

PROSPECTS OF THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN LOGISTICS

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Abstract. *Artificial intelligence is developing extremely fast. It's more than a program, more than a database, more than a powerful search engine, and even much more and deeper than all of the above combined. Many companies are already using artificial intelligence, or are considering using artificial intelligence in the near future to optimise their business processes for finding new ideas.*

The global logistics industry continues to develop rapidly, companies are increasingly turning to automated order management systems based on artificial intelligence. This trend is especially relevant in the conditions of complex deliveries related to military actions in Ukraine. The introduction of artificial intelligence remains one of the main global trends in a year 2023, this also applies to the logistics industry. According to experts, by 2030 the market of artificial intelligence in logistics will be estimated at 36 billion US dollars [1].

Logistics professionals are taking advantages of the opportunities provided by these advanced technologies to improve efficiency and save money. Artificial intelligence can be used to optimize logistics processes, from inventory management to route optimization and delivery tracking [2].

According to the survey of experts: 67% of surveyed logistics companies say they will use artificial intelligence and data analytics to align their needs within the next 3-5 years, and 19% are already doing so. 61% of industry decision makers have identified advanced logistics tools as their top investment priorities. Technologies of digital logistics tools based on artificial intelligence will be crucial for solving today's problems in the field of logistics, as well as for expanding the capabilities of logistics companies and effective risk management [3].

Customer orientation. AI-based systems can track customer behavior and preferences, helping companies better understand their customers and develop customized strategies to meet their needs.

Supply chain management. Artificial intelligence can be used to analyze data collected from the supply chain to identify and predict trends, helping companies better plan and manage their supply chains [1].

Inventory management. AI-based systems can analyze sales data to more accurately predict demand, helping companies better manage their inventory levels and reduce wastes [2,6].

Route optimization. AI-powered systems can analyze data such as customer locations and delivery times to create optimized routes for couriers so companies could save time and money.

Tracking of deliveries. AI-based systems can be used to track shipments in real-time and provide customers with up-to-date information on the status of their order, allowing companies to resolve any issues quickly and efficiently. As these systems are automated, they can process orders faster, resulting in faster turnaround times and satisfied customers [2].

Increased scalability. AI-based systems can scale business processes to meet demand, enabling businesses to operate quickly and cost-effectively.

Planning and forecasting. Systems based on artificial intelligence provide increased forecasting accuracy, helping to make decisions, adjust plans and strategies more effectively. [4,6]

Increase productivity. Thanks to artificial intelligence, you can automate routine tasks such as data entry into the system, automatic exchange of information exchange. This will allow employees to focus on more strategic work.

Environmental friendliness. AI-based systems can provide cost-effective and energy-efficient communication between multiple devices and vehicle routing. Also can use it effectively in terms of electricity consumption [3].

Investment attractiveness. Systems based on artificial intelligence ensure the establishment of investment priorities in the field of logistics, namely the acquisition of improved digital logistics tools.

Security. Artificial intelligence-based systems can detect potential threats, such as fraud or misappropriation of goods, and alert relevant personnel to take action [1,5].

Caring for staff. AI-based systems can guide long-distance drivers to the nearest parking and overnight accommodation in unfamiliar regions. Such a system is necessary to fulfill the new requirements regarding the schedule of driving and rest in accordance with the Mobility Package in the EU, which sets strict standards for drivers [2].

In addition, by analyzing previous orders and customer data, AI-based systems can provide information on the most efficient ways to fulfill orders and recommend cost-effective solutions. It helps companies optimize their operations, reducing supply chain costs and improving profits. Automated management systems based on artificial intelligence are revolutionizing the field of logistics. By providing real-time data and analytics, the systems allow companies to stay on top of their orders and reduce costs and speed up order processing. With this

technology, businesses can enjoy increased efficiency, improved customer service, and greater cost savings [3].

Despite a number of benefits from the introduction of AI in logistics, the technology can also pose significant threats, namely: the threat of job loss, high risk of errors, AI has no emotions and may not understand the client, high risk of abuse, high risk of confidentiality violation, high risk of technology dependency. [5, 6]

Artificial intelligence (AI) has a big impact on the logistics industry. By streamlining processes such as inventory management, route optimization, and delivery tracking, AI helps companies improve efficiency and save money. In the future, AI will be even more deeply integrated into the logistics industry, creating even more opportunities to save money and improve customer service [3,4].

Conclusion

In general, the use of artificial intelligence in logistics and supply chain management can significantly improve efficiency and accuracy, reduce costs and improve customer satisfaction. As AI technology continues to evolve, it will likely become an even more important part of logistics and supply chain management in the coming years. To sum it, AI technology can be an invaluable tool for logistics companies looking to improve management and organization.

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