

## **THE DEVELOPMENT OF LOGISTICS IN UKRAINE FROM THE PERSPECTIVE OF TODAY.**

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Logistics is one of the key components of any country's economy, as it ensures efficient management of material flows, helps reduce costs, and increases business competitiveness. In recent years, logistics in Ukraine has undergone significant changes under the influence of globalization, the introduction of digital technologies, integration into the European transport system, and military actions that have significantly impacted logistics infrastructure and its functioning.

Modern Ukrainian logistics is a dynamic industry that includes both domestic and international transportation, warehousing, supply chain management, and the development of innovative technologies for process optimization. The significant load on the logistics system necessitates modernization of transport infrastructure, improvement of railway, road, maritime, and aviation connections, as well as integration into global markets

One of the main challenges for logistics in Ukraine is the war, which has led to the partial loss of logistics capacities, the destruction of transport routes, and the temporary blockade of seaports. This has resulted in the need to restructure logistics routes, reorient towards European markets, and develop alternative modes of transportation, such as multimodal logistics solutions. Additionally, the development of digital technologies has significantly influenced the sector, contributing to process automation, increased transport transparency, and better supply chain control. The use of artificial intelligence, blockchain technologies, IoT solutions, and cloud services helps reduce costs, minimize risks, and improve the efficiency of logistics operations. Thus, the development of logistics in Ukraine in modern conditions is a complex but promising process that requires the implementation of advanced technologies, adaptation to external changes, and integration into the European and global transport

system.

Logistics is a key link in Ukraine's economy, ensuring efficient management of material flows, transportation, storage, and distribution of goods. The past few years have been a significant challenge for the country's logistics system, as it has undergone substantial changes due to military actions, geopolitical instability, European economic integration, and the active implementation of digital technologies [1].

Despite these challenges, the industry demonstrates flexibility and adaptability, rapidly restructuring transport routes, optimizing logistics processes, and introducing new technological solutions. The Russian invasion in 2022 significantly changed the country's logistics landscape. The main consequences include:

- Destruction of infrastructure – parts of roads, bridges, railways, and logistics terminals have been destroyed or damaged. This has complicated cargo movement and increased transportation costs.
- Blockade of seaports – the closure of ports in the Azov and Black Seas (Mariupol, Berdyansk, Kherson) has drastically reduced export opportunities, particularly for the agricultural sector.
- Reorientation of transport routes – companies have been forced to use alternative routes through the western border, increasing the load on railway and road transport.
- Logistics crisis in major cities – active hostilities have complicated the supply of goods to areas near the front line.
- The war in Ukraine has had a significant impact on logistics processes, forcing businesses and the government to find new solutions to ensure transportation stability and economic activity. The country's logistics system has undergone unprecedented changes due to infrastructure destruction, route changes, port blockades, increased transportation costs, and the need to adapt to European logistics standards [2].

One of the most serious consequences of the war has been the massive destruction of transport infrastructure. Damage to roads, bridges, railways, and airports has complicated cargo movement and significantly increased logistics costs. The most affected regions are those that have been or are in active combat zones. Many strategically important facilities, such as logistics terminals, warehouse complexes, and

transshipment stations, have been destroyed or rendered inoperable, creating major difficulties for transporting goods both within the country and internationally.

The blockade of Ukrainian seaports has become another critical challenge for logistics. Before the full-scale invasion, over 60% of Ukraine's exports were carried out by sea, particularly through the ports of Odessa, Mykolaiv, Mariupol, and Berdyansk. Their temporary loss forced Ukrainian businesses to look for alternative export routes, especially for agricultural products. As a result, railway and road transportation loads have increased significantly, leading to congestion at the EU border, a shortage of transport capacity, and a significant rise in logistics costs [3].

Ukraine has had to quickly adapt to new conditions, seeking alternative logistics solutions to maintain export potential and domestic supply chains.

The war has accelerated Ukraine's integration into the European logistics space. Key areas of cooperation include:

- Increasing railway freight traffic through Poland, Romania, Hungary, and Slovakia – the railway has become one of the main routes for exporting grain, metal products, and industrial goods.
- Expanding the capacity of border checkpoints with the EU – new terminals and logistics hubs are being created to speed up transportation.
- Using European seaports – since Odessa and other Ukrainian ports operate under limited navigation, Polish (Gdansk, Gdynia), Romanian (Constanța), and Lithuanian (Klaipėda) ports are being actively used.
- Easing access for Ukrainian carriers to the European market – thanks to the “transport visa-free” agreement, Ukrainian companies have received more opportunities to transport goods without additional permits.

Ukraine's logistics infrastructure is a key element of the country's economic development, ensuring the efficient movement of goods both domestically and in international trade. It includes roads, railway networks, seaports, river ports, aviation cargo terminals, logistics hubs, and warehouse complexes. The war has significantly impacted logistics infrastructure, causing destruction, blocking strategic facilities, and requiring adaptation to new transportation conditions.

Despite the challenges, the industry continues to develop, with both the government and businesses actively working on its restoration and modernization. Investments in road reconstruction, the expansion of railway connections with Europe, the use of alternative seaports, and the development of digital logistics solutions are critical to the future of Ukraine's transport sector [4].

Improving infrastructure is an important element of any country's development. Quality roads, bridges, public transport and utility networks affect the standard of living, economic growth and investment attraction.

One of the key aspects of infrastructure improvement is the modernization of the transportation system. The construction of new roads, repair of old roads, expansion of the railway network and development of public transport contribute to ease of movement, reduce congestion and lower environmental pollution.

Equally important is the renewal of utility systems such as water supply, electricity, heat supply and sewage. Reliable utilities provide comfortable living conditions for citizens and reduce the risk of emergencies.

Modern cities also need to develop digital infrastructure. The introduction of smart city technologies, such as electronic traffic management systems, contactless fare collection, and air quality monitoring sensors, helps to increase resource efficiency and improve the environmental situation.

The development of social infrastructure, including the construction of schools, hospitals, sports complexes and cultural centers, also plays an important role in improving the living standards of the population. Access to quality education, healthcare and leisure is the basis for the harmonious development of society [5].

Effective infrastructure improvement requires significant financial investments and strategic planning. Government programs, private investment, and international grants can be sources of funding for large infrastructure projects.

The prospects for the development of logistics in Ukraine are closely linked to infrastructure restoration, integration into the European transport system, and the implementation of innovative technologies. One of the key directions is the modernization of railway and road transport, particularly the expansion of logistics

hubs on the western border, improving the capacity of customs checkpoints, and introducing multimodal transportation [6].

Another crucial factor will be the reconstruction and expansion of maritime and river transportation, particularly through the Danube ports and international cooperation within the “Solidarity Lanes” initiative. Significant attention will be paid to digitalization: warehouse process automation, the development of electronic document management, and the use of artificial intelligence for route optimization will enhance logistics efficiency.

Ukraine’s logistics sector is undergoing a complex yet transformational period. The war has significantly impacted infrastructure, transport routes, and warehouse capacities, creating serious challenges for businesses and the economy. However, thanks to flexibility, international support, and the implementation of modern technologies, Ukraine has been able to adapt its logistics system to new conditions. The main development directions of the sector include restoring transport infrastructure, integrating into the European logistics system, digitalizing processes, and expanding multimodal transportation. The development of alternative routes, particularly railway and river transport, as well as the modernization of warehouses and logistics hubs, will be crucial.

Despite the challenges, the future of Ukrainian logistics remains promising. Through innovation, investment, and strategic planning, Ukraine has the potential to become a major logistics hub in Europe and improve the efficiency of its transport system in the future.