

# Speaker Profile

## Søren Frost

Transport Modelling Expert

COWI



Mr. Søren Frost is a Transport Modelling Expert, who has worked for COWI for nearly 20 years. Søren Frost's work covers development of transport models, ranging from large National multimodal traffic models to Urban traffic models and simulations models for private transport, public transport, freight transport, pedestrians, and bicycles. In addition, Søren Frost is covering general transport planning, transport master plans, traffic analyses, capacity analysis and planning of airports and ports.

In the last years, Søren Frost has been part of several projects towards how the new technologies impact on will future transport sector could be,

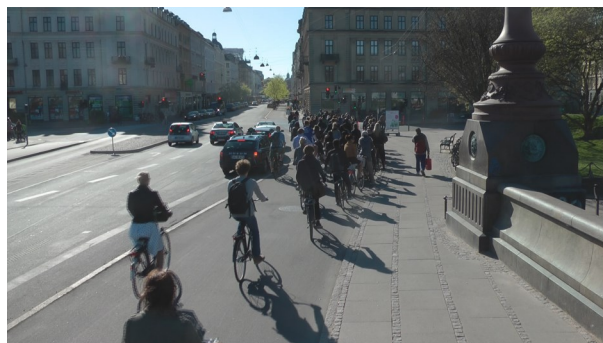
like micromobility, autonomous vehicles and Mobility-as-a-Service. The projects have covered research and analysis of the expected impact and consequences of new technology, new transport solutions, mobility, and autonomous vehicles.

Mr. Frost is PTV Vision Certified Trainer for the programmes VISUM, VISWALK, VISSIM and MaaS Modeller.

Mr. Frost has worked on several of COWI's large international assignments, providing a high level of professional expertise on projects in countries in the Gulf Region, Africa, Eastern Europe, and Northern Europe.

## What to expect...

In micro-simulations of road traffic, cyclists and pedestrians are often only involved in the models to ensure the right capacity for motorists on the road network. Here, for example, in the case of right-turning vehicles which are in conflict only with bicycles and pedestrians. If cyclists and pedestrians are not incorporated into these micro-simulation models, there is a risk that the capacity for car traffic will be overestimated. There is typically not much focus on whether the cyclists' behavior and capacity is reflected correctly in these models, as the focus is on the motorists. In cities, where the bicycle is used by many as the primary means of transport, cyclists can have a major impact on the capacity of the road network and at intersections. At the same time, increasing con-



gestion on the cycle paths and the desire for improved accessibility for cyclists, increased focus on optimizing the capacity of the cycle paths and improving travel time for cyclists. Under these conditions, micro-simulation models in VISSIM can be used to advantage to analyze the conditions for cyclists, which i.e., is illustrated in the guide for 'Micro-simulation of cyclists during rush hour' (2012), prepared for the City of Copenhagen by COWI.

Furthermore, the question is when it is necessary to carry out detailed VISSIM models regarding cyclists, when simulating capacity at intersections in areas where the volumes of cyclists are smaller than in e.g., Copenhagen. For the Danish Road Directorate, COWI has completed a analyze regarding

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in which the degree of detail it is necessary to build VISSIM models for micro-simulation and how much impact the number of cyclists has on capacity. Based on existing drone videos and the tool 'Data From Sky', COWI can extract parameters for bicycles and vehicles for use in testing micro-simulation in VISSIM and thus shed light on these conditions. Simulation is done in the micro-simulation tool VISSIM. Traffic simulations have been performed in two different models: a roundabout and a signal-controlled junction. Calculations have been made based on the volumes of traffic counted in the peak hour. After this, the traffic volumes for cyclists have been changed to test the conditions and demonstrate whether the presence of cyclists has an impact on the running of motor vehicles through the intersection.

The results from the project contributes recommendations for when, where and how it is appropriate to simulate the cyclists in VISSIM at different levels of detail, what data basis should be used when and what significance the level of detail has on the results of the simulations. The purpose of the supplement to the weather rule is that the task setter is guided in the best possible way according to his needs and resources, and that the model builder solves the task accordingly. Thus, the supplement to the weather rule can contribute to a more optimized implementation of capacity analyzes using micro-simulation models.