

MEMO

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Trafikmodellers anvendelse for nye teknologier - Oslo studiet

The Norwegian transport authority Ruter has proactively wanted to illuminate their role in future transport. A traditional transport model is set up for the region of Oslo supplemented with a new MaaS module, which can describe future MaaS systems.

The purpose of this study is to illuminate a future where autonomous vehicles and MaaS-based car sharing schemes are dominant. MaaS stands for Mobility as a Service, which refers to a transportation system where users buy transportation assignments based on individual and current need, instead of using a standard transportation option. The study highlights the consequences of such a future for Oslo and Akershus municipality. Further the study investigates areas of parking demand, traffic flow, traffic congestion and transportation offer to residents of Oslo and Akershus.

There are disputes concerning the change the future holds, and the pace of the change. However, there is no doubt that technological advancement regarding autonomous vehicles and new MaaS concepts will challenge current transportation norms, infrastructure and city development.

Inspired by similar studies in other cities, especially the study from Lisbon has served as an inspiration. In the study we have carried out similar calculations for different futuristic scenarios for Oslo and Akershus. Like the Lisbon study, we have based the calculation from the current transportation demand. With knowledge of the trips in Oslo and Akershus, we have simulated a future with full implementation of autonomous vehicles in a shared fleet, with and without ridesharing. Thus, allowing us to assess isolated effects from future transport systems and transportation concepts.

In total 6 different scenarios were assessed for the possible future mobility. The scenarios distinguish on how we want to travel with the new MaaS-concept. Will residents travel alone or in shared trips with strangers? Further the scenarios are distinguished by which groups will adopt the new MaaS solutions. Will only car drivers adopt, or will also the buss and tram riders also shift towards MaaS solutions. More importantly, will the public transportation riders utilize a MaaS solution that makes public transportation riders more like current car drivers, or will they use a solution consisting of minibuses.

There are three different size of vehicles in the scenarios: small passenger cars which are used like private cars, larger passenger cars for use in ridesharing and minibuses that in some scenarios will replace current bus and tram services. We assume an optimal car fleet allocation to meet varying transportation demand. However, if there are multiple competing providers of the MaaS-services that are not coordinated, a suboptimal situation will emerge, likely leading to increased traffic compared to our optimal simulation result.

The scenarios assume that users, will act coherently as a group based on their modal choice, when choosing new transportation method. Either all public transportation riders will continue to use traditional public transport, or all public transportation riders will use MaaS solutions. Public transportation trips will either continue as today, with busses, trams, trains, metros or ferries, or only with metros and trains.

The calculations were done in PTV MaaS Modeller, which requires a PTV Visum model to function. The MaaS Modeller engine uses Visum for the simulation and for the presentation of results. The zone system, network and travel demand from the existing transport model for Oslo (named RTM23+), were imported into Visum.

The presentation will include the results from the study, like Network impacts (reduced or increased overall vehicle kilometres travelled – how will congestion change?), Operator impacts (what fleet will be required, what are the operating costs (fuel, driver hours, maintenance etc) and Customer impacts (how long will customers wait for a vehicle, will the journey times be acceptable, how many customers will be served? And how is the service compared with today's service?).

The presentation will focus on the modelling part of the project, and will done in Danish.