



ICT applications on the road to sustainable urban transport

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Abstract

This paper addresses the impact of information and communication technology (ICT) on sustainable transport by examining the direct application of ICT in urban transport. Following a discussion of various negative externalities of transport, the paper examines the extent to which existing and potential ICT applications in the transport sector can assist in making urban transport more sustainable than it is at present. The focus of analysis is on qualitative and quantitative impacts of several ICT applications on travel behaviour (including fatalities), factors that influence adoption, and impacts of adoption including potentially secondary effects. The literature suggests that ICT innovations are most effective in fatality reduction, but it seems that these are also quite effective in reducing fuel consumption through fuel-intelligent vehicles.

Keywords: Information and communication technology; Urban transport; Sustainability; Excessive driving; Congestion relief; Fatality reduction; Fuel-intelligence.

1. ICT applications and the road to sustainable transport

Car traffic in urban areas uses 50% more energy than car traffic in non-urban areas. Therefore, it makes sense to specifically focus on urban transport in the context of the need for an increased sustainability of transport. Various technology options are open to bring sustainability aims in transport nearer, like the use of electric vehicles, hybrid vehicles deriving electricity from hydrogen operated fuel cells or batteries, and the use of vehicles that are cleaner and more efficient in using fossil fuels. Many studies are devoted to the energy road towards sustainable transport, but only a few are concerned with the use of novel ICT applications.

This paper addresses the role of information and communication technology (ICT) in supporting urban transport to become more sustainable. It examines potential

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