



14th EWGT & 26th MEC & 1st RH

14th Meeting of the EURO Working Group on Transportation (EWGT) - In quest for advanced models, tools and methods for transportation and logistics. Editorial

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The EURO Working Group on Transportation (EWGT) is one of 28 Groups of EURO – The Association of European Operational Research Societies. Its major interest is application of operations research methods in the field of transportation. EWGT concentrates on developing mathematical models, computational algorithms and computer-based tools to solve complex transportation decision problems. EWGT has met on a regular basis since 1991, when it was founded in Cetraro, Italy, initially as EURO Working Group on Urban Traffic and Transportation. The first Meeting of EWGT was held in Landshut, Germany, in 1992. Consecutive EWGT conferences were hosted by different academic centers in such European countries as: France, Spain, United Kingdom, Yugoslavia, Sweden, Finland, Italy and Poland.

The second chapter of the Conference Proceedings includes 91 papers of the 14th EWGT Meeting, entitled: *In quest for advanced models, tools and methods for transportation and logistics*, held in Poznan, Poland. The papers of this chapter cover a wide spectrum of topics, ranging from up-to-date traffic control and fleet management methods, through novel IT-based travel behavior and driving simulation analyses up to highly advanced, efficient computational procedures and computer-based tools optimizing complex transportation and logistics systems. The EWGT presentations refer to such aspects of transportation and logistics as: safety and security, reliability, quality, environmental friendliness and overall efficiency. They include a variety of operations research, artificial intelligence and decision making methods, including: macro- and micro- simulation, combinatorial optimization, metaheuristics, forecasting methods, agent-based models, neural networks or fuzzy logic algorithms.

All papers included in this chapter have been divided into the following 14 streams: EWGT 1 - Design, utilization and maintenance of transportation and logistics infrastructure (4 papers), EWGT 2 – Location problem in transportation and logistics (2 papers), EWGT 3 – Urban transportation and city logistics (8 papers), EWGT 4 – Transportation and logistics processes and operations (4 papers), EWGT 5 – Simulation in transportation and logistics (8 papers), EWGT 6 – Optimization in transportation and logistics (7 papers), EWGT 7 – Traffic management (17 papers), EWGT 8 – Travel behavior (10 papers), EWGT 9 – Travel time analysis (4 papers), EWGT 10 – Driving simulation (4 papers), EWGT 11 – Environmental aspects of transportation and logistics (4

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papers), EWGT 12 – Safety, reliability and quality in transportation and logistics (8 papers), EWGT 13 – Fleet management (4 papers) and EWGT 14 – Public transportation (8 papers).

The following, randomly selected papers, shortly characterized below, give the reader the feeling of the content of this chapter. *Sergio d'Elia et al.*, Italy, present an interesting procedure for sizing the width and spatial positioning the emergency exits in tunnels. The authors define the position and the width of the exits as a function of the expected vehicular flow for the tunnel, the distance between two emergency exits, the number of lanes in the tunnel and the average coefficient of occupation of the transiting vehicles (EWGT 1). *Julia Sender and Uwe Clausen*, Germany, analyze a specific hub location problem for a railway network and formulate it as mixed-integer programming problem. The authors run a series of computational experiments and solve the problem with the application of a commercial solver CPLEX (EWGT 2). *Luiz Martinez and Jose Viegas*, Portugal, describe an innovative school bus system. The authors formulate a vehicle routing problem as a Mixed Integer Linear Programming Problem and solve it in a two step procedure focused on: identifying optimal concentration points of children and designing optimal routes serving those stops (EWGT 3). *Lieselot Vanhaverbeke, Frank Plaetria and Cathy Macharis*, Belgium study consumer mobility patterns in a retail environment and discover the relationship between changing consumer spatial behaviour and retail shops location strategies. In their analyses the authors apply agent-based modeling and simulation approach (EWGT 4). *Zahra Parvaneh, Theo Arentze and Harry Timmermans*, Netherlands, investigate the impact of advanced information and communication technologies (ICT) on transport and develop a model that evaluates the impacts of personalized travel information on behavioral dynamics of activity-travel patterns (EWGT 5). *Milorad Vidovic and Gordana Radivojevic*, Serbia, formulate an Integer programming model of a vehicle routing problem for ISO containers distribution and collecting processes. The authors propose a heuristic procedure to solve it for large size instances (EWGT 6). *Takashi Higuchi et al.*, Japan propose a trip-chain based network equilibrium model with combined mode and route choices and formulate it as a Variable Inequality Problem (VIP), which is solved by the relaxation method (EWGT 7). *Gennaro N. Bifulco et al.*, Italy, carry out a real life experiment and investigate car following patterns. The authors propose information-fusion techniques to smooth real-time car-following data and compare it with the results of field experiment (EWGT 8). *Przemyslaw Gawel and Andrzej Jaszkiwicz*, Poland, develop an original, dynamic model of short-term travel time prediction for personal on-line car navigation system. The proposed model is based on linear transformation of traffic patterns and exponential smoothing (EWGT 9). *Thomas Nguyen*, France, and *Jordi Casas*, Spain, describe the integration of the driving simulator SCANNER and the traffic simulator AIMSUN, where the driving simulator manages the simulation in the immediate driver environment while the traffic simulator controls the whole road network situation, creating a large-scale, realistic and detailed virtual world (EWGT 10). *David Katoshevski et al.*, Israel, propose a new methodology of reducing environmental and health risk associated with air pollution emitted by public transportation. The authors propose a new design of an exhaust system for vehicles, which results in substantial reduction of the environmental problems associated with emissions generated by transportation means (EWGT 11). *Murat Karacasu and Arzu Er*, Turkey, analyze various causes of traffic accidents and prove that human factor is the most important of them. Consequently they investigate what is the impact of such human characteristics as education, age, gender and psychology on frequency of traffic accidents (EWGT 12). *Zoltan Fazekas, Péter Gáspár and Roland Kovács*, Hungary, describe the procedure that allows determining truck activities based on recorded trajectory data. The authors claim that identification of truck trajectories could facilitate the detection of traffic rule infringements and suspicious driver behavior (EWGT 13). *Tlig Mohamed and Neila Bhourri*, France develop a multi-agent system for urban traffic and buses regularity control. The system influences on traffic lights to regulate traffic, promote passage of buses, while monitoring the intervals between buses operating on a given route (EWGT 14).