



The shipper's perspective on distance and time and the operator (intermodal goods transport) response

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Abstract

This paper is about distance and time in alternative bundling networks and roundtrip models. First the relevance of transport costs and time for customers of intermodal transport is reviewed. Then the paper focuses on vehicle roundtrip design in European intermodal rail networks and the perspectives to accelerate roundtrip speed. Acceleration often implies an increase of service frequency. As transport volumes often will not justify higher frequencies, the introduction of so-called complex bundling (e.g. hub-and-spoke or line services) may be an outcome. Complex bundling allows applying a relative large vehicle scale, despite of restricted flow sizes. This cost advantage is likely to overrule the cost disadvantage of longer routes in complex bundling networks. An important indication for this fact is a comparison of total network distances and times. The last part of the paper compares the distances and times of about 150 networks (different bundling concepts and network geometries). It shows that the additional length of routes of complex bundling networks is always overruled by the distance and time impact of a lower number of connections between begin- and end terminals in complex bundling networks

Keywords: Intermodal goods; Time; Distance; Networks; Bundling; Roundtrips.

1. Introduction

Distance and time are key factors in the design of transport and logistic networks as they indirectly influence the costs of vehicles, load units and goods in circulation, and node infrastructure.

Public and private transport companies are generally interested in cutting transport times by, for example, reducing distances. This could be achieved by choosing routes in an infrastructure or service network that minimize distance, by adding missing infrastructure or service links and, last not least, by increasing driving speeds on links and/or reducing node times (thereby reducing link times).

Section 3 of this paper deals with a part of this spectrum, namely, the acceleration of transport. Section 4 concentrates on the relevance of distance and time in complex bundling networks. This subject has scarcely been researched, even though bundling

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