NSL Colloquium: Current Challenges for Logistics

14 May 2019, 14:00 – 19:00 | ETH Zurich main building, HG G 60 (Semper-Aula), Rämistr. 101, Zurich

Abstracts and Speakers' Bio

Lifting the myth of the demonization of e-commerce from a sustainable perspective

Dr. Maike Scherrer
Head of Research Area Sustainable Transport Systems and Supply Chain Management
Zurich University of Applied Sciences | School of Engineering | Institute of Sustainable Development

Abstract:
E-commerce is an increasing trend in our society. This increases the traffic within cities, but also in rural regions. Researchers and city developers alike work on solutions to decrease the amount of delivery vehicles especially in urban regions. It often is claimed that e-commerce is not ecologically friendly, as the delivery vehicles produce additional CO_2 emissions. But is it really true that e-commerce is worse than local shopping related to environmental impacts? The presentation emphasizes this question and provides insights into a research study comparing CO_2 emissions produced by e-commerce shoppers compared to shopping at local brick and mortar stores.

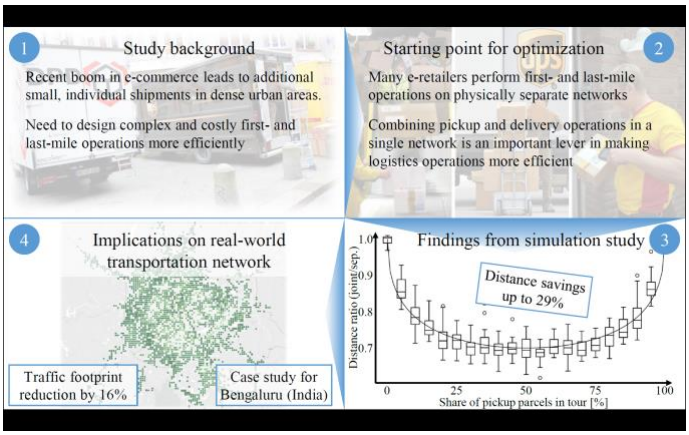
Short Bio:
Since May 2019, Maike Scherrer is head of the research area "Sustainable Transport Systems and Supply Chain Management" at the Institute of Sustainable Development, School of Engineering at the Zurich University of Applied Sciences. Prior to this, Maike completed her PhD and habilitation at the Institute of Technology Management at the University of St. Gallen. She also worked as a post-doctoral research fellow at the St. Francis Xavier University in Canada.
In her research, she emphasizes on global supply chain networks and different influencing factors such as digitization on the flow of material throughout the supply chain. In this, she also analyses the effect on sustainability based on the addressed influencing factors.

Integrating Last-mile Delivery and First-mile Pickup on Shared Vehicle Routes for Efficient Urban E-commerce Distribution

Felix Bergmann
Research Associate, PhD Candidate
ETH Zürich | Department of Management, Technology and Economics | Chair of Logistics Management

Abstract:
In recent years, the unbroken boom in e-commerce has led to a vast amount of direct shipments to individual consumers. Overcoming the urban last mile to the final consumer is generally considered to be the most complex and costly task in operating e-commerce supply chains. However, many e-retailers currently treat their first- and last-mile logistics operations as two separate and mostly independent problems. Thus, combining pickup and delivery operations in a single network with a shared fleet and joint routes can constitute an important lever in making these logistics operations more efficient. In his research, Felix Bergmann investigates into the parameters that drive the route efficiency of integrated pickup and delivery routes and quantifies the impact on the distance travelled in an urban logistics network.

