In shared space, all road users are encouraged to legally occupy the road space with little physical or visual separation. Complex social interactions that appear in these spaces create complicated ecosystems which make the estimation of future impacts difficult using classic modeling techniques. This study introduces a concept-based simulation framework to assess multi-modal transport systems. The value of travel time savings (VTTS) for these new services is assumed to be both significantly different from that of regular services and to have a strong impact on emissions and noise levels.

### ABMTRANS-2021-6: Methodology for Determining Charging Strategies for Electric Vehicles

**Title:** Methodology for Determining Charging Strategies for Electric Vehicles based on Charging Station Demand Dynamics

**Authors:** Sebastian Hörl, Aurore Sallard and Milos Balac

**Abstract:** This study introduces an autonomous ride-pooling service to six communities with varying population sizes and trip densities in the Munich Metropolitan Region. We investigate a laissez-faire scenario without additional policies, defining the modal shift through an incremental mode substitution trend, such as displacement and advancements of autonomous driving technologies, have led to large investments and a strong expansion of app-based ride-hailing services in recent years. In this study, simulation experiments are carried out for two regions in Germany: the metropolitan Berlin area and the rural area of the district of Brandenburg. The results show that the modal shift through autonomous ride-hailing services can significantly impact the urban transport system. The strong expansion of app-based ride-hailing services in recent years has led to large investments and a significant modal shift towards shared vehicle services. This study introduces a concept-based simulation framework to assess multi-modal transport systems. The value of travel time savings (VTTS) for these new services is assumed to be both significantly different from that of regular services and to have a strong impact on emissions and noise levels.

### ABMTRANS-2021-7: Agent-based simulation to assess the impact of electric vehicles on the power network: Swindon Borough Case Study

**Title:** Agent-based simulation to assess the impact of electric vehicles on the power network: Swindon Borough Case Study

**Authors:** Aurore Sallard and Milos Balac

**Abstract:** While electric passenger cars and their charging strategies are already in series production, battery electric trucks and their charging are still in the development phase. In this study, we assess the impact of electric vehicles on the power network in the Swindon Borough area, UK. The simulation framework is based on MATSim, a well-established transport simulation framework that is widely used in the scientific community. MATSim is a powerful tool for simulating multi-modal transport systems, but it is generally unable to provide support for large scale simulations as it is not designed to handle high computational demands. In this study, we enhance MATSim by integrating the external data converter to handle large scale simulations. The results show that electric vehicles have a significant impact on the power network in the Swindon Borough area, with high peak loads during charging periods.

### ABMTRANS-2021-8: Ride-Pooling Efficiency in Large, Medium-Sized and Small Towns - Simulation Assessment in the Munich Metropolitan Region

**Title:** Ride-Pooling Efficiency in Large, Medium-Sized and Small Towns - Simulation Assessment in the Munich Metropolitan Region

**Authors:** Felix Zwick, Nico Kuhiel, Rolf Moschek and Kay W. Archbauen

**Abstract:** This study introduces an autonomous ride-pooling service to six communities with varying population sizes and trip densities in the Munich Metropolitan Region. We investigate a laissez-faire scenario without additional policies, defining the modal shift through an incremental mode substitution trend. The results show that the modal shift through autonomous ride-hailing services can significantly impact the urban transport system. The strong expansion of app-based ride-hailing services in recent years has led to large investments and a significant modal shift towards shared vehicle services. This study introduces a concept-based simulation framework to assess multi-modal transport systems. The value of travel time savings (VTTS) for these new services is assumed to be both significantly different from that of regular services and to have a strong impact on emissions and noise levels.

### ABMTRANS-2021-9: The impact of trip density on the fixed size and pooling rate of ride-hailing services: A simulation study

**Title:** The impact of trip density on the fixed size and pooling rate of ride-hailing services: A simulation study

**Authors:** Ihab Kaddoura and Tilmann Schneider

**Abstract:** This study introduces an autonomous ride-pooling service to six communities with varying population sizes and trip densities in the Munich Metropolitan Region. We investigate a laissez-faire scenario without additional policies, defining the modal shift through an incremental mode substitution trend. The results show that the modal shift through autonomous ride-hailing services can significantly impact the urban transport system. The strong expansion of app-based ride-hailing services in recent years has led to large investments and a significant modal shift towards shared vehicle services. This study introduces a concept-based simulation framework to assess multi-modal transport systems. The value of travel time savings (VTTS) for these new services is assumed to be both significantly different from that of regular services and to have a strong impact on emissions and noise levels.

### ABMTRANS-2021-10: A concept-based agent-based simulation model to evaluate the impacts of a shared space network

**Title:** A concept-based agent-based simulation model to evaluate the impacts of a shared space network

**Authors:** Panagiotis G. Tsouras, Christos Karakousis, Efthimios Kadioussis and Konstantinos Kepaptsoglou

**Abstract:** This study introduces an autonomous ride-pooling service to six communities with varying population sizes and trip densities in the Munich Metropolitan Region. We investigate a laissez-faire scenario without additional policies, defining the modal shift through an incremental mode substitution trend. The results show that the modal shift through autonomous ride-hailing services can significantly impact the urban transport system. The strong expansion of app-based ride-hailing services in recent years has led to large investments and a significant modal shift towards shared vehicle services. This study introduces a concept-based simulation framework to assess multi-modal transport systems. The value of travel time savings (VTTS) for these new services is assumed to be both significantly different from that of regular services and to have a strong impact on emissions and noise levels.

### ABMTRANS-2021-11: Sensitivity of the urban transport system to the value of travel time savings for shared autonomous vehicles: A simulation study

**Title:** Sensitivity of the urban transport system to the value of travel time savings for shared autonomous vehicles: A simulation study

**Authors:** Benoit Leccasrea and Ihab Kaddoura

**Abstract:** This study introduces an autonomous ride-pooling service to six communities with varying population sizes and trip densities in the Munich Metropolitan Region. We investigate a laissez-faire scenario without additional policies, defining the modal shift through an incremental mode substitution trend. The results show that the modal shift through autonomous ride-hailing services can significantly impact the urban transport system. The strong expansion of app-based ride-hailing services in recent years has led to large investments and a significant modal shift towards shared vehicle services. This study introduces a concept-based simulation framework to assess multi-modal transport systems. The value of travel time savings (VTTS) for these new services is assumed to be both significantly different from that of regular services and to have a strong impact on emissions and noise levels.

### ABMTRANS-2021-12: Methodology for Determining Charging Strategies for Electric Vehicles based on Charging Station Demand Dynamics

**Title:** Methodology for Determining Charging Strategies for Electric Vehicles based on Charging Station Demand Dynamics

**Authors:** Martin Stahl, Jonathan M. Brandsma and Kay W. Archbauen

**Abstract:** This study introduces an autonomous ride-pooling service to six communities with varying population sizes and trip densities in the Munich Metropolitan Region. We investigate a laissez-faire scenario without additional policies, defining the modal shift through an incremental mode substitution trend. The results show that the modal shift through autonomous ride-hailing services can significantly impact the urban transport system. The strong expansion of app-based ride-hailing services in recent years has led to large investments and a significant modal shift towards shared vehicle services. This study introduces a concept-based simulation framework to assess multi-modal transport systems. The value of travel time savings (VTTS) for these new services is assumed to be both significantly different from that of regular services and to have a strong impact on emissions and noise levels.