
Editorial

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Biographical notes: Johan Woxenius is Professor of Maritime Transport Management and Logistics at University of Gothenburg since 2008. He received the degrees of MSc (Industrial engineering), PhD and associate professor at Chalmers University of Technology. His research includes maritime and intermodal freight transport and particularly sustainability, industrial organisation, production systems, traffic designs and information systems. He has also published articles on urban freight. He leads University of Gothenburg's part of the maritime research centre Lighthouse and the Area of Advance Transport, together with Chalmers. He is a member of the Scientific Council of Volvo Research and Educational Foundations (VREF) since 2013. He serves as associate editor of the journal *Transport Reviews* and sits on the editorial boards of *World Review of Intermodal Transport Research* and *Research in Transportation Business & Management*.

Mathieu Gardrat is a researcher at the Transport Urban Planning Economics Laboratory in Lyon since 2018. He holds a Master's degree in Logistics and a PhD in Geography and Urban Planning. His researches are structured around survey methods, data processing and modelling related to urban freight transport. He has been actively participating in research projects related to these subjects since 2011 in close cooperation with the French Ministry of Transport and local authorities: French Urban Goods Movements Surveys, E-Commerce Mobility Surveys, development of FRETURB and SILOGUES models. He co-pilots the Lyon Urban Goods Movements chair of the University of Lyon and organises workshops aiming at the production of serious games on urban logistics.

Eleonora Morganti is Assistant Professor in Urban Food Consumption, Distribution and Sustainability, at the University of Leeds, sharing her work between the Institute for Transport Studies and the School of Food Science. Her research focuses on the last mile for food and the effects of new consumption and purchasing habits on the urban freight system. Prior to moving to England, she worked at the Ecole des Ponts in Paris, France, exploring ways to enhance the transition towards low-carbon transport in city logistics. She is part of the Urban Food Observatory at Global Food and Environment Institute at the University of Leeds.

1 Background to the special issue on “Integrating Urban Freight in Urban Transport Planning” with papers from the VREF Urban Freight Conference 2018

Cities throughout the world find themselves under ever more growing constraints caused by an increasing population and a widening scope of activities taking place in a set space. Food has always been supplied to cities but as there is an increasing concentration of offices and service establishments rather than manufacturing, cities become a sink in the web of supply chains and need to provide an effective interface to long-distance transport. Policy makers representing the citizens are also less tolerant with the external effects that follow freight deliveries and they stiffen environmental regulations accordingly. In turn this leaves to firms and authorities in the cities to cooperate with logistics service providers (LSPs) to facilitate efficient operations in an environment of concentration, congestion and constraints.

Since most of urban freight flows rely on a congested road network, policy makers and planners turn their attention to intermodal alternatives. Today, a large variety of high tech solutions such as autonomous vehicles, delivery robots and drones as well as low tech solutions like cargo bikes and foot porters emerge, but they are still to be confirmed as sustainable and efficient solutions to become integrated parts of the bloodstream supplying cities. Furthermore new practices profoundly change our perspective on freight transport sustainability. E-commerce, for example, upsets logistics organisations, facilities and people mobility at a fast pace in cities. Urban freight issues are therefore amplified by this rapidly changing context and call for thorough analysis and assessment.

Along these questions, the competition for land use in cities, in which freight and logistics activities have trouble finding their place, raise the question of the integration of freight in the planning process and its potential benefits for transport sustainability. In these circumstances, policy makers usually encounter difficulties at integrating freight transport in the planning process if the topic is not completely ignored at all and left to the private sector to solve. Therefore, the implementation of decision support tools and relevant solutions for urban freight becomes an ever more pressing issue.

After many years of funding research on passenger transport and infrastructure in an urban setting, Volvo Research and Educational Foundations (VREF) identified that freight issues had been neglected. Accordingly, since 2012 VREF has been instrumental in funding collaboration between urban freight researchers from all corners of the world. Arranging conferences is an integrated part of that capacity building and Long Beach and Gothenburg take turns in hosting an annual conference. The 3rd VREF conference held in Gothenburg in October 2018 aimed at tackling freight transport issues confronting cities

by associating scientific approaches to practical efforts. This special issue reflects the research with an intermodal element or at least a connection to long-distance transport presented during this conference. Another selection of papers presented at the conference will appear in a special issue in the journal *Cities*.

Each of the papers presented in this special issue explore the relevance of freight transport solutions, strategies and trends at different scales related to city logistics. In this sense, they contribute to improve our knowledge on the issue of urban freight transport but also provide methodological insights to assess such solutions and emerging phenomena.

2 Overview of the papers in the special issue

From the international and regional scale to city centres, reflecting on logistics facilities location and e-commerce with an intermodal perspective, this special issue presents decision support methods and assess solutions that allow freight flows to efficiently enter cities. By producing economic, environmental and functional assessments, this issue investigates such transport solutions and methods.

