Using MATSim in Strategic Rail Supply Planning – Applications of SIMBA MOBi

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Since 2017, the Swiss Federal Railways (SBB) have started using MATSim, and Activity Based Modelling as a whole. While initially a lot of investments have been made in extending and adapting the model to the company's needs, such as by including a more versatile public transport router and HERMES, a speedy alternative to the QSim, the model is now in a phase where its application is the focus. In this talk, we will give an overview about some applications where we think that the agent-based approach has proven to be useful.

The pandemic has strengthened the trend of working remotely, mostly from home. This results in fewer passengers taking trains and people re-considering whether to keep their public transport subscriptions. MATSim and the agent-based activity planning can be used to re-schedule an agent's activities around a workplace that has shifted towards their home location. This allows an evaluation of the long-term effects on public transport demand.

A second set of applications is the development of new residential and industrial areas and their link with public transport. In such developments, agents get assigned new home or work locations in such areas. The presence of these new residents and visitors has an impact on parking pressure, vehicle access times, traffic congestion and public transport demand. Different concepts for an optimal public transport supply in such areas can thus be efficiently evaluated.

Finally, we present an approach of efficiently analyzing the passenger flow at different public transport hubs. These analyses, which show in detail the transfers both between rail and intermodally, have become an important aspect for infrastructure planning in the railway network and are directly derived from model data.