Title: Impacts of ITS in different transport modes

Risto Kulmala¹, Anna Schirokoff²

Authors: ¹Finnish Transport Agency, ²Finnish Transport Safety Agency TRAFI

Email: risto.kulmala@gmail.com, anna.schirokoff@trafi.fi

Keywords: Impact, evaluation, ITS, intelligent transport, road, rail, maritime

Background

Today, with decreasing public budgets, transport system managers and operators need to employ the most cost-efficient tools to deal with transport problems and maintain the requested level of service to journeys and transports, to travelers and hauliers. In order to utilize also ITS services and tools for such purposes, we need to know what are the impacts of the different ITS services and systems.

Aim

The main aim was to investigate current knowledge on the effectiveness of traffic management, especially on safety but also on the fluency of traffic, the environment such as CO₂ emissions, and energy consumption.

Method

This study covered road, railway and maritime traffic, and was carried out by VTT Technical Research Centre of Finland. Only traffic management practices considered relevant to Finnish circumstances were considered. The main research method used was literature review. Additionally, two group discussions (one on railway traffic and one on maritime traffic) were conducted.

Results

The effects of some road traffic management practices are fairly well known, whereas few studies have been conducted on the effects of other traffic management practices. Most evaluations merely cover the safety effects of different systems and services. Not a lot of information is available on the effects of traffic management on safety, fluency and environment in railway traffic. The only exception is the management of encounters between railway and road traffic. The research in this field chiefly includes studies on the safety effects of measures implemented for level crossings. Few if any quantitative results can be found on the effects of traffic management practices on maritime traffic. The results of available studies vary significantly and are mostly based on risk analysis conducted prior to the implementation of specific traffic management practices. International studies cannot be directly applied to Finland because of differences in the operational environment and prevalent circumstances.

Conclusions

As a conclusion, the experts in the Finnish Transport Agency identified the gaps in the knowledge needed especially in the light of the likely deployments in ITS services and systems up to 2020. This action produced a short list of evaluation studies, which need to be initiated as soon as possible as well as those, which need to be carried out during the next years.