

Forget Data Analytics for Mobility – we need it for Accessibility!

Type of session:

The session will be a mix of invited impulse talks and break-out discussions, triggered by short statements of the participants

Duration

60-90 min

Short description of the session

Urban transport is a major contributor to human-induced climate change and the only sector not showing any sign of successful carbon reduction. Technological solutions such as more efficient vehicles or alternative propulsion systems are not able to achieve the required massive reduction in the ever-shrinking time frame for mobility transition or are merely shifting the problem to other sectors, especially the energy sector facing the same problem. Thus, there is a sharp necessity to change mobility behavior, as reductions that cannot be realized technologically must be compensated by sufficiency in transport – as much as really needed, as little as possible. This means that the focus should be changed from mobility (improving and optimizing getting around with transport services) to accessibility (improving and optimizing the possibility to reach essential destinations with as little motorized transport required as possible), e.g., by creating local mixed-use centers providing most if not all functionalities of everyday live. This would reduce the need for motorized transport to non-routine trips, which should consequently also be shared and made as efficient as possible.

Mobility is an essential human need, which implies participation in life and society and has been at the center of attention for decades, albeit predominantly in its motorized form. Beyond satisfying the needs, it also enables participation, progress and it is largely equated with freedom. Vice versa, limited mobility can also lead to social inequality or exclusion. At the same time, motorized mobility has made us more dependent on vehicles and energy supplies, and studies show that the correlation between transport growth and GDP growth is no longer given. Nevertheless, measures affecting personal mobility are often met with protest and insecurities, which make emotional dimensions important to consider when striving for mobility transition and sufficiency.

Transportation in cities is undergoing unprecedented change, such as by vehicle technology towards autonomous driving (disrupting mobility), sharing and integration platforms (ride-hailing, mobility-as-a-service), and urban logistics (changing shopping patterns). These trends have the potential to make mobility more environmentally friendly and land-saving by bundling transport services more efficiently, avoiding congestion and reducing traffic. Still, however, largely avoiding motorized traffic seems to be unavoidable in order to achieve the climate goals.

Critical to the success of transforming urban mobility towards climate neutrality is information provided to planners, operators, and travelers. Increasingly, this information can be produced based on data. This – in principle – can be supported by the massive amounts of data that are available from a wide variety of sources and collected under the headlines of smart cities, sensing cities, or IoT: In the domain of urban mobility, this massive data emerges from a range of sensor platforms, from infrastructure (CCTV, induction loops, people counters, WiFi, smart cards, air quality) to vehicles (GPS, vision, LiDAR, radar) and smartphones (GPS, location-based apps, accelerometer, gyroscope, magnetometer). A prominent trend, not only in transportation research, is the rise of deep learning methods for massive data analytics.

Future sufficient urban mobility will have to unlock the potential of data and data analytics; however, their development and use involve many still-open research questions, such as reliability, trust, privacy, and the interaction of humans with these systems, let alone the bigger question of social or ethical engagement in data-driven solutions. While many approaches count on transparency and economic aspects influencing mobility decisions (for example, through multimodal apps), the question is how regulatory interventions in mobility can be implemented in a socially acceptable way, for example, through mobility budgets.

Names and affiliations of team members that will lead the session

Monika Sester (Leibniz Universität Hannover, DE)

Alexandra Millonig (AIT Austrian Institute of Technology, AT)

Martin Tomko (The University of Melbourne, AU)

Stephan Winter (The University of Melbourne, AU)

Expected participation (i.e., who would be interested in attending your session)

Researchers from data analytics, transport, social sciences.