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Editorial

Preface/Editorial

In recent years, transport research has been characterized, on the one hand, by the ever-increasing advancement in transport demand modelling with specific reference to micro-simulation of individuals, which highlights the social and economic relations underlying the mobility choices and, on the other hand, by the enormous development of technologies of communications and automation, with the consequent collection and elaboration of massive data. Both aspects advocate integrated transport systems offering increasingly personalized services. The combination of advanced modelling and technological innovation offers opportunities and challenges that affect, and are affected as well as, by transportation policy and economics, which this special issue aims to focus on.

The Special Issue follows the 2019 Chinese Overseas Transportation Association (COTA) International Symposium on Emerging Trends in Transportation (ISETT), organized in Rome by the Roma Tre University, Sapienza University of Rome and Transportation Research Board (TRB).

The aim of this collection of papers is to provide an overview of spanning emerging technology and policy trends related to urban transportation solutions, including both theory and practice.

Here, we briefly summarized the contents of each paper, as they appear in the issue.

The integration challenges of self-driving mini-bus system integration in MaaS using the actor analysis method is analyzed by Wang Qiuchen, Hauge Baalsrud Jannicke, Meijer Sebastiaan in the paper "*The complexity of stakeholder influence on MaaS: A study on multi-stakeholder perspectives in Shenzhen self-driving mini-bus case*". The AFG list is used in the interviews and analysis to illustrate the relationships between different subsystems from stakeholders' perspective. The analysis and result show the process about how to collect and analysis different stakeholder's concerns in a complex system.

The paper "*Economic implications of a connected and automated mobility in Europe*" by María Alonso Raposo, Monica Grosso, Andromachi Mourtzouchou, Jette Krause, Amandine Duboz, Biagio Ciuffo deals with the analysis of the possible future socio-economic implications of such a disruption in the road transport sector. It is a first attempt to assess the economic impact of CAVs on the European economy, building upon a set of future road transport scenarios and aims to identify the main impacts in different economic sectors mostly from a qualitative perspective. Results show that the deployment of Connected and Automated Vehicles could provide profitable opportunities for many sectors including insurance and maintenance and repair identified as businesses that might suffer revenue decreases in the future.

Aikaterini Kampouri, Ioannis Politis, Georgios Georgiadis in the paper "*A system-optimum approach for bus lanes dynamically activated by road traffic*" investigate the performance of a bus lane that is (de) activated under specific road traffic and public transport conditions, the shared use of bus lanes by cars and buses can relieve congestion problems and yield environmental and financial benefits. Authors model and run various alternative scenarios to highlight both the critical level of traffic volumes and bus service frequencies for which BLIC activation would return tangible traffic flow and environmental benefits.

The paper "*Estimation of value-of-time and a comparison of an ex ante and an ex post willingness to pay for shared transport services in Thessaloniki*" by Josep Maria Salanova Grau, Maria Konstantinidou, Neofytos Boufidis, Georgia Aifandopoulou aims at estimating the value-of-time and willingness-to-pay measures in Thessaloniki, where a pilot mobility scheme inspired by the concept of sharing economy is implemented. The pilot focuses on reducing the commuting trips to the city centre, aggregating as much as possible the origins-destinations and the timetables, by using a taxi sharing service.

The paper "*Modeling taxi drivers' decisions at airport based on queueing theory*" by Wen Jia, Yu-lin Huang, Qun Zhao, Yi Qi deals with the queueing theory-based model developed to help taxi drivers make decisions on whether waiting to pick up passengers at the airport or ditching the airport and search elsewhere for their next trips. Authors highlights the advantages as well as some disadvantages of the developed model. The formers concern systematizing the process of taxis choosing to enter the waiting area and waiting to leave the airport and the rationality and applicability of the developed model were validated and evaluated with the flight information collected at Yaoqiang International Airport in Jinan, China.

Maedeh S. Fatemi, Ali Ghodratnama, Reza Tavakkoli-Moghaddam, Amin Kaboli in the paper "*A multi-functional tri-objective mathematical model for the pharmaceutical supply chain considering congestion of drugs in factories*" investigate a five-level network of a pharmaceutical supply chain (PSC), including the supplier, producer, main distributor, local distributor, and customer. Authors develop a novel mathematical model specifies for the decision-makers about producers, inventory flow, and inventory management.

