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# MATHEMATICAL MODELING OF A PRIVATE INTERMODAL TERMINAL ACTIVITY WITH PREFERENTIAL PRIORITIES FLOWS

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**Abstract:** *Whereas most of the finished products are transported in containers which are the primary means facilitating intermodality, it is estimated that in XXI century, intermodal transport, along with technological improvements of the transshipment systems, will be the main international trade element, because is considered to be the most effective way of managing "door to door" international transport activity. The hubs of intermodal transport network are represented by intermodal terminals and by the efficiency of their operation largely depends the proper functioning of the entire intermodal chain. Transfer points are the most sensitive links in terms of efficiency and reported to the entire intermodal transport system generates the highest costs. In the intermodal terminals operating in the public system case, all transport demands to be treated are considered to have equal priority. Intermodal terminals activity privately operated can be modeled using the absolute priority treatment demand model. By serving prioritized entities with different characteristics the total duration of stationary system and implicitly stationing costs can be significantly influenced a total duration of stationary system and implicitly stationing costs.*

**Keywords:** *intermodal terminal, traffic flow, low priority demand, high priority demand, input stream, traffic entity.*

## INTRODUCTION

Intermodal transport has emerged and developed from the need of rationalization of the used resources and from the need of improving the transport services quality, based on intense cooperation between all modes of transport. Through this cooperation, most of the advantages of each transport mode used in the intermodal chain can be capitalized, registering beneficial influences on the supply chain costs and thus on the final price of goods in destination markets.

Due to free market principles, existing competitive distribution and the current situation of freight transport activity, coordination between infrastructure managers and their carriers is fundamental. Intermodal freight coordination covers the transport modes, as well as interadministrative competences. The first issue has a technical component, being related to the development of various administrations in the regions and may refer to a logistics hub and to an area more or less extended. The second issue affects the regulatory competences of the transport services and requires increased cooperation, particularly in corridors with a higher potential for developing intermodality[1].