Short Bio:
Felix Bergmann is a research associate and PhD candidate at the Chair of Logistics Management since May 2018. He holds a B.Sc. and M.Sc. degree in mechanical engineering and business administration from RWTH Aachen, Germany. During his studies, Felix spent an exchange year at Imperial College London, UK (2013) and worked as a graduate researcher at the Megacity Logistics Lab (MLL) within the Massachusetts Institute of Technology Center for Transportation and Logistics (MIT CTL), USA, where he also wrote his master's thesis (2017). In his research at MLL, Felix focused on the use of data-driven methods of statistical learning and mathematical optimization to assess the suitability of various competing urban delivery models for the efficient distribution of e-commerce shipments in large cities in emerging markets.
During his studies, Felix gained practical experience within the Supply Chain Consulting group of Bayer in Singapore (2014) and within a project management team at FrieslandCampina in Vietnam (2015). Moreover, he worked as a student assistant at FIR research institute at RWTH primarily focusing on the industrialization of services (2016). After having finished his studies, Felix joined McKinsey & Company for a three-month assignment on a digitization project at an Italian plant manufacturer (2018).
Felix is a recipient of a scholarship by the German Academic Scholarship Foundation and he was honored with the European Master Thesis Award by the Organization for European Students of Industrial Engineering and Management (ESTIEM, 2017).



Connected and automated technology changing Urban Logistics

Dr. Mireia Roca Riu
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Abstract:
New Information and Communication Technologies are transforming facilities and vehicles into intelligent systems that will significantly modify Urban Logistics. Different future situations will be discussed including intelligent loading/unloading facilities, integration of automation in urban delivery networks and the potential of shared customers.

Short Bio:
Mireia Roca-Riu is a postdoctoral researcher within the Traffic Engineering Group of the Institute for Transport Planning and Systems at ETH Zürich. She holds a PhD in Statistics and Operatons Research from BarcelonaTech. Her thesis, with title: "Improving Urban Deliveries via Collaboration" dealt with three different city logistics situations, which can be improved by means of collaboration among private companies and/or public authorities. Her research is focused on the use of operations research in logistics and urban transportion problems. In particular, she is currently studying the potential impacts of different levels of automation within urban deliveries.

How «smart» are the logistics of Swiss cities in reality – the perspective of an operator

Dr. Berko Sierau
Research & Innovation , NOTIME AG

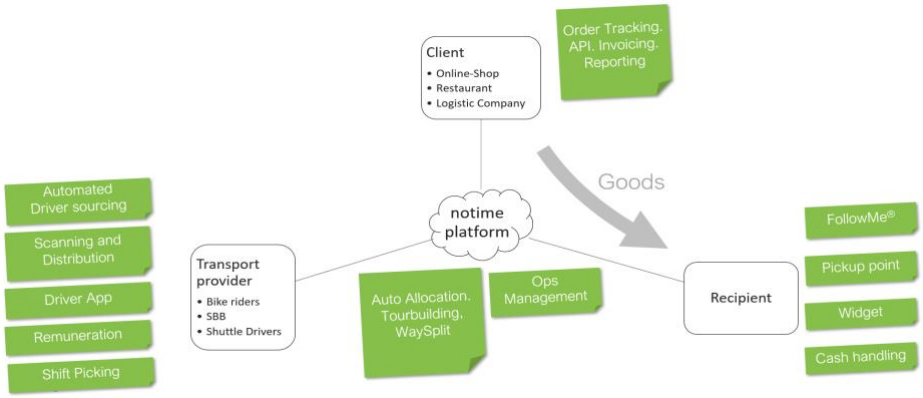
Abstract:
«Smart urban logistics» is a buzz-word in the field of urban transportation. The cities of Switzerland also have plans to develop logistic concepts based on newest findings and technologies. Working for a logistics startup, insights are given on how far this process actually is and what can be expected in the near future.

Short Bio:
Berko Sierau is head of research at notime AG, a Zurich based technology and logistics startup founded in 2014. The company is specialized in last-mile and same-day delivery, and runs a crowd-based logistics platform for e-commerce and food deliveries. Notime operates its own network of 400+ couriers in the eight largest cities of Switzerland.
Berko Sierau studied physics and became an atmospheric scientist with his diploma thesis at the Max Planch Institute for Nuclear Physics in Heidelberg and a PhD at the Leibniz Institute for Tropospheric Research, Leipzig, Germany. He stayed in the field for more than 20 years with positions at the University of Washington, Seattle, and the Institute for Atmospheric and Climate Science of ETH Zurich. In 2017 he turned 180 degrees and left academia for a position in the “young economy”, working on the topic of smart, sustainable urban logistics.

