

## Session 1: Transport - abstracts

Chair: Luuk Veelenturf

### **Titi Iswari (Hasselt University) - A collaborative model for inventory and routing in city logistics: an experimental study**

Two scenarios are considered in this project to observe the impact of a city hub in a B2B city logistics setting in terms of inventory and routing aspects. The first scenario is the basic scenario with no city hub in which each retailer defines its replenishment policy, and each supplier determines its optimal delivery plan independently. In the second scenario, retailers decide on their order size and suppliers send their products via a city hub. Five different replenishment policies and a metaheuristic algorithm based on Large Neighbourhood Search (LNS) are used to solve the problems. An experimental study is conducted to investigate in which situation the city hub's implementation will improve the city logistics performance and how each test variable affects the performance measures. This study uses several test variables, including the number of suppliers, number of retailers, holding cost, and replenishment method, with several performance measures for the evaluation, such as total cost, distance travelled, loading degree, and the number of trips.

### **Rolf van Lieshout (Eindhoven University of Technology) - How (not) to evaluate passenger routes, timetables and line plans**

Accurate evaluation of the service quality of public transport is imperative for public transport operators, providers of competing mobility services and policy makers. However, there is no consensus on how public transport should be evaluated. We fill this research gap by presenting a structural approach to evaluate three common manifestations of public transport (route sets, timetables and line plans), considering the two predominant route choice models (shortest path routing and logit routing). The measures for service quality that we derive are consistent with the underlying routing models, are easy to interpret, and can be computed efficiently, providing a ready-to-use framework for evaluating public transport. As a byproduct, our analysis reveals multiple managerial insights.

### **Lóri Tavasszy (Delft University of Technology) - Translating the Physical Internet to city logistics – some research directions**

The Physical Internet (PI) is a compelling vision of the future logistics system in which the use of transportation assets is optimized at system level, through collaboration, improved data exchange and new transport technologies. Although this vision applies to logistics at all spatial scales, the consequences for first and last mile transport are particularly interesting and relevant for cities. The PI vision is radically different from today's city logistics and promises a strong increase in efficiency and flexibility of services. However, the technological changes in the system are quite radical and its feasibility also rests on some strong assumptions. In my talk I (1) briefly introduce the main components of the PI, (2) summarize the current literature on PI in city logistics and (3) propose some critical research questions for the design of a PI-based city logistics system.