C-ITS Platform
WG9: Implementation issues
Topic: Road Safety Issues
1st Meeting: 3rd December 2014, 09:00 – 13:00

Venue: Rue Philippe Le Bon 3, Room 2/17 (Metro Maalbek)

Draft Agenda

1. Welcome & Presentations

2. C-ITS and drivers. HMI
   - Presentation
     Input on the work carried out within HMI working group of the iMobility forum
   - Discussion
     On the basis of the questions posed in the working document, identification of the issues to be tackled in relation to HMI

3. Working Group programme

   Discussion and agreement on the prioritisation of safety topics related to the development and deployment of C-ITS which should be dealt within WP9 such as:
   - Interaction with the driver. HMI
   - Impact of C-ITS deployment on non-equipped users
   - Accident causation and C-ITS
   - Road safety research needs
   - Driver training and behaviour

4. Conclusion, follow up and next meeting
Road Safety: Driver distraction and Human Machine Interface

1. Introduction

This document is intended to introduce and guide the discussion of WP9 concerning the consequences of C-ITS deployment for the interaction between the driver and the vehicle. In particular the discussion will focus on the consequences for the vehicle HMI and on the need and opportunity to update the Commission Recommendation on a European Statement of Principles for Human Machine Interface.

2. The problem of driver distraction

Drivers need to keep their attention focused on surrounding traffic at all times, not just for their own safety but for the sake of their passengers and other road users too. When road users move through traffic without paying attention the risk of a crash increases. According to accident causation research driver distraction is one of the most common accident factors.

Distraction can include simple things like eating, talking or paying attention to things on the roadside or to the car's passengers instead of to the road. Moreover, car interfaces are becoming increasingly complex, sometimes including touch-screens for options requiring driver attention in addition to the widespread use of stand-alone devices (e.g. smartphones or GPS navigators). A classification of distraction sources is shown in the box below. It is logically concluded that an increased presence of distracting devices will lead to increased number of road traffic crashes caused by distracted and inattentive road users, unless countermeasures are taken.

Distraction can be classified into three categories: visual distraction, that make people take their eyes off the road, cognitive distractions that cause people to think about other things than the surrounding traffic; and manual distractions that cause drivers take their hands off the wheel or the motorcyclists and cyclist the hands off the handle bar. The question is how to help road users avoid these distractions and remain alert and attentive to the road traffic around them.

In 2009, the EU-funded studies on the regulatory situation in the Member States regarding nomadic devices and their use in vehicles¹ and on car telephone use and road safety² completed a first overview of the regulations in force at that time in the EU Member States regarding technical distractions affecting car drivers. The DaCoTA project³ also contributed a first study on main aspects of driver distraction risks.

³ www.dacota-project.eu/index.html
3. **Driver distraction and the vehicle human-machine interface**

Drivers are responsible for being attentive and concentrated on the driving task and this is not going to change in the near future. Therefore it is essential that drivers are trained and made aware about the dangers of distraction and about the limitations of the human mind to handle various tasks simultaneously.

That being said, an adequate design of the systems that provide the driver with information or feedback of any kind can contribute to reduce the risk of the driver being distracted to the point of compromising safety. This is the aim of the research and development in the area of Human Machine Interface.

4. **The European Statement of Principles for the Human-machine Interface (ESoP on HMI)**

The European Union had considered the issue of HMI in various policy documents already in 1997. For example, the Communication on the deployment of road transport telematics\(^4\) considered HMI as one of five priority domains for action by the European Union (then European Community).

As a result of this impulse and the work that followed the European Commission adopted in 1999 a series of recommendations for designing a user interface. They were compiled and published by the Commission as the European Statement of Principles (ESoP) on Human Machine Interface (HMI) for in-vehicle information and communication systems\(^5\). These recommendations were updated in 2006 and subsequently published as a Commission recommendation in 2008\(^6\).

The ESoP is intended to inform the design of in-vehicle information and communication systems to ensure that these systems do not compromise safety when interfering with the driving task.

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\(^4\) COM(97) 223 of 20 May 1997

\(^5\) C(1999) 4786 Commission recommendation of 21 December 1999 on safe and efficient in-vehicle information and communication systems: A European statement of principles on human machine interface

5. **Scope and structure of the ESoP on HMI**

The principles included in the ESoP on HMI apply primarily to in-vehicle information and communication systems intended for use by the driver while the vehicle is in motion. They are intended for systems fitted by OEM and also aftermarket (retrofitted) systems, as well as to nomadic devices. Some systems or technologies such as ADAS or head-up displays are explicitly excluded from the scope, although some of the principles may also be of application. The principles are intended for vehicles of types M (passenger transport) and N (transport of goods).

The principles are classified under six headings:

1. Design
2. Installation
3. Information presentation
4. Interface with displays and controls
5. System behaviour
6. Information about the system

6. **Revision of the ESoP on HMI**

Many technology developments affecting vehicles have taken place since 2008. The vehicles are equipped with new functions, like the various driver assistance systems which have also brought new forms of feedback. These include head-up displays and tactile (haptic) signals sent to the driver via the seat, pedals or steering wheel. In the near future, the development of cooperative systems will increase the possibilities to provide information to the driver, particularly concerning surrounding traffic. It appears then necessary to analyse the ESoP and decide whether it requires a revision with the aim of adapting it to the latest developments in technology.

HMI Working Group created under the framework of the iMobility forum, an initiative by the European Commission and relevant stakeholders, has been active on the updating of ESoP on HMI.

The objective of the WG-HMI is to “review the state-of-the-art and the technological progress made since the adoption of the ESoP to verify whether the ESoP’s scope is still suitable or needs enlargement. Based on the consensus, the WG-HMI will conclude whether an update of the ESoP (2008) can be recommended or not and will develop a revised scope statement. The WG also aims to recommend a process whereby any necessary update can be achieved.”

7. **Scope of the work of the C-ITS platform WP9**

The Working Group is required to provide stakeholders’ view concerning the possible review and update of the ESoP on HMI, particularly in the light of the undergoing and future development of cooperative ITS systems. The Working Group is not requested to work on the concrete update of the ESoP. The discussion should take as a basis the work already done by the HMI group of the iMobility Forum.

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7 [www.imobilitysupport.eu](http://www.imobilitysupport.eu)
The Working Group is requested to address the following questions for discussion:

- How does the development of C-ITS influence/affect safety?
- What are the additional sources of distraction?
- Is the HMI statement of principle an effective instrument?
- Is the HMI statement of principle still relevant in view of the technological developments?
- Are elements missing? Is an update of the ESoP necessary?