

## **Editorial**

### **Special Issue: Logistics, networks and sustainability in freight transport**

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#### **1. Introduction**

The papers in this Special Issue provide several analyses and descriptions of the relevance of logistics, networks and sustainability in the recent evolution of freight transport flows at the local, national, and global levels. This phenomenon has been determined by several causes. First, the augmented GDP per capita in developed economies has stimulated the demand for an ever-increasing amount and variety of goods. Moreover, a significant share of the productive processes has been outsourced from the developed countries towards the developing ones. The economic reasons that have fostered this delocalization can be traced back to lower labour and investment costs in the latter countries, together with the decrease in unit transport costs. There has consequently been an increase in the complexity of existing freight transport networks and the emergence of new ones (Van Geenhuizen et al., 2007). This evolution has partly been related to the behaviour of logistics firms that, faced with an ever-rising level of competition, have been looking for alternative transport networks involving the implementation of peculiar transport means or of efficient intermodal systems (Beuthe et al., 2004). Moreover, as was mentioned above, new transport networks have emerged on the basis of evolving consumers' demands and productive processes. This has, on the one hand, implied the urge for logistics firms to reconsider their strategic decisions (Brewer et al., 2001; De Kok and Graves, 2003) and, on the other hand, the opportunity for local and national administrations to take advantage of the international and/or intercontinental hubs of freight transport networks located within their territories (Banister, 2002).

The role of public administrations, at the local, national, and international levels, is also very important with respect to the necessity to reconcile the provision of efficient transport

services and facilities to local and multinational firms with the need to minimize the negative externalities related to transport activities (Black and Nijkamp, 2002; Rietveld and Stough, 2004). The theme of sustainability of transport networks has consequently been a major issue both for political and administrative institutions and for transport economists. One of the research projects that has tried to tackle the topics related to sustainability and transport is constituted by the European STELLA (*Sustainable Transport in Europe and Links and Liaisons with America*) network that operated between 2002 and 2005. The counterpart in North-America of the EU-STELLA network was the STAR (*Sustainable Transportation Analysis and Research*) group. Both networks of scientists have fostered the development of Transatlantic research in topics related to transport activities, in the light of STELLA objectives and actions.

## 2. Overview of the papers

This Special issue is based on a selection of the papers that have tackled the issues described in the introduction and that were presented in a series of Special STELLA-STAR sessions<sup>1</sup> held in Las Palmas, Spain, on 2-4 June 2005, at the 8<sup>th</sup> Euro-NECTAR (*Network for European Communication and Transport Activities Research*) Conference. In this context, the editor gratefully acknowledges both Piet Rietveld (Chairman of Nectar) and Juan Carlos Martìn (Faculty of Economics, University of Las Palmas, Spain) for organizing and supporting a very interesting Conference. It should be noted that two further Special Issues have already been published on the basis of the STELLA-STAR sessions held in Las Palmas (Black et al., 2006; Reggiani and Nijkamp, 2007).

The contributions of this Special Issue can be grouped into three main general topics that follow the structure that is sketched in figure 1.

The first theme is related to some *Emerging Strategies of Logistics Firms*, and it is explored in two papers. The first one, by Sommar and Woxenius (Time Perspectives on Intermodal Transport of Consolidated Cargo) aims to critically describe the time aspects (transport time, timing, order time, punctuality and frequency) of intermodal freight transport. It pays particular attention to the chances to fulfil the demands of consolidated cargo within the classical intermodal road-rail freight transport scheme. It also discusses a case study based on Schenker's domestic transport services in Sweden that highlights the heterogeneities due to the geographical position of each terminal considered. The second paper, by Wiegman and Konings (Strategies and Innovations to Improve the Performance of Barge Transport) stresses that, although barge transport represents only a modest share of the overall freight transport, it could have considerable development potential, given that the capacity of inland waterways is still largely unexploited. The paper then focuses on the innovations and strategies that could lead to the increased competitiveness of barge transport. It divides barge transport into four sub-sectors (namely dry-bulk; wet-bulk; containers; and new barge transport services) and clarifies the significant differences between them in terms of different phases of the product life cycle. Despite these differences, the paper states that most transport innovations (especially those related to vessel design and vessel components) could be applied to all sub-

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<sup>1</sup> These STELLA-STAR sessions were one of the outcomes emerging from the cooperation of the European STELLA and North-American STAR networks.

sectors. Such innovations, combined with the extended use of ICT systems, may reduce costs and, consequently, increase the economic competitiveness of barge transport.

