфраструктурної, соціальної, безпекової й екологічної складових.

Практична цінність. Результати дослідження можуть бути використані органами місцевого самоврядування та регіональної влади під час реалізації Плану дій зі справедливої трансформації вугільного мікрорегіону Львівщини, розроблення стратегій розвитку територіальних громад і комплексних планів просторового розвитку, планування логістичних центрів, індустриальних парків і транспортної інфраструктури.

Ключові слова: вугільний мікрорегіон, справедлива трансформація, транспортна логістика, проєкти Плану дій, територіальний маркетинг, комплексний підхід, просторова складова, комерційна складова, економічна та інфраструктурна складова, соціальна складова, безпекова складова, екологічна складова.

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Стаття надійшла до редакції / Received 01.07.2026

Прийнята до друку / Accepted 27.08.2026

Опубліковано / Published 30.09.2026