A new method to lower the feasible travel time and the public travel cost using the hidden Markov model and EO algorithm is presented in the paper "*A public transport network design using a hidden Markov model and an optimization algorithm*" by Yun Zhang, Weichu Xue, Wei Wei, Habibeh Nazif. The suggested method's performance is compared to the performance of other algorithms on a test network, showing that it is more effective. Specifically, the results showed that applying the Markov model and EO algorithm significantly improved cost compared to other algorithms and it has also improved travel capacity.

In the paper "Evaluating the development of transport technologies in European research and innovation projects between 2007 and 2020"

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by Konstantinos Gkoumas, Mitchell van Balen, Anastasios Tsakalidis, Ferenc Pekar, authors provide a comprehensive assessment of technologies that are developed in European research projects. It contributes to a holistic and coordinated understanding of transport research and innovation by evaluating many European Union-funded projects between 2007 and 2020. The paper expands our understanding on the role of funding to innovate transport and offers suggestions to further improve research funding allocation.

A Decision Support System able to identify which lines are more suitable, both technically and economically, for the use of Battery Electric Buses (BEBs), has been developed by the Italian Agency for New Technologies, Energy and Sustainable Economic Development, described in the paper "*BEST: A software to verify the feasibility of urban bus line electrification*" by M.P. Valentini, V. Conti, S. Orchi. BEST is a tool mainly devoted to PT operators for an easy and, at the same time, quantitative feasibility analysis of bus line electrification with BEBs considering actual local conditions. Results themselves present many uncertainties due to the immaturity of the industrial and commercial sectors of BEBs and the related re-charge infrastructures.

The paper "*Case studies of integration between activity-based demand models and multimodal assignment*" by A. Gemma, L. Mannini, V. Busillo, E. Cipriani, U. Crisalli investigates the integration between Activity Based Model (ABM) and transport assignment by focusing on the multimodal demand-supply interaction to be used in more advanced simulation models. The consistency between ABM and assignment models is studied proposing a methodology that can be applied to large real size networks. Authors propose a new formalization of integration of ABM with multimodal assignment, oriented to an easy-to-use and computationally faster application. The interaction between different modes sharing the same network facilities is considered, as well as crowding (public transport) and congestion (road) phenomena.

Jie Yang, Daozhi Zhao, Zeyu Wang, Chunqiu Xu in the paper "Impact of regulation on on-demand ride-sharing service: Profit-based target vs demand-based target" focuses on the price regulation of on-demand ride-sharing service considering two regulation targets based on the profit (PTR regulation) and the demand (DTR regulation). The findings provide evidence that two services could coexist without regulation under some circumstance, which depends on taxi price. They also indicate that PTR regulation can result in either lower or higher regulatory intensity, with higher regulatory intensity more likely when the taxi price is low. The exploration of the impact of the regulation on the social welfare shows that the regulation does not improve the social welfare unless the platform offers the low-end service, and the two services are highly homogeneous.

In the paper "Analysis of the generalized use of logit models in simulating changes in decision attributes at the airport check-in" by Francisco Gildemir Ferreira da Silva, Viviane Adriano Falcao, Maria Cecília de Farias Domingos, Nathane Ana Rosa Negri a comparison and analysis of the choices of check-in at airports is carried out, considering factors of queue time and time of care. The objective is to verify if the estimate with random parameters would provide extra information to analyst in the decision of check-in at airports. The study investigates the use of other possible methodologies to ascertain the user's propensity towards a choice. In addition, it contributes to the decision-making of the airport operator in the context of the insertion of future airport technology.

The paper "*Digital transformation of airline industry*" by Iryna Heiets, Jiezhuoma La, Wenhui Zhou, Shaoxin Xu, Xingyue Wang, Yuchen Xu investigates passengers' experience on current and latest digital infrastructures applied in different stages of a flight by using the survey questionnaire. The paper separates the methodology and analyzes the survey results from qualitative and quantitative methods. The survey of this research is not only about investigating the attitudes of passengers towards the new digital technology in the aviation industry but also aims at analyzing the digital strategies that airlines used and giving some recommendations.

Special thanks should be given to Dr. Lei Zhang and the scientific committee of the 2019 COTA International Symposium on Emerging Trends in Transportation (ISETT) held in Rome on October 3–5, 2019, since several papers of this issue have been selected during the symposium.

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