

eSafety WG-HMI meeting : 2009/2
EC Commission, Building BU 33
Brussels, 16 April 2009

Introduction

This was the second meeting of the re-convened Working Group on Human Machine Interaction. It was chaired by Dr Alan Stevens (Transport Research Laboratory, UK) and Dr Christhard Gelau (BASt, Ge) and attended by approximately 40 persons.

Opening

Alan Stevens opened the meeting and Wolfgang Hoefs (EC) welcomed participants and briefly noted that the ITS Action plan adopted in December 2008 has amongst its 24 proposed actions "Development of a regulatory framework on a safe on-board human-machine-interface and the integration of nomadic devices, building on the European Statement of Principles ...". He clarified that a regulatory framework could include three "levels": a Recommendation (the current ESoP status), a Directive to be transposed into national laws and/or a Regulation which would apply immediately.

The draft notes of the 1st WG-HMI meeting on 28th January were accepted. Alan Stevens reported on the eSafety Steering Group Meeting of 18th March. Concerning the HMI Group he was questioned about the commitment of industry to the group and replied that they were very much involved. It was announced that the previously intended small activity by ERTICO on ESoP guidelines had been cancelled. It was also reported that the Nomadic Devices Forum Working Group will complete its final report and will shortly finish its activities. Thus, the issues of safe fixing and of MoU concerning ESoP will remain open.

Wolfgang Hoefs reported on the eSafety Forum meeting on 23rd March. He noted that the future name, structure, and means of working of the eSafety Forum were under discussion and one possibility is being renamed to the eMobility Forum (although it was suggested that there may be another group by this name).

Activities of Expert Teams and preliminary discussion

As was agreed at the previous meeting a series of Expert Teams had been established, each with a Champion and focusing on a key topic area related to the ESoP. Since the previous meeting, the Champions had received comments and contributions from some members of the WG and had prepared short presentations to facilitate discussions.

Some clarification of the original intention of the ESoP was provided by Lutz Eckstein (BMW): The ESoP is intended to inform designers of in-vehicle information and communication systems; one motivation being to ensure that drivers are not overly-distracted. Thus it focuses on (so called, but difficult to define) “secondary tasks” and not the whole vehicle HMI. It focuses on design and is not intended to evaluate HMI which typically involves usability, effectiveness, acceptance and controllability issues.

Some initial discussion concerned the criteria through which development of the ESoP should be guided. One proposal was the proven existence of a safety issue; i.e. that development should take place only when a safety issue is unambiguously identified. This was generally accepted although some thought that development should be considered if safety problems are reasonably be expected and, anyway, the identification of a safety problem was a difficult issue. As a second criterion it was proposed that there should be sufficient development of the state-of-the-art, i.e. that there is a sound scientific basis available. The parallel was drawn with standards activity which needs a good scientific basis for development.

Presentations were made with only clarification questions in the morning and the topics were further discussed in the afternoon, moderated by Christhard Gelau. For clarity in these notes, both discussion sessions per topic are combined.

Scope of systems and functions (Champion: Ana Paul, CTAG, Spain)

Some new technologies, such as head-up displays and voice activated controls are currently excluded from the ESoP. This topic is considering the range of technology currently covered by the ESoP and, bearing in mind the state of knowledge, the prospects for broadening the scope.

Ana Paul presented example technologies for consideration including head-up displays, voice-activated controls, night vision, haptic interfaces, driver warnings, driver assistance systems, co-operative systems and eco-driving.

The point was made that the scope should be related to functionality and driver tasks more than to (hardware) systems. The current ESoP is a little bit inconsistent in this regard and the scope should be made clearer.

It was generally accepted that driver assistance systems require different HMI considerations than information systems (e.g. demanding attention rather than not being distracting) and that the RESPONSE Code of Practice exists for ADAS. However, the point was also made that, increasingly, IVIS and ADAS will share common HMI, and there could be challenges ahead in this regard.

It was agreed that including new functionality or systems without sufficient state-of-the-art knowledge could impede innovation. Clearly, some knowledge exists as there are systems on the market but is this sufficient? The overall consensus was that it was probably too early to be design-specific about HUD, night vision, voice input and haptic systems. Co-operative systems that provide information are probably already included (as it is the HMI rather than the source of the information that is important in the ESoP). For eco-driving systems, the issue of inclusion depends on the function: information being already included but warning and assistance being excluded.

Vehicle Categories (Champion: Aline Delhaye, FEMA, Belgium).

The current ESoP is concerned with vehicles of type M and N and explicitly excludes motorcycles. Indeed, the perspective is from a vehicle that has a passenger compartment.

Aline Delhaye made a presentation from the perspective of motorcyclists and two-wