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## **PERSPECTIVES USING CHATBOTS FOR LOGISTICS IN UKRAINE**

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## **ПЕРСПЕКТИВИ ЗАСТОСУВАННЯ ЧАТ-БОТІВ ДЛЯ ЛОГІСТИКИ В УКРАЇНІ**

The global collaboration and integration of online and offline channels have brought new challenges to the logistics industry. Therefore, smart logistics has become a promising solution for handling the increasing complexity and volume of logistics operations. Technologies, such as the Internet of Things, information communication technology, and artificial intelligence, enable more efficient functions in logistics operations. Operations management research on smart logistics mainly concerns the application of underlying technologies, business logic, operation framework, related management of the system, and optimization problems under specific scenarios [1].

In scientific publications devoted to improving the efficiency of logistics development, the main attention of researchers is mainly directed to disclosing the features of the use of traditional information systems: SRM (Supplier Relationship Management) to automate the management of interaction with supply; CRM (Customer Relationship Management) to manage interaction with customers; CMS (Content Management System) for document management; PDM (Product data management) for electronic archive management; TMS (Transportation Management System) for transport management [2]; security of financial transactions [3]. At the same time, not enough attention has been paid to the use of chatbot technologies to solve urgent logistics problems in Ukraine.

Taking this into attention, it should be emphasized that logistics, as one of the most important sectors of the economy in Ukraine, ensures the interaction of the national economy in various sectors, particularly in trade. In the interaction of logistics and trading companies, one of the important areas is the promptness of the information exchange on the successful registration and execution of the application. In the context of an increase in the transportation volume, the urgency of the timely receipt problem of answers to inquiries for logistics participants is increasing. In particular, more and more facts appear that indicate that dispatchers do not always have time to record information received from drivers, as well as answer drivers' questions regarding the delivery of goods.

Based on the above material, we made the assumption that chatbot technology can be used to effectively solve the problem.

The use of chatbot technology will help to increase the productivity of employees' robots by automating the processing of requests and tracking the delivery of goods [4]. The means of this technology make it possible to reduce the time and labor resources at the main stages of the work of a logistics company, to receive timely information about vehicle breakdowns.

A chatbot is an artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through messaging applications, websites, mobile apps, or the telephone. This technology is often described as one of the most advanced and

promising expressions of interaction between humans and machines. However, from a technological point of view, a chatbot only represents the natural evolution of a Question-Answering system leveraging Natural Language Processing (NLP). Formulating responses to questions in natural language is one of the most typical examples of Natural Language Processing applied in end-use software products' applications [5].

Software applications using chatbot technology provide business owners with the ability to automate the receipt of operational information about drivers, their ranking in campaigns, and also simplify entry into new markets to attract carrier customers. The advantage of using the chatbot technology for a carrier is that it eliminates the need for multiple repetitions of data transmission to fill out applications. It is enough for a carrier to register in the system once, enter personal data and a vehicle to ensure the automation of further communication with logistics participants [6]. Besides, logistics participants are given the opportunity to receive assistance from voice assistants, for example, Alexa, Google Home, and Siri, which use artificial intelligence to ensure the tracking of deliveries [7].

Thus, the use of chatbot to automate the work of logistics campaigns can be promising not only in terms of improving the customer service quality but also increases the efficiency of the administrative structure. The prospects for further research into the possibilities of social networks as an additional means of communication for logistics companies on the Internet also deserve special attention.

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