

APPLICATION OF ARTIFICIAL INTELLIGENCE ELEMENTS IN THE FORMATION OF A CARGO DELIVERY SYSTEM

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GPS navigation, online banking, mobile communications, and the internet are now integral parts of our lives. It's hard to imagine functioning without these technologies. They have completely transformed our lives over the last three decades. Artificial Intelligence (AI) has also been instrumental in revolutionizing various business aspects such as online marketing, customer interaction, automation, production optimization, and cargo transportation [1-3].

It's becoming increasingly common for new software to replace outdated production quality standards. As a company develops, it's crucial to keep up with the latest developments to stay competitive. This aspect is primarily justified by commercial interests, as optimizing production can significantly increase a company's profitability. Some companies opt to pursue the more challenging path of “digital transformation”, which involves integrating modern information technologies into production processes [4]. Artificial intelligence refers to an artificial brain that can perform tasks that typically require human intervention. In transport logistics, AI is a game-changer, allowing transportation companies to automate their cargo delivery systems. This is an essential task as transportation is a resource-intensive process that can significantly impact a company's success and partner relationships. Using AI elements in cargo delivery systems is advisable, as it can help avoid suboptimal decisions that humans may make when performing calculations. Machine learning is a specific method of AI that allows machines to accumulate their own “experience” and leverage it during training, which helps avoid mistakes depending on the situation [2,4].

Artificial intelligence can assist in the creation of a cargo delivery system by performing various tasks, such as:

1. Resolving the routing issue involves evaluating all factors, including mileage, vehicle cargo capacity, delivery batch weight, road, and weather conditions, to define the best route.
2. Automated cost calculation of profitability for routes with several recipients.
3. Having control over transportation is made possible with the use of a GPS tracker, as artificial intelligence can detect any unauthorized actions made by the driver while on the route. The software receives and analyses information regarding stops, speed, any vehicle deviation from the route, and the factual amount of fuel consumption.

The Ukrainian software market offers automation solutions for cargo delivery. Logistics companies actively implement AI in their systems. In this regard, there is potential for the domestic transport sector to receive a significant boost through the initial stages of integrating artificial intelligence or intelligent systems into the transportation process.

Література:

1. Pavlenko O., & Muzylyov D. (2023). Sustainable Model of Functioning Logistics for Perishable Goods Supply through Ukrainian – Poland Routes. *Municipal Economy of Cities*, 1(175), 237–242. <https://doi.org/10.33042/2522-1809-2023-1-175-237-242>
2. Syrotynskiy O.A., Syrotynska A.P., Melnyk L.V. Logistics activities automation of transport companies. *Bulletin National University of Water and Environmental Engineering*, 4(96), 295-304 (2021). <https://doi.org/10.31713/ve4202123>
3. Meidute-Kavaliauskiene, I., Taşkın, K., Ghorbani, S., Činčikaitė, R., Kačenauskaitė, R.: Reviewing the Applications of Neural Networks in Supply Chain: Exploring Research Propositions for Future Directions. *Information*. 13, 261 (2022). <https://doi.org/10.3390/info13050261>
4. Kopytkov, D., Pavlenko, O., Kalinichenko, O. (2018). A technique to determine the optimum package of logistic services provided by the transport and logistics centre. *Modern Management: Logistics and Education. Monograph*. 150-157.