

Introduction

This paper aims to offer new insights into performance evaluation of so-called new generation freight terminals (or NG-terminals). Due to the need to cope with increasing pollution and traffic congestion, intermodal transport has become an important policy issue in the European Union (EU), its member states and elsewhere.

Active support for intermodal transport leads to a shift from road transport to environmentally-benign modalities such as rail and inland waterway transport. As intermodal transport requires a different type of freight terminals, both the technical and economic feasibility of such NG-terminals need to be investigated thoroughly.

However, the emphasis tends to be put primarily on the technical feasibility, while more or less neglecting the economic aspects. Therefore, in the present paper we focus on the economic aspects of NG-terminals: how can the economic performance and feasibility of a NG-terminal be determined? How can the decision process concerning the start and continuation of NG-terminals be structured? Due insight into the economic performance of NG-terminals is a sine qua non for investment decisions of both the private sector and governments.

1. New Generation Terminals: Why?

In the past few decades, we have witnessed an increase in both personal mobility and freight movement, which has placed a great strain on the capacity use of transport infrastructure (Hoyle and Hilling, 1984). The traditional response of public authorities (expansion of infrastructure) is increasingly being questioned due to sustainability concerns. Consequently, a smarter and more rational use of infrastructure capacity based on scientific principles is necessary. Recent research in the transportation sector has indeed widened its scope and focused on the efficient logistic organisation of physical movement, e.g. intermodal transport (see Keijer and Rietveld (1999) and McCann, 1998).

Transport systems have traditionally been built and organised from the perspective of a unimodal approach, without due recognition of synergy and integration of different transport modes. This approach was mainly based on the assumption of

Economic Feasibility of New Generation Terminals Emerging Perspectives

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This paper addresses the methodology of assessing the economic feasibility of new generation (NG) terminals. After a sketch of recent developments the paper presents a systematic framework for estimating the economic performance of such terminals by means of a proper decision support framework.

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competition between modes rather than complementarity; see Nijkamp et al. (1995). In recent years, researchers have extensively studied the spatial-technical feasibility of NG-terminals for intermodal transport (see Bruinsma et al, 2000). New logistic concepts for consolidating freight flows allow relatively small commodity flows and associated terminals to participate in the advantages of larger –often global - networks. These advantages comprise inter alia lower costs per load unit, higher transport frequencies and a larger number of destinations (cf. Cariou, 2001).

A key activity in intermodal terminal operations is consolidation, the process of transporting and combining cargo belonging to different flows in shared transport and/or

load units on common parts of their route. The complex consolidation concept offers three main advantages:

- a) a higher load factor of loading units (leading to cost reduction);
- b) a higher transport frequency (leading to better quality of services and increasing economies of scale);
- c) a larger number of destinations from each starting terminal (also serving to improve the quality of services).

This kind of complex consolidation networks will have positive effects on the results of new generation terminals, which we call network profits throughout the remainder of our discussion (cf. Benacchio et al., 2000).

The development of new generation terminals as part of broader networks does not only require a profound technical analysis, but also a clear economic analysis (Liu and McDonald, 1999). From this perspective, the need arises for a toolkit for assessing the economic performance of a new generation terminal by means of a proper decision support system. This paper will offer a new perspective against the above background.

2. New Generation Terminals: Practice

Multimodal transport requires the design of appropriate terminals, and in various EU countries huge investments are nowadays made. For example, NG-terminals are located, designed or planned in Venlo (the Netherlands), Busto