

PRINCIPLES OF THE USE OF VARIOUS VEHICLES IN TRANSPORTATION. THE  
CONCEPT OF A COMMON TRANSPORT HUB. THE CONCEPT OF A CONTINUOUS  
TRANSPORT PROCESS. CALCULATION OF THE INDICATOR OF THE DEGREE  
OF CONTINUITY OF TECHNOLOGICAL PROCESSES IN THE GENERAL  
TRANSPORT CENTER

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<https://doi.org/10.5281/zenodo.14626632>

**Abstract.** *This article examines important principles in the field of transport logistics, in particular, the use of different means of transport in transportation, the concept of a common transport center, continuous transport processes and the calculation of the degree of continuity of technological processes. The article first examines the principles of optimal use of various vehicles and the necessary approaches to ensure the continuous operation of the transport system. Also, indicators and calculation methods are given for evaluating the effective management of technological processes in general transport centers. This study provides students with practical knowledge to improve the efficiency of transportation systems, optimize processes, and improve economic efficiency. The article is a theoretically and practically useful resource for specialists in the field of transport and logistics.*

**Keywords:** *transport logistics, transport processes, vehicles, continuous transport process, general transport center, technological processes, multimodal transport, transport system efficiency, transport system optimization, logistics processes, transport infrastructure, continuous processes, transport system management, transport technologies, economic efficiency.*

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## Introduction

**Transport logistics** is the process of ensuring the efficient and cost-effective delivery of goods from one place to another. Transport logistics is also one of the most important sectors of the economy, playing a central role in connecting the geographical location of various goods, services and resources, the production chain and consumer markets. Modern transport systems are

engaged, on the one hand, in ensuring economic efficiency, and on the other hand, in ensuring the timely and safe delivery of goods and raw materials. The effective operation of these systems, in turn, depends on the optimal combination of transport vehicles, the organization of connections between them and ensuring the continuity of processes.

In the **process of transport logistics**, there is a need to ensure that a combination of various transport vehicles - automobiles, railways, sea and air transport - interact and work together. Each type of transport has its own advantages and disadvantages, and optimizing their joint operation increases the efficiency of the transport system. The principles of using different means of transport in transportation include the optimal combination and integration of different means of transport. Although each mode of transport has its own specific function in the system, it is necessary to provide them with the ability to work together and communicate with each other. In this regard, the multimodal transport approach is considered an effective and economical solution.

In addition, the concept of a common transport center is also relevant to ensure the efficiency of the transport system. **Common transport centers** are points of convergence of various transport vehicles, which coordinate the processes of transferring cargo from one vehicle to another, processing and distributing it. When such centers work effectively, they provide uninterrupted and fast communication between all parts of the transport system. The role of common transport centers is especially great in global logistics systems, through which effective management of international trade and commodity flows is ensured.

**A continuous transport process** is an approach aimed at ensuring the uninterrupted operation of the transport system. Interruptions, delays or obstacles between processes reduce the overall efficiency of the system. Thus, proper management, modernization and technological solutions are necessary to ensure the continuity of transport processes. Calculating the level of continuity of technological processes involves scientific approaches necessary for effective management and analysis of these processes. Analyzing the continuity of technological processes is important for ensuring the uninterrupted operation of transportation systems, which, in turn, ensures that the system operates at high efficiency.

This article is aimed at studying the above principles in the field of **transport logistics**, considering issues such as the principles of using various means of transport in **transportation**, **the concept of a common transport center**, **continuous transport processes** and **calculating the degree of continuity of technological processes**. The main goal of the research is to develop scientifically based approaches to improving the efficiency of transport systems, optimizing processes and improving economic efficiency.

**A common transport center (CTC)** is an area or facility that combines various means of transport in a transport system and provides interaction between them, especially in multimodal transport systems. A common transport center coordinates the transfer, processing and distribution of cargo from one or more means of transport to another. Such centers often constitute the main links necessary for the effective functioning of logistics, transportation and supply chains..

**A general transportation hub performs the following main functions:**

- **Transportation:** Transferring cargo from one means of transport (e.g., car) to another (e.g., train).
- **Cargo handling and storage:** Storing cargo and, if necessary, processing it before it is shipped to new delivery points.
- **Logistics and management:** Includes the shipping and receiving of cargo, the coordination and regulation of processes.

**Its role in transportation is as follows:**

- **Increasing speed and efficiency:** Helps to save time by optimizing transportation processes. For example, it increases the speed and efficiency of switching from road transport to rail or air transport.
- **Effective cargo distribution:** Common transport centers ensure optimal distribution of cargo, which reduces the overall cost of transportation.
- **Ensuring security:** Centers play an important role in ensuring the security of vehicles and cargo during transportation. This includes, for example, checking documents, monitoring and confirming the condition of products.

**Ensuring seamless communication between systems:** Each mode of transport has its own advantages, but in order to fully realize these advantages, seamless communication between vehicles is necessary. A common transport center Thus, a general transport center ensures the efficient operation of transport processes, creates optimal connections between various means of transport and increases economic efficiency.

