SUCCESS STORY

On-demand mobility in Norway’s capital

THE OSLO STUDY

ANALYZING THE IMPACT OF MAAS IN OSLO

There are many themes that are quite difficult to predict in traditional transport model forecasting. More and more people are using car and ride sharing, but measuring the exact adoption rate, how many people will switch and when, is difficult to predict. Inspired by ‘The Lisbon Study’, its Scandinavian equivalent, ‘The Oslo Study’*, explores the potential of Mobility as a Service (MaaS) concepts and autonomous vehicles for Norway’s capital.

Having simulated almost 300 forecasts with PTV MaaS Modeller, the software tool supports stakeholders to find a viable business model. Looking at road capacity challenges, the report’s four main scenarios analyze how shared on-demand fleets of autonomous vehicles can make traveling around Oslo smarter and more efficient. The study considers their integration with the existing public transport system and can serve as the basis for policy decisions regarding future mobility and infrastructure investments.

DEVELOPING A SUCCESSFUL MAAS BUSINESS CASE

The report covers the potential impacts that fleets of autonomous vehicles can have on the Oslo region’s network through an increase or decrease of vehicle kilometers traveled, the number of cars needed to cover the demand and the level of service provided to the customers.

When public transport remains strong and private vehicle users start sharing rides, vehicle kilometers, and therefore also traffic volume in general, can be reduced by 14% to 31%, depending on the detours of the autonomous vehicle fleets. Traffic, however, doubles in the scenario that has both public transport riders and car users switch to MaaS, despite the fact that self-driving cars are able to use road capacity more efficiently. MaaS alone is not enough. Its integration with an attractive public transport system and active modes of mobility is important. In the best case scenario, it is possible to serve the entire mobility demand during the morning rush hours with only 7% of the cars currently used, making 93% of them redundant.
RELIABLE FORECASTS WITH A STRONG TOOL

“Our algorithm within PTV MaaS Modeller produces an optimal solution by adhering to these three rules and ideals: Firstly, it minimizes the unserved trip requests to make sure everyone gets a ride. Secondly, it minimizes the fleet size required to serve the trip requests. Finally, it minimizes the objective function, which in the case of PTV MaaS Modeller, focuses on three elements: the operator performance (cost), the passenger level of service (convenience) and the city-wide social benefits (congestion/environment),” explains Paul Speirs, Regional Director and MaaS expert at PTV Group.

Planning the right infrastructure investment with the uncertainty that autonomous cars bring is challenging. Assuming the technology is there, PTV MaaS Modeller allows you to test, in parallel, many combinations of shared mobility operational assumptions. These can include, amongst many variables, the total shared mobility traveler demand, the vehicle fleet size, the maximum wait time for the traveler and the acceptable journey time detour for ride sharing. The combination of these variables, in turn, produce a range of possible future outcomes measuring results from one extreme to another and everything in between.

This allows you to understand the worst and most optimistic forecasts and to find confidence in the more likely outcomes. It also allows you to identify variables that have little or no impact on the business model and those variables that can be quite sensitive to change. Finding, for example, the balance between the most lucrative operator business model whilst providing a high level of service to the customer and also demonstrating positive effects on congestion is the challenge. If you test enough combinations and measure the performance through a smartly designed KPI framework, you will find an optimal solution to support your business model. It is this ability to prepare and simulate numerous forecasts that will lead to and support confident decision making. PTV MaaS Modeller allows you to do that.

*All findings are based on the report “The Oslo Study - How Autonomous Cars May Change Transport in Cities” conducted by COWI and PTV Group on behalf of Ruter, the Oslo region public transport company.