

Editorial

Special issue: Managing logistics processes and redesigning logistics networks

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1. Background

Transport and logistics are essential to modern societies including Europe. Not only do they enable an unprecedented mobility to individuals, they also offer us a wide variety of products and services affecting our world view and even our portrayal of mankind. The main functions being taken and provided by transport and logistics are geographic and time utility – the former is enhanced by linking scattered locations in a harmonised manner, while the latter is enhanced by offering that what is needed, at the right time. These functions become even more evident as we are now living in an era of globalisation.

In 2003, 6.9 percent of the value added and 6.8 percent of employment in the non-financial economy were generated by freight and passenger transport services in the EU-25 (European

Commission, 2006a). During the last decade, freight transport by sea, air and land measured in tonkms increased by 31 percent. Road transport, by far the most important hinterland transport mode within the EU-25, even grew 38 percent representing an annual growth figure of 3.3 percent. Over the same period, total passenger traffic grew at 1.8 percent per annum. The steady growth rates in freight and passenger transport has created an ever growing pressure on the existing infrastructure, leading to increased congestion and environmental costs (European Commission, 2006b). In adopting the 2001 White Paper entitled 'European Transport Policy for 2010: Time to Decide' (European Commission, 2001), the European Commission underlined the importance of transport offering efficient, high-quality and safe services to residents. The White Paper (and its adjustment during the summer of 2006) also constituted the first practical contribution in terms of a sustainable development strategy for transport, in an attempt to reduce pressure on the environment and to prevent congestion growth, while maintaining the EU's economic competitiveness.

In spite of being high on the political agenda, efficient transport and logistics has an even higher priority for European shippers and logistics service providers. Having experienced decline during most of the last seven years, business logistics costs as a percentage of Gross Domestic Product are pushing upward up to 9.95 percent in the US in 2006 (Schultz, 2006). In Europe, those costs are on the increasing mode as well, mainly due to greater uncertainty in lead times caused by congestion and higher fuel prices. Combined with the presence of high external costs, this trend is obviously harmful to both economies and societies concerned.

Flanders and the Netherlands are the leading logistics region in Europe and located at the highest positions in the well-known Cushman and Wakefield ranking (Cushman and Wakefield, 2006). They both manage to attract additional European Distribution Centers and European Logistics Centers (EDC/ELCs), illustrating the importance and potential of logistics industry for the larger Benelux region. Political and economic reality could, however, change quickly and multinational corporations are therefore, in more frequent occasions, faced with the challenge to redesign their existing production and distribution systems and develop new supply chain strategies in order to meet the required service level at minimal costs (Goetschalckx et al., 2002). GDP growth rates in the new EU countries are currently twice as high as for the EURO countries: 6.4 vs 2.8 percent for 2006 and an estimated 5.2 and 2.1 percent in 2008 (IMF, 2007). The stronger growth in economic activity in Eastern Europe, higher fuel prices coupled with high congestion levels and limited accessibility, and a growing environmental stewardship aimed at conserving energy and resources, focus on recycling, minimising packaging and using renewable energy to reducing the firm's "carbon footprint" (Mahler, 2007) could change the appeal and/or attractiveness of locations. This could either be an opportunity or a threat to manufacturers and logistics service providers alike, and incite them to reconfigure the network of production and distribution facilities so as to offer the highest possible shareholder value. Consequently there exists a strong incentive to decrease the costs of non-value adding activities, such as basic distribution and warehousing.

Founded in 1978, the Benelux Interuniversity Association Economists (BIVEC-GIBET) is a think tank of universities, research institutions and governmental bodies to draw inspiration for academic research, education and policymaking. In the course of a quarter century, the Association has evolved from a small group of transport economists into a solid and broad-based network with a diversity of transport experts, qualified in fields such as transport economics, logistics, regional economics, transport geography or transport law, with its

members employed in all major universities, university colleges, and knowledge centres located in Belgium, the Netherlands and Luxembourg. After a first successful period of 25 years of experience, the BIVÉC-GIBET (www.bivec-gibet.org) has restructured its activities in order to offer a better fit between academics and leading transport organizations. One such new initiative is the bi-annual BIVÉC-GIBET Research Day. The second edition took place on April 3, 2007 at the Rotterdam Hogeschool (the Netherlands). This one-day conference provided the audience an overview of the current trends in transportation research in the Benelux. In total over forty papers were presented in the fields of logistics, infrastructure and pricing policy, port and air economics, and passenger and freight transport. Papers were bundled in a conference proceeding (Hilferink et al., 2007), and what is presented herewith is a selection based on quality and scope considerations. Papers addressing how transport and logistics processes could be evaluated and how networks and logistics processes could be redesigned for greater logistics efficiency have been carefully reviewed according to EJTIR standards.

2. Overview of the papers

Firstly, Rigo et al. aim at an integrated evaluation of the economic, logistics, and environmental and safety feature of transport chains. The authors develop a model that determines transport cost and emissions related to intermodal transport chains, measure logistic performance of specific transport chains and develop a multi-criteria decision aiding model that can translate values obtained into a single performance indicator. This so-called Sustainable Transport Performance Indicator provides the basis for an integral assessment of intermodal transport chains. The approach is illustrated using a case study on moving freight from Frankfurt am Main to Sofia.

Whereas the focus in Rigo et al. is on traditional transport services, Verstrepen et al. zoom in on reverse logistics, one of the more recent and innovative logistics concepts materializing both a quest for further cost reductions and a growing environmental stewardship. Verstrepen et al. empirically investigate reverse logistics in Flanders to assess both its actual scope and status and to study its future outlook and potential growth. In order to do so, the authors analyse a cross-section of companies from a variety of industries. In spite of the increasing attention that reverse logistics is receiving in management literature, the authors find that respondents rate the performance of reverse logistics processes to be relatively low and often consider them to be out of control. Suggestions for unlocking the hidden value in the reverse supply chain and directions for further research are formulated.

Supply chain redesign problems often involve large numbers of potential locations to be evaluated, stretching optimisation methods to their limits. Limbourg and Jourquin discuss how classical aggregation methods, often used to reduce the complexity of these problems, introduce aggregation errors into the solutions. An alternative methodology, based on freight flows, is proposed to reduce the set of potential locations. Both approaches are evaluated on a hub location problem for the trans-European networks.

Neutens et al. review the most important contributions to time geography, disaggregate travel modelling, and geographic information science. Furthermore, the paper describes three novel approaches to ameliorate the classical time-geographic framework. Although the existing literature on time geography has mainly addressed passenger transportation problems, the modelling concepts apply to freight transportation as well. Amongst others, the authors point

out that time geography might be useful to limit the solution space for optimization problems. As such it could provide a new avenue of research for the location models discussed by Limbourg and Jourquin.

Although these four papers are not considered to be a representative sample of the current research by all BIVEC-GIBET members, the selection does reflect the diversity and multidisciplinary nature of on-going research. The guest-editors hope that these selected articles stimulate further discussion amongst those engaged in transport and logistics activities in one way or the other as an individual or a collective capacity.

Finally, over the course of editing, we relied upon a number of capable fellow academics for this special issue. Our gratitude goes to firstly the contributing authors for their professional and timely reaction to our requests and secondly reviewers for their valuable time to ensure the quality of the papers. Last but not least, Caspar Chorus (editorial board EJTIR) was all the time on our side for a number of matters needed to be sorted out.

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