Modeling Driving behavior in relation to ITS and human factors

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Especially the density of provided information as well the nature of this information may be assumed to have a substantial influence on empirical driving behavior (route choice behavior, lateral and longitudinal driving behavior) . For example, it can be assumed that optimal information provision may actually improve driver performance and network performance (including safety aspects), while information overload may increase the complexity of driving conditions.

Microscopic simulation models are an indispensible tool in the ex ante evaluation of the effect of ITS on traffic flow, traffic safety and greenhouse gas emissions. However, in order to acquire an adequate representation of this effect we need mathematical models able to describe adaptation effects in driving behavior following the implementation of ITS.

My research therefore focuses on modeling adaptation effects in driving behavior (route choice, lane changing, car-following) connected to human factors (driver characteristics, perception, driver distraction, driver workload) in relation to Intelligent Transport Systems. My research has shown that current mathematical models are less adequate in representing changes in driving behavior in relation to ITS as current models insufficiently incorporate human factors. New models incorporating human factors are desperately needed to adequately describe the influence of new technology on traffic flow, traffic safety and greenhouse gas emissions.