

EDITORIAL

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Topical collection on the role of planning towards sustainable urban mobility

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In Europe, 74% of the population live and work in cities with more than 50,000 inhabitants. Furthermore, the share of urban population is expected to grow further up to 82% by 2050 [1]. This, together with an aging urban population, has the potential to strengthen problems related to mobility and transport systems. Cities are confronted with the pressing dilemma of how to increase the quality of life in face of these demographic changes; how to further maintain, improve and possibly increase mobility of people and goods and at the same time decrease the negative side-effects of transport like congestion, emissions, noise, the loss of public space to traffic, and road safety, among others.

In the European Union, the transport sector absorbs approximately one-third of the total energy consumption as transport modes are still heavily dependent on fossil fuels (97%); transport is responsible for up to 24% of total greenhouse gas (GHG) emissions, and noise and air pollution substantially harms the environment and public health. Urban freight transport is responsible for 25% to 50% of those impacts depending on the considered emissions, although they only represent 10% to 15% of the total vehicle kilometres travelled in the cities.

Solving the transport related problems in urban areas must follow political priorities at the European, national, regional, and local level. The EU White Paper on Transport [2] identified goals for 2050 – particularly, an overall goal of a 60% cut in CO₂ emissions from transport activities. Regarding the urban areas, the goal includes no more conventionally-fuelled cars in cities and CO₂-free city logistics. These ambitious policy goals generate questions about the most suitable policies and how they should be designed, formulated and implemented. There is a particular focus on how these policies should effectively contribute to the sustainability of cities and to the mobility of people as well as for urban logistics, and to reach the established policy goals.

A major responsibility for implementing appropriate and effective measures and policies thus lies directly on cities. Choosing city-level or even institutional measures and policy tools poses a significant challenge for responsible (local) governments and institutions, and academia. In the turbulent conditions of the present world, the decision-making processes should be supported by appropriate research activities, good unequivocal evidence and high-quality evaluation of the already implemented measures, by the transference of technologies and exchange of experiences. Due to the variability of local conditions (regarding e.g. geography, demography, economy, culture, quality of transport infrastructure and transport services etc.), the suggested measures cannot be implemented and transferred universally. In the presence of multiple objectives (social, economic, environmental), multiple stakeholders, limited data availability, and intrinsic context of each city, an integrated, multi-disciplinary approach is needed. No universal tools and measures to support decision-makers exist, especially at the local level.

This Topical Collection on “The role of planning towards sustainable urban mobility” includes seven papers from the 2016 NECTAR Cluster 2 and Cluster 3 Joint Conference organised in Brno, the Czech Republic. Four of the papers presented in this issue focus on urban logistics and the other three deal with personal transport in urban areas. Geographically, this collection covers examples from the EU, USA and Israel. The papers contribute to the actual planning practice and decision-making at the city and institutional level, using different approaches. They demonstrate different means of achieving sustainability, addressing specific aspects of both people and freight movements in a number of case studies. The main theme throughout this collection is the potential of the research outputs to influence planning for a more sustainable urban transport, by providing examples of the most recent practices and discussing their application on urban logistics and personal transport.

Regarding urban logistics, different policy scenarios focused on the type of vehicles, goods delivery methods,

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or alternative retail logistics concepts (like Urban Consolidation Centre, Tethering, and shared bus) were analysed with regards to a range of policy aspects. The results bring valuable implications for further development of retail business, and for policy makers.

Melo and Baptista [3] evaluate the impacts of replacing conventional vans by electric cargo bikes, integrating a multidisciplinary approach that identifies traffic, environmental and operational boundaries. The paper tries to understand if the current focus and investment that is being promoted by public policies in this type of vehicles can actually promote the public good interests and private stakeholders' efficiency and in what conditions it can be implemented. The study concludes that the conditions in which cargo bikes can help to achieve the concept of sustainable mobility are limited to what can be considered a niche of market (up to 10%). These findings further support the need for action at decision-making level to promote sustainable modes.

Goodchild *et al.* [4] compare the effects of different goods-delivery methods in terms of distance travelled and carbon emissions impacts. The compared methods include traveling to the store by car and delivery trucks from depots to homes. The paper identifies customer density and emission ratio as key decision variables, and can further support better planning. Delivery trucks are expected to provide emission benefits where customer density is high (e.g. in an urban area), and where the emissions' footprint of the truck is closer to the passenger car.