notime AG:
Notime AG is a Zurich-based IT / logistics company specializing in urban last mile deliveries. Founded in 2014, it grew very quickly to now 25+ employees. Swiss Post took a 51% ownership in February 2018. We run and develop an IT logistics platform that bundles e-commerce deliveries and automatically allocates them to highly optimized mini-tours. In addition, notime operates its own network of 400+ couriers in the 8 largest Swiss cities. E-commerce deliveries are done by (e-) cargobikes and other vehicles optimized for urban transport. Notime runs international company branches out of Minsk, Belarus, and Barcelona, Spain.
Besides, notime AG is strongly involved in the development and implementation of sustainable and innovative urban logistic approaches such as piloting microhub/cityhub solutions, e.g., for the cities of Zurich and Basel, and the testing of new technologies. Thus, stakeholder management includes public authorities as well as the private and academic sector.

- Customers (selection): Swiss Post, DHL, DPD, Brack.ch, eat.ch, Nespresso, JTI
- Academic partners and collaborators: ETH Zurich, ZHAW, Uni SG, Frankfurt University
- Others: SBB AG, Cargo sous terrain CST

Platform overview:



The three components of our computational “logistics-system” are fully integrated into and managed via the company’s in-house developed platform: a) the customer, b) the transport provider / fleet operation, and c) the recipient. The platform solution is crowd-based.

Optimization-based decision support for an express delivery carrier in China

Prof M. Savelsbergh
James C. Edenfield Chair and Professor and Co-Director Supply Chain & Logistics Institute, Georgia Tech

Abstract:
Customer expectations regarding parcel delivery continue to change. If next day delivery was a compelling offer a few years ago, today customers are looking for guaranteed next morning delivery and delivery within a few hours if it is within the city. Higher customer expectations and increased competition have created many challenges for parcel delivery companies and their efforts to maintain or grow market share. This is especially true in China. We discuss the development of optimization-based decision support tools for one of the largest express delivery companies in China. Optimization-based decision support tools are a critical component of the vision for a future service network that is both efficient and cost-effective.

Short Bio:
Martin Savelsbergh is the James C. Edenfield Chair and Professor in the H. Milton Stewart School of Industrial and Systems Engineering at Georgia Tech. Martin is an optimization and logistics specialist with over 20 years of experience in mathematical modeling, operations research, optimization methods, algorithm design, performance analysis, logistics, supply chain management, and transportation systems. He has published over 150 research papers in many of the top optimization and logistics journals and has supervised more than 25 Ph.D. students. Martin has a track record of creating innovative techniques for solving large-scale optimization problems in a variety of areas, ranging from supply chain master planning and execution, to world-wide tank container management, to service network design, to production planning, and to vehicle routing and scheduling. Martin has given presentations and short courses on optimization, transportation, and logistics in more than a dozen countries around the world.
Before returning to Georgia Tech in August 2014, he was Director of the Centre for Optimal Planning and Operations and Professor of Applied Mathematics at the University of Newcastle, Australia. He led the Business and Services Analytics research program in the Mathematics, Informatics, and Statistics division of the Commonwealth Scientific and Industrial Research Organisation (CSIRO) of Australia from July 2010 to October 2011.
He has been actively involved in many of the industrially sponsored research projects at The Supply Chain & Logistics Institute, including the development of dynamic load planning technology for Saia, a large LTL carrier, the development of cost-to-serve analysis technology for Praxair, a large industrial gas distributor, and the development of collaborative transportation procurement technology for Rubber Network, a conglomerate of tire companies.
Ongoing research projects that Martin is pursuing include innovations in last-mile delivery, advances in dynamic ride-sharing, methods for multi-objective optimization, and dynamic management of time-expanded networks.
Martin Savelsbergh was a founding partner of Axioma, Inc., a privately held company delivering state-of-the-art software solutions and consulting services for the financial sector (www.axioma.com).
Martin Savelsbergh is the Editor-in-Chief of Transportation Science, the flagship journal of INFORMS in the area of transportation and logistics. He has served as Area Editor for Operations Research Letters and as Associate Editor for Mathematics of Operations Research, Operations Research, Naval Logistics Research, and Networks. Martin has served as president of the Transportation and Logistics Society of INFORMS and is an INFORMS Fellow.