



## Master Thesis

### “Instruments for Sustainable Travel Behavior Influence”

Users face a vast array of choice variables when considering which mean of transportation to use to fulfill a particular travel need. A plethora of options are available, including personal motorized vehicles, personal non-motorized or electric vehicles, ride hailing (taxi) services, shared mobility (including but not limited to micro-mobility), and ride sharing, both using personal cars or services. Users additionally exhibit different utility functions, meaning users weigh their preferences for cost, time, sustainability (and possibly other factors) differently. Possible instruments to increase the share of sustainability that plays a role in the mode choice include political, financial, but also technological ones. Moreover, behavioral science, and psychology in particular, know about a wide range of tools and instruments that can be used to shape a user's behavior (think of nudging and gamification e.g.). What and how can we leverage (these) to push users toward a more sustainable travel behavior. Important: Not regarding adoption over time, but for one particular, short-term travel decision (i.e., mode choice between bike, scooter, public transport and car). The thesis consists of two parts: Part A is designing an experiment (online) that uses instruments found in the literature review and Part B evaluates the results of that experiment. The experiment design could be a survey with mock-ups or even a full-fledged A/B test in an app. Ideas include selection screen in multi-modal navigation apps with sustainability score (gamification) or sorting based on sustainability (nudging).

#### Relevant introductory literature includes (but is not limited to):

- Anagnostopoulou, E., Bothos, E., Magoutas, B., Schrammel, J., and Mentzas, G. 2018. “Persuasive Technologies for Sustainable Mobility: State of the Art and Emerging Trends,” *Sustainability* (10), p. 2128. <https://doi.org/10.3390/su10072128>
- Lind, H. B., Nordfjærn, T., Jørgensen, S. H., and Rundmo, T. 2015. “The Value-Belief-Norm Theory, Personal Norms and Sustainable Travel Mode Choice in Urban Areas,” *Journal of Environmental Psychology* (44), pp. 119–125. <https://doi.org/10.1016/j.jenvp.2015.06.001>

#### Key tasks and objectives of the thesis

- Review known instruments that influence users' choice behavior
- Evaluate the applicability for the given context of sustainability
- Design an experiment that uses one of the applicable instruments
- Conduct the experiment with the help of online survey tools and evaluate the results

#### Topics



- Urban Mobility
- Sustainability
- User Behavior

#### Methods



- Experiment Design
- Optional: Web / App Development
- Online Experiment & Evaluation
- Data Analytics

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