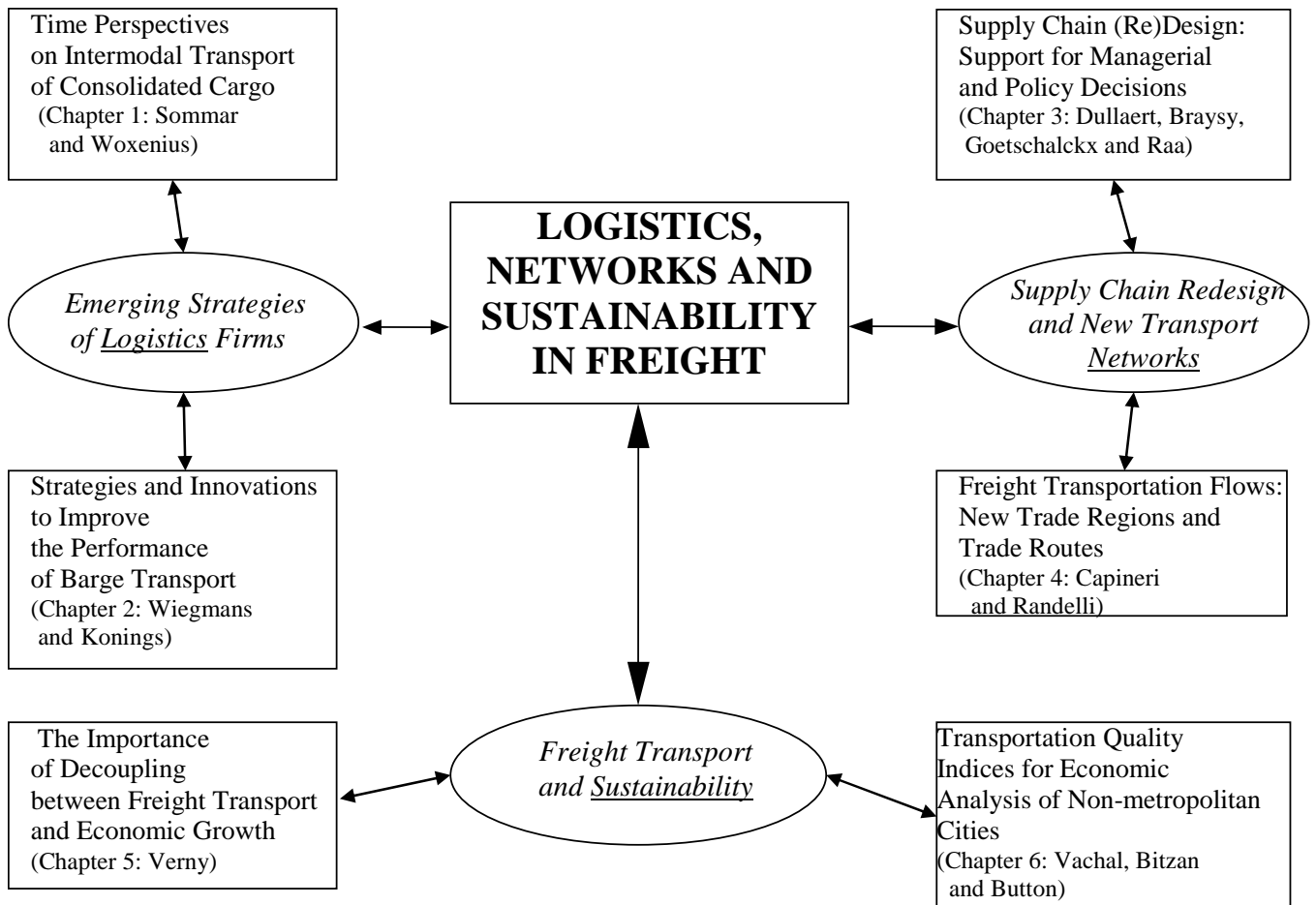


Figure 1. Structure of the Special Issue

The third, and last, topic of this Special Issue is related to the relationships between *Freight Transport and Sustainability* and is analysed in two papers. The first one, by Verny (The Importance of Decoupling between Freight Transport and Economic Growth) states that the growth of freight transport demand is connected more to the increase of physical distances than to the number of tonnes transported. Consequently, the spatial dimension is mainly relevant for the goal of decoupling. This means that the links between industrial and logistics organizations have to be taken into account together with the location of activities and the planning of freight transport systems. The last paper, by Vachal et al. (Freight Transportation Quality Indices for the Economic Analysis of Non-metropolitan Cities), states that smaller and medium-sized cities often play a remarkable role in the development of the economies of their surrounding regions. In the transportation context, unlike the situation in larger metropolitan centres, commerce and trade generated by non-metropolitan regions is generally not sufficient to create a competitive environment for firms providing freight or business travel services. The paper analyses and quantifies a series of indices, developed for the main surface modes of freight transportation, that enable the quality of transportation available in

non-metropolitan areas to be evaluated. The paper then states that freight transportation quality is very dependent on the types of commodity involved, on the mode, and on the distance between production and consumption. General measures can thus provide only broad trends.

### **3. Conclusions**

The papers constituting this Special Issue highlight the importance of logistics strategies, of emerging networks, and of sustainability issues in order to understand the dynamics that characterize freight transport at the local, national, and international levels. These dynamics pertain not only to new trade routes, but also to the innovations, characterizing firms' strategies and means of transport, that are reshaping the cost schedules of private firms. The papers address these research issues by means of: a) description of the causes of increased logistics costs (such as higher lead times and higher levels of cyclic and safety stocks); b) analysis of the factors that can increase the competitive potential of logistics firms (such as the use of efficient intermodal transport, of barge transport, and the identification of new transport hubs); c) analysis of the factors that can enable the implementation of a sustainable transport system (such as the location of productive activities, the quality of transport services, and a clear understanding of the new geography of transport flows); and d) proposed new analytical techniques (such as the decomposition approach and metaheuristics). A comprehensive consideration of the papers of this Special Issue can help to map out the emerging freight transport trends. Moreover, the papers themselves provide tentative research agenda to extend the results into wider methodological/empirical directions oriented to understanding the complexity that characterizes freight transport networks.

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