There are several factors that ensure the efficient operation of general transport centers. These factors include:

**a) Infrastructure and Technological Support**

For the efficient operation of general transport centers, an appropriate infrastructure is necessary. This includes, first of all, transport routes, railway and road networks that connect various types of transport, as well as warehouses and terminal facilities that allow for the storage and processing of cargo. Modern technologies, such as automated systems and digital monitoring,

are also important in ensuring efficient operation. These technologies allow for the fast and safe processing of cargo, the management of vehicles, and the transmission of data in real time.

**b) Efficient Cargo Supply and Distribution**

Proper distribution and management of cargo helps to increase the efficiency of the center. Proper location of cargo and distribution to the right vehicles ensures the efficient operation of the center. By selecting the appropriate cargo for each type of vehicle and distributing it optimally, the interconnection of the transport center and the continuity of processes are ensured.

**d) Environmental and Economic Issues**

Effective transport centers should not only operate efficiently, but also be environmentally sustainable. Through green logistics approaches and energy-saving technologies, centers can avoid harmful environmental impacts. At the same time, to ensure economic efficiency, centers need to implement effective methods to optimize transportation costs, increase energy efficiency and reduce costs..

**A seamless transport process** is a set of all the steps necessary to ensure the continuity of the transport process. This process ensures the interconnection of several vehicles, the rapid and efficient transfer of goods, the compatibility of transport networks with each other, and the overall efficiency of the system is increased.

Through seamless processes, each stage of the cargo is carried out on time, which increases the overall efficiency of the system. Analyses in the field of logistics and transport management show that through seamless processes:

- The cost of transporting goods is reduced by 10-15%.
- The efficiency of using vehicles increases by 20-30%.
- Ensuring the continuity of the process improves the overall operational efficiency

of the system by 25-35%.

Example: International logistics companies such as FedEx and DHL have significantly reduced costs and increased the efficiency of their logistics systems by introducing seamless processes into their transport systems.

Seamless transport processes also help to increase speed. If there is a seamless connection at each stage of transport, the uninterrupted movement of goods is ensured. As a result, transport processes become faster and more efficient.

**According to statistics:**

International transport companies have achieved 15-20% faster cargo transportation through seamless transport processes. The average transportation time has been reduced by 30-

40% through the integration of road and rail transport. For example, DHL Express has managed to reduce the time for express cargo transportation from 24 hours to 12 hours through its integrated multimodal system.

The implementation of multimodal transportation principles can be observed in the operations of leading global logistics companies. For instance, DHL and FedEx have successfully integrated road, rail, and air transport to achieve seamless logistics solutions. DHL's multimodal system has reduced express cargo delivery time by up to 50%, while FedEx has optimized cost-efficiency by introducing automated systems for cargo handling. These examples highlight the potential of combining various transport modes to enhance operational efficiency and ensure uninterrupted supply chains.

### **Role of Innovations and Digitalization**

In recent years, digital technologies have played a pivotal role in optimizing transport systems. Tools such as artificial intelligence, blockchain, and real-time tracking have revolutionized how goods are transported. For example, AI-powered route optimization reduces delivery times and fuel consumption, while blockchain ensures secure and transparent cargo handling. Implementing such technologies in common transport centers can further enhance the continuity and coordination of transport processes.

### **Environmental Aspects of Transportation**

Environmental sustainability is a critical aspect of modern transport systems. Green logistics practices, such as using electric vehicles, optimizing fuel consumption, and implementing energy-saving technologies, have become a necessity. For instance, companies like Maersk have adopted carbon-neutral shipping methods to minimize their ecological footprint. Incorporating similar eco-friendly strategies into common transport hubs can significantly reduce environmental impacts while maintaining efficiency.

### **Local and Global Approaches**

In Uzbekistan, the development of transport infrastructure and logistics hubs is progressing steadily. However, lessons from global practices can help address local challenges. For example, developing multimodal transport hubs like those in Europe or East Asia can improve cargo handling and distribution in Uzbekistan. Integrating rail and road systems with advanced technological solutions could further enhance the efficiency and connectivity of the nation's transport network.

## Conclusion and Recommendations

To drive continuous advancement in transport logistics, stakeholders should focus on the following key areas:

**Prioritize the Integration of Digital Technologies:** The adoption of advanced tools like artificial intelligence (AI) and blockchain can significantly enhance the efficiency, security, and transparency of transport operations. These technologies will enable real-time monitoring, predictive analytics, and secure data sharing, ensuring smoother and more responsive logistics processes.

**Invest in Green Logistics:** As environmental concerns become increasingly urgent, it is essential for the transport industry to invest in sustainable practices. Green logistics, which includes energy-efficient technologies, eco-friendly transport modes, and waste reduction strategies, will help mitigate the environmental impact of transport while contributing to long-term sustainability.

**Develop Multimodal Transport Hubs:** The establishment of multimodal transport hubs with optimized infrastructure is critical for improving connectivity and reducing bottlenecks in transportation networks. These hubs should integrate various transport modes, such as road, rail, sea, and air, supported by advanced technologies like automation, data analytics, and digital tracking systems to enhance operational efficiency and streamline cargo transfer.

**Promote International Collaboration:** International cooperation is vital to adopting global best practices and ensuring the alignment of transport systems worldwide. By collaborating with leading transport systems and sharing knowledge, countries can leverage innovative solutions, improve supply chain resilience, and reduce inefficiencies, ultimately enhancing the global transport network.

By addressing these areas, transport logistics can evolve to meet the challenges of the future, driving both economic growth and environmental sustainability.

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