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Recent developments in urban logistics research – a review of the proceedings of the International Conference on City Logistics 2009 – 2013

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Abstract

This paper reviews research published in the proceedings of the International Conferences on City Logistics in 2009, 2011 and 2013. The purpose is to analyse its relevance to urban logistics problems and to identify gaps. The results indicate that the research addresses mainly urban distribution problems from the authority and carrier perspective in a European and Asian context. Three conclusions can be drawn from the review. First, the research has to address a wider range of market segments; second, there is a need for more research from the shipper and receiver perspective; and third, more research addressing Asian and especially African cities is necessary.

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1. Introduction

Urban logistics is essential to the functioning of modern urban economies. Cities are places of consumption relying on frequent deliveries of groceries and retail goods, express deliveries to businesses, and a fast-growing home delivery market. For people, urban logistics ensures the supply of goods in stores and for firms it forms a vital link with suppliers and customers (Crainic et al., 2004). Urban logistics is therefore an important component for economic vitality of cities. Furthermore, the function of a city as a place of production is also involving significant

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freight activity related to their role and function in global supply chains. In cities serving as hubs for national and international trade, urban freight is essential for wholesaling, distribution, logistics, and intermodal operations (NCFRP, 2013). However, the urban environment characterised by scarcity of access, e.g., congested roads, space constraints and limitations of infrastructure restricts the efficiency and quality of urban logistics operations (Hesse and Rodrigue, 2004). Freight vehicles are delayed by congestion and are constrained to carry out loading and unloading because of insufficient parking spaces. Reversing the perspective, urban logistics is increasingly perceived as disturbing activity for passenger transport and the citizens' quality of life. Freight traffic in urban areas has several negative impacts, including impacts on the environment (e.g., atmospheric emissions, use of non-renewable fuels, waste and loss of ecosystems), on society (e.g. public health, accidents, noise and reduction of quality of life) and on the economy (e.g. waste of resources and congestion resulting in decreasing journey reliability and city accessibility) (Quak, 2007). The world population has increasingly come to live in urban areas and the demands on an attractive urban environment increase, which puts further pressure on urban logistics.

The development of growing urban logistics problems has been followed by an increased awareness for urban logistics. Cities around the world have engaged in extensive experimentation to manage urban logistics in order to improve logistics performance while at the same time reducing the negative environmental and socio-economic impacts. Various urban logistics measures have been introduced; the results, however, are disappointing, showing unwanted side effects or dependency on government subsidies (Macharis and Melo, 2011). This is partly due to the fact that measures are planned and implemented without taking into account the complexity and diversity of urban logistics. As a city hosts a great number of different economic sectors, it is served provisioned by hundreds of different supply chains. Furthermore, cities throughout the world are different and as a consequence the context in which urban logistics takes place varies significantly based upon the local characteristics. Cities differ in size ranging from small urban areas to fast growing large metropolises; in cultural conditions as some cities have sensitive environments in cultural or heritage terms; in geographical and climate conditions; as well as in economic conditions. Cities throughout the world are therefore very diverse, ranging from small cities with historical centres in developed countries (e.g. Parma with about 180.000 inhabitants) to metropolises in emerging economies (such as Mexico City with a population of 20 million). Thus, there is a need for new approaches to urban logistics management requiring new knowledge in this area, taking into account the diversity and complexity of urban logistics.

The purpose of the paper is to analyse the trends of urban logistics research in terms of its relevance to urban logistics problems and attempts to identify gaps in urban logistics research. The paper seeks to answer the following questions: (1) What segments of the urban freight market are researched? (2) Which actor perspective does the research have? (3) What is the geographical scope of the research? (4) What research strategy is used? (3) How did the results of research question 1-4 evolve over time? The paper is organised as follows: First, key aspects of urban logistics are defined, which form the groundwork for the review of urban logistics research. Second, the methodology of the review is described. Third, the results of the review are presented. Fourth, the paper concludes with a discussion of research implications and with an outline of directions for further research.

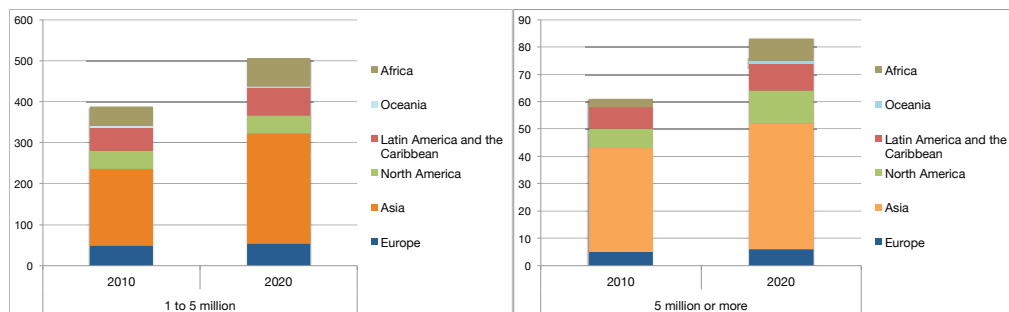


Fig. 1. Worldwide distribution of (a) large and medium-sized cities; (b) Megacities. Source (UN-Habitat, 2013)

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