

IMPROVING THE LOGISTICS SYSTEM IN RAILWAY TRANSPORT: PROBLEMS AND OPPORTUNITIES

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Abstract: This article analyzes the role of rail transport in the logistics system, its importance in international trade and its role in forming sustainable supply chains. The main challenges facing rail logistics are considered - lack of infrastructure, the need for digitalization and coordination issues at borders. It also proposes solutions to these problems through advanced technologies and integration with multimodal transport systems.

Keywords: rail transport, logistics, supply chain, infrastructure, multimodal transportation, digitalization, international trade.

Enter

As a result of the rapid development of the global logistics system, the demand for efficient, sustainable, and cost-effective forms of freight transportation is increasing.

Railway transport is distinguished, especially in the field of land freight transportation, by its high carrying capacity, environmental safety and reliability. This article analyzes the ways of modernizing logistics services provided by railway transport, existing problems and proposals for their elimination.

The role of railway transport in the logistics system

Railway transport plays an important role in ensuring the stable and safe conduct of freight transport processes and delivering large volumes of goods over long distances. Many developed countries are reducing the burden on road transport by increasing the share of freight transported by rail. This serves to reduce traffic congestion and environmental damage.

The main problems

Obsolescence of infrastructure

In many countries, railway networks need modernization. The lack of logistics terminals at loading and unloading points slows down the flow of goods.

Low level of digitization

Digital control, monitoring and analytics are essential in modern logistics systems. Many rail systems have not yet implemented sufficient technological solutions in this area.

Cross-border compatibility

The diversity of customs, tariffs, and technical standards in international rail transportation makes it difficult to ensure the continuity of logistics processes.

Proposed solutions

Infrastructure modernization: It is necessary to build new logistics centers and railway terminals and reconstruct existing ones.

Strengthening digitalization: Creating opportunities for real-time tracking of cargo movements through RFID technology, IoT devices, and digital monitoring systems.

Multimodal transport integration: Improving transportation efficiency by combining rail, road, sea and air transport into a single logistics chain.

Strengthen international cooperation: Eliminate border barriers by introducing uniform technical and customs standards with neighboring countries.

Railway logistics and the green economy

Green logistics means organizing a freight transport system with minimal environmental impact. Rail transport produces several times less CO₂ emissions than road or air transport. Therefore, in many developed countries, freight flows are being redirected to railways through the "road-to-rail" strategy.

Economic advantages of rail transport

The relatively low price makes it the most economical solution for large-volume cargo over long distances.

High load capacity is capable of transporting thousands of tons of cargo at a time.

A type of transport whose stability is less dependent on weather and traffic factors.

Existing problems and ways to solve them

Problem Recommended solution

Obsolescence of the technical base Introduction of new energy-efficient locomotives and wagons

Delays in cargo reloading Establishment of automated logistics centers

Discontinuity of information systems Creation of digitalized management systems and integration of ERP systems

Integration with multimodal systems

Modern logistics requires the use of rail in combination with road, sea and air transport. In models such as "port-to-door" and "hub-and-spoke", the rail serves as the main hub. Therefore, in large freight centers

Logistics processes can be optimized by creating logistics hubs.

Summary

Railway transport is an integral part of a modern logistics system, and its full potential is essential for sustainable economic development. In this regard, the efficiency of railway logistics can be increased by developing infrastructure, digitalization, and strengthening international cooperation.

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