This publication opens with the paper ‘Where to open maritime containers?: A decision model at the interface of maritime and urban logistics’ by Bouchery, Woxenius and Bergqvist. It focuses on the issue of import container distribution and particularly where the unloading operations, in the industry referred to as stripping, are best located. The authors present a decision model for optimising distribution centres location depending on the total costs of operating such facilities (transport, handling, land...). Based on a case study of import containers arriving at the Port of Gothenburg, the authors analyse the best hinterland locations for distribution centres according to freight flows. This study enlighten us on two major trends in location strategies: (i) port-centric location strategies, favouring distribution centres located closely or within port areas and specific cities; or (ii) hinterland location strategies, favouring inland location closer to a large variety of destinations.

This work therefore provides us with an original perspective on the articulation of maritime and city logistics and the potential role of such large infrastructures on urban freight transport. The combination is natural as most ports were either established for supporting an existing city or that older ports located where Mother Nature provided good conditions has stimulated a city to grow around the port. The results put forward in the article are somewhat surprising as the much lower cost of an intermodal terminal a bit into the hinterland outweighs the shorter transport distances of a port-centric location. The intermodal terminal in the case study located 130 kilometres from Port of Gothenburg is found to provide a cheaper overall solution if just 15% of the freight has a final destination outside the City of Gothenburg.

In the second paper ‘Freight villages and urban goods distribution: perspectives of freight transport operators, experts, and policymakers from multi-criteria decision analysis’, de Senna, Bracarense, de Oliveira and de Oliveira explore further strategies for locating logistics facilities and their relevance for urban freight transport, with a focus on the urban area perimeter. Through a case study of Palma in Brazil, a multi-criteria analysis is carried out to explore the perception of multiple stakeholders such as policy makers, freight carriers and experts on the relevance of distribution centres located in freight villages. The findings indicate that there are differences in judgment among the

three groups of stakeholders, thus calling for the need to foster the dialogue and the collaboration among the various parts. Looking at the growing presence of freight villages in Latin-American cities, the contribution of this paper provides a timely indication on the most urgent steps to face the pressing issues on urbanisation growth, logistics sprawl and urban planning.

In the article 'E-grocery of tomorrow: home delivery of food between profitability, customer acceptance and ecological footprint' Trott, Auf der Landwehr and von Viebahn examine the impact of e-commerce on urban freight transport sustainability by concentrating on four representative districts of the city of Hanover. Multi-agent and discrete choice based modelling is implemented using reliable and realistic input parameters to describe household behaviour, delivery and outputs and three scenarios are identified to test the model.

This study provides a significant contribution to assess traffic kilometres and CO₂ emissions generated by e-grocery deliveries and by brick-and-mortar shopping, also called 'stationary retail'. From the analysis of the main results, individual behavioural patterns, as for example access to a car, are crucial factors to identify scenarios where e-grocery provides a reduction on CO₂ emissions compared to shopping trips to local stores.

The last article of this publication 'Combining on-foot porters with vans for last-mile parcel deliveries: results of a study in central London', which is authored by Allen, Piecyk, Piotrowska, Cherrett, McLeod, Oakey, Bates, Friday, Cheliotis, Wise and Bektas, concentrates on highly dense and congested urban zones and potential alternatives to traditional road going vehicles. The authors assess the benefits of resorting to on-foot porter solutions in London's Central Activity Zone by producing indicators related to road and kerbside space-time use.

Particularly interesting are the results of the live trial for parcel portering stating the related reduction of greenhouse gas emissions and local air quality pollutants, as well as reductions in the vehicle fleets required by carriers.

3 Conclusions

At first glance, this special issue might appear as a rather disparate collection of articles, however all with an importance for urban freight planning. The size and scope of traffic modes is truly wide, ranging from container shipping in the first article to walking porters in the last, but the four articles have in common that they all address extensive transport systems. The trans-ocean container transport system has the widest geographical scope, but the parcel-based e-commerce delivery systems are more complex as they de-consolidate large shipments into small ones and reach all the way into the capillaries in terms of the city streets. The second article adds to our understanding as it focuses the interface between long-distance transport and last-mile deliveries as well as between large transport units in terms of maritime containers and trucks; and pallets, parcels and bags for delivery to firms and individuals.

Transport planning at a city level is clearly dominated by people mobility, but city planners are increasingly aware of the importance of not neglecting the freight movements. Like the scientific field of city logistics has widened to urban logistics, the awareness of city planners has expanded from issues about supplying the high street shops to include transport of construction material and waste but also to freight

movements in the whole urban area. Not least planners in port cities, which includes many of world's largest cities, also realise that they are affected by and must also plan for transport through the urban area serving the port's hinterland such as addressed in the first article. Competence is also needed for designing the city's interface to long distance transport in a coherent way including freight villages as focused in the second article. Nevertheless, widening the scope of urban freight planning is not enough, we also need to deepen our knowledge of supplying stationary retail but at the same time as letting the cities accommodate last mile deliveries as elaborated on in the last two articles. Consequently, the understanding must be constantly updated and adapted to new realities.

As mentioned in the introduction, cities have throughout history depended on the supply of food from surrounding farming lands but craftsmen in the city produced much of the non-food items needed. As cities are getting increasingly focused on office work and service sectors than manufacturing, the range of supplies needed for a comfortable and efficient city-life is significantly widened.

Bringing the messages from the four articles together adds to our understanding of the complexities when integrating urban freight in urban transport planning and we hope the special issue is helpful for urban planners, LSPs as well as researchers taking the knowledge to the next level.