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АКТУАЛЬНОСТЬ ВНЕДРЕНИЯ ЭЛЕМЕНТОВ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В УПРАВЛЕНИИ ТРАНСПОРТНЫМИ ПОТОКАМИ

THE RELEVANCE OF INTRODUCING ELEMENTS OF ARTIFICIAL INTELLIGENCE IN TRAFFIC MANAGEMENT

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Аннотация. *В статье рассмотрена актуальность цифровой трансформации в системе транспортной логистики, роль интегрированных транспортно-логистических систем как моделей управления экономикой, а также их основные особенности на современном этапе экономического развития.*

Abstract. *The article provides the relevance of digital transformation in the transport logistics system, the role of integrated transport and logistics systems as models of economic management, as well as their main features at the present stage of economic development.*

Ключевые слова: *интегрированные транспортно-логистические системы (ИТЛС), цифровая экономика, цифровые платформы, модели жизненного цикла.*

Keywords: *integrated transport and logistics systems (ITLS), digital economy, digital platforms, life cycle models.*

Introduction

In the modern world, characterized by dynamic development of technologies and globalization of the economy, transport plays a key role in ensuring the efficient functioning of production and trade processes. Management of transport flows is becoming increasingly complex and requires the use of not only innovative solutions in their already familiar form (creation and implementation of new technological solutions, changes in the algorithmization of technological processes) to optimize costs and, as a result, increase efficiency and improve the quality of delivery of goods and passengers. In many areas of human activity, the capabilities of powerful computer technology and computer-intelligent models, in particular, artificial intelligence, are now being increasingly used. Artificial intelligence has been developing dynamically in recent years and is widely used in various areas of life, including the organization of the transportation process on various types of transport, in transport logistics. The introduction of elements of artificial intelligence in the transport flow management system carries significant reserves for increasing the competitiveness of enterprises, implementing the best optimization solutions and improving the quality of life of the population.

Main part

Transport flow management is one of the most important tasks facing not only enterprises in various industries, but also the country's transport complex and the economy as a whole. Today, traditional methods of transport flow management based on manual planning and tracking are becoming ineffective in the context of the growing complexity and dynamism of the market. With the increase in transportation volumes, changes in their structure, expansion of the geographic configuration of markets and increased requirements for the speed of freight and passenger flows, certain difficulties arise:

– Ineffective route planning, when it is impossible to take into account all factors affecting delivery time (specific road and weather conditions, insufficient capacity of transport routes), leads to incorrect route planning, loss of time and additional costs for fuel and energy resources;

– Insufficient transparency and control, when the lack of up-to-date information on traffic at all points along the route does not allow for a prompt response to emergency situations, control over the consumption of fuel and energy resources and the condition of vehicles;

– Irrational use of resources, when ineffective planning and the lack of a system of up-to-date and technologically sound monitoring lead to irrational use of vehicles and human resources;

– Low traffic safety, when the lack of up-to-date and complete information on the condition of communication routes and infrastructure, rolling stock and management personnel (for example, in road transport - traffic conditions, driver condition and technical condition of the vehicle) increases the risk of emergency situations and accidents;

– Limited data analysis capabilities, when traditional analytical systems are not capable of quickly and efficiently analyzing large volumes of data to identify trends, potential problems and optimize transport and logistics processes.

Given the above difficulties, it should be noted that the introduction of artificial intelligence elements brings innovative solutions, the implementation of which is aimed at improving the efficiency of traffic flow management. The optimization opportunities that arise in this case include the following:

1) Systems based on artificial intelligence modeling can analyze large volumes of data such as traffic data (including data from GPS trackers, road condition sensors, meteorological data), and provide optimal routes in real time taking into account throughput, road and weather conditions;

2) The introduction of artificial intelligence can help significantly automate and speed up the processes of monitoring the condition of vehicles, control fuel and energy costs, track mileage, transportation distance and provide recommendations on the timing and volume of maintenance, which, for example, in motor transport allows you to optimize the use of the fleet, reduce the risk of emergency situations and increase the period of safe and efficient operation of vehicles; 3. When organizing automobile transportation of goods and passengers, systems based on the use of artificial intelligence have the ability to analyze data on the behavior of drivers, provide warning information about possible emergency situations, control the speed of movement and create safe conditions on the road;

3) Modern computer-analytical complexes, including adequate analytical models using artificial intelligence, are capable of analyzing large volumes of data on traffic flows, identifying trends, problems and optimizing transport and logistics processes.

Conclusion

Thus, it should be noted that the introduction of artificial intelligence elements in the management of traffic flows can become one of the key factors in increasing the competitiveness of both transport and industrial enterprises and, as a result, improving the quality and general standard of living of the population. Highly intelligent systems will allow for high-quality optimization of transport processes taking into account technical and technological risks, reducing logistics costs, and increasing the efficiency and safety of traffic.

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АЛГОРИТМЫ ОПРЕДЕЛЕНИЯ УСЛОВИЙ ПЕРЕВОЗОК ГРУЗА ЛОГИСТИЧЕСКИМ НАВИГАТОРОМ ДЛЯ ЖЕЛЕЗНОДОРОЖНОГО ТРАНСПОРТА

ALGORITHMS FOR DETERMINING CONDITIONS OF CARGO TRANSPORTATION BY A LOGISTIC NAVIGATOR FOR RAILWAY TRANSPORT

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Аннотация. *в данной статье рассмотрен общий алгоритм определения условий перевозок грузов логистическим навигатором на примере железнодорожного транспорта.*

Abstract. *this article discusses a general algorithm for determining the conditions for transporting goods by a logistics navigator using the example of railway transport.*

Ключевые слова: *логистический навигатор, условия перевозки грузов, оптимальный маршрут.*

Keywords: *logistics navigator, transportation conditions, sensitive route.*