

## **ANALYSIS OF THE CURRENT STATE OF THEORY AND PRACTICE IN DETERMINING THE EFFECTIVE TECHNOLOGY OF FOOD DELIVERY IN INTERNATIONAL TRAFFIC**

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According to the “Rules for the Transportation of Goods by Road in Ukraine” [1], food can be transported by road in various states and in fresh form, taking into account the terms of their sale and the distance of transportation. “These goods must be submitted for transportation in a transportable condition, meet the quality and packaging requirements established by the technical specifications” [1]. Food containers must meet the sanitary and hygienic conditions for their transportation, while maintaining the appropriate quality and appearance of the cargo and protecting it from possible damage. The container must be in good condition, dry and clean, free of odors and meet all the requirements for ensuring the safety of the cargo of this category [1].

The problem of effective organization of food delivery on international routes is exacerbated by the specifics of the relevant customs procedures in Ukraine [2], location of senders, different types of terminal complexes and consignees [3], areas of responsibility, rational placement of different cargo in the body of a van, effective route planning, preparation of a package of documents for each consignment and information support of the delivery process [4].

In [5], the author developed methodological principles for organizing appropriate cargo delivery systems in order to increase their effective functioning. The features and main structural elements of the relevant system were investigated and identified. Thanks to this study, the parameters of these systems were analyzed and the principal types of relevant dependencies between the main parameters, such as costs, time and size of the cargo batch, were identified. The main parameters of this cargo delivery system, which may allow optimization of one by varying the others, are: delivery time; delivery cost; cargo lot size [5].

Consolidation of cargoes is a combination of cargoes from several completely different senders for their respective further transportation by one vehicle (road). Such a scheme will allow the transportation company to save a significant amount of money and simplify the procedure for processing the necessary documents. At the warehouse of the cargo carrier company, consolidation is considered as the formation of a corresponding batch of disparate cargoes that will be sent on one specific vehicle in one direction of delivery.

Thus, the speed of cargo shipment, its safety, and cost savings for the client and the transportation company depend on the correct and prompt consolidation.

In general, the consolidation stage includes a number of actions. Collection of ordered cargo from shippers. This additional service is in great demand among the clients of transport companies, as it allows them to avoid wasting time on independent delivery of cargo to the company's consolidated warehouse. Packaging of various types of cargo presented for shipment. Often, customers bring or transfer cargo in a packed form, but improper packaging can lead to damage to the cargo. In this regard, specialists often offer customers an additional service - cargo packaging. Taring, i.e. determining the exact weight of the cargo. The cost of transportation depends on the weight, size and distance of delivery, so this stage is very important for the participants in the process, as it allows you to accurately determine the cost of delivering a certain consignment as part of a large consolidated batch. Sorting of groupage cargo. The key point of consolidation, as sorting allows not only to optimally place the cargo in one vehicle and form

batches of homogeneous goods, but also to divide the relevant cargoes depending on the direction of delivery.

In [6], the theoretical foundations and practical methods for optimal planning and zonal routing of freight transportation in transport systems were developed. These methods take into account significant limitations and capacities of the relevant transport hubs and established communications, imbalance of the established volumes of transported goods. As well as the interaction of various combinations of possible modes of transport in the case of joint cargo delivery. A set of scientific and practical studies has been conducted, the results of which can solve the problem of optimal management of transportation of various types of cargo in transport systems by using special matrix-network models and methods for optimal transportation of the relevant types of cargo in transport systems, taking into account their capacity [6].

The study [7] considers alternative technologies for the delivery of small consignments of cargo (small batch transportation) in international traffic based on the terminal system. The terminal cargo delivery system is a complex system that requires continuous improvement of existing approaches and models to take into account the influence of more factors and features of modern conditions. The use of information technology and automated systems will reduce delivery times and improve the quality of cargo handling. When optimizing the operation of complex transport and warehouse systems, it is advisable to use modern information and communication technologies and simulation modeling to make the right decision on choosing the rational option for cargo delivery to minimize the costs of logistics companies. The mathematical formalization of the process of cargo delivery between terminals in intermodal transportation in the conditions of using different transport and technological systems is proposed [7].

The uncertainty of supply and demand for perishable products is one of the most influential factors affecting supply chain networks [8]. Accordingly, the provision and distribution of food and other perishable goods have become much more important than in the past. This study proposes a dual-objective optimization model for a three-stage perishable food supply chain (PFSC) network with multiple products to formulate the integrated problem of sourcing, production scheduling, and vehicle routing. The proposed model aims to reduce the risks of supply and demand uncertainty and strengthen distribution-related decisions by simultaneously optimizing overall network costs and supplier reliability. Using the distributional resilience modeling paradigm, it is assumed that the probability distribution of uncertain demand belongs to a set of uncertainties with a given time information [8].

The analysis of publications on the implementation of efficient food delivery technologies allows us to determine the directions of their development and implementation: development of solutions for the development of new technologies in the product supply system [9, 10]; determination of the impact of technological parameters on the efficiency of the transport process [11-13]; concentration of new developments on the technical component of the transport process [14, 15]; formation of new principles for organizing product supply in conditions of uncertainty [16-19].

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