IVT – Assignments

Head: Prof. Dr. Kay Axhausen

Topic: Distributive effects of an E-Bike City

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Registration: www.ivt.ethz.ch/en/studies/downloads/assignments.html#registration

Multiple research groups at D-BAUG are exploring new ways for transport policy by testing the "E-Bike City" – an urban mobility future for Zurich and other cities. Its concept is based on allocating 50% of road space to sustainable modes such as cycling and public transit. Such a radical change may substantially improve the sustainability of urban transport, as well as the quality of life for many urban residents. It may also improve the travel of some groups by providing them safe and virtually free ways of moving around. However, other groups may suffer disadvantages due to longer travel, while having no viable alternatives to driving.

In this work, you will explore the E-Bike City's distributive effects on different groups of people. You will use a MATSim model to interpret the improvements and disadvantages faced by people living in different areas and having different sociodemographic properties. Building on existing literature on transport justice, equity and hurdles to cycling, you will evaluate the E-Bike City's contribution to not only sustainable but also equitable transport.

The tasks are (depending on final format/group size):

- Literature review on transport justice, equity, obstacles to cycling, and urban economy
- Creating a meaningful segmentation of population groups (e.g, location, education, income, etc.)
- Using an existing MATSim model to analyze the impacts on the different groups of people
- Evaluate the impacts in light of transport justice and social equity
- Propose adjustments to the overall design that would lead to better results
- For master thesis:
    o Model your proposed adjustments in 1-2 alternative scenarios and show how does equity improve
    o Perform a sensitivity analysis showing how do different assumptions about people's behavior affect the E-Bike City's equity

Recommended lectures and skills:

- Experience with MATSim

Credits: 8-24 ECTS