Papoutsis *et al.* [5] compare scenarios of retail business on data of one retail company in Antwerp. The results of the analysis bear witness of the complexity of retail logistics within an urban planning context and of the fact that sustainability of logistics, in terms of economic and environmental concerns, goes hand in hand with operational effectiveness and social uptake. Innovation is crucial for urban retail logistics impacting on transport service, society, economy and the environment.

Gatta *et al.* [6] propose a methodology to support decision-making processes for urban freight planning aiming at an easier identification and development of effective urban freight transport (UFT) solutions. This study, developed within the EU H2020 CITYLAB project, discusses a prototypical integrated decision-support system for local policy makers and describes a set of procedures, models and tools to select an optimised mix of shared, applicable, effective and financially neutral UFT policy measures, accounting for agents' heterogeneous preferences and deep-routed interactions characterising this complex environment.

Regarding personal transport, the papers cover a wide range of topics bringing policy recommendations.

Elias [7] studies the relationship between the objective and subjective measures that influence traffic violations

in driving behaviour. The study also examines the use of rewards as a measure to change driving behaviour in young student drivers in the southern region of Israel. The study is particularly relevant to policy and planning in that it demonstrates a potential for rewards to be more effective than sanctions in changing (and improving) driving behaviour among the young.

In another paper, Šimeček *et al.* [8] turn their attention to the elderly and senior travellers in the cities of Bratislava and Brno. Their study looks at the patterns of mobility of senior citizens in these two cities that are similar in size and transport system characteristics. The study provides interesting results for planning for walking and public transport use, these being the two main modes of transport identified in Bratislava and Brno respectively. According to the authors, these results could also reflect other cities in the region. It is evident from this study that further research is required to understand some of the underlying reasons for such mobility patterns among senior citizens in these cities.

The concerns over infrastructure financing are addressed in the paper by Roukouni *et al.* [9], which looks at the role of value capture finance (VCF) as a financing mechanism for public transport infrastructure. The paper applies multi-actor, multi-criteria analysis (MAMCA) to the case study of the metro infrastructure in Thessaloniki, Greece. It concludes by supporting MAMCA as an ex-ante evaluation method for different VCF mechanisms for public transport infrastructure. Results of the process also showed positive attitudes towards the study approach and the outcomes of the research among the Thessaloniki stakeholders. It is hoped this will inform and engage city planners in supporting their decisions for sustainable transport.

Future research seems to be pointing towards a better understanding of the variety of user groups in urban areas and their needs for mobility. This special issue shows the importance of identifying the various groups of stakeholders within the city population and providing tailor made measures for each group in order to obtain a more sustainable mobility of people and goods. Additionally, it also provides analyses of non-motorised transport modes and alternative fuels and engines, especially e-mobility, and its potential in cities and city logistics. Lastly, from the special issue it is possible to conclude that city planners need to broaden their perspectives towards planning and evaluation tools for the development and financing of urban transport. With an increasing pressure on public financing, further research is required in the field of funding and long term sustainability for cities to implement durable and efficient transport systems policies.

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References

1. UN (2011) World urbanization prospects 2011 highlights. Department of Economic and Social Affairs, New York.
2. EU (2011) White Paper on transport: Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system. Publications Office of the European Union, Luxembourg.
3. Melo S, Baptista P (2017) Evaluating the impacts of using cargo cycles on urban logistics: integrating traffic, environmental and operational boundaries. *Eur Transp Res Rev* 9:30.
4. Goodchild A, Wygonik E, Mayes N (2017) An analytical model for vehicle miles traveled and carbon emissions for goods delivery scenarios. *Eur Transp Res Rev* 10:8.
5. Papoutsis K, Dewulf W, Vanelslander T, Nathanail E (2018) Sustainability assessment of retail logistics solutions using external costs analysis: a case-study for the city of Antwerp. *Eur Transp Res Rev* 10:34.
6. Gatta V, Marcucci E, Le Pira M (2017) Smart urban freight planning process: integrating desk, living lab and modelling approaches in decision-making. *Eur Transp Res Rev* 9:32.
7. Elias W (2017) The role of fines and rewards in the self-regulation of young drivers. *Eur Transp Res Rev* 10:6.
8. Šimeček M, Gabrhel V, Tögel M, Lazor M (2018) Travel behaviour of seniors in Eastern Europe: a comparative study of Brno and Bratislava. *Eur Transp Res Rev* 10:16.
9. Roukouni A, Macharis C, Basbas S, Stephanis B, Mintsis G (2018) Financing urban transportation infrastructure in a multi-actors environment: the role of value capture. *Eur Transp Res Rev* 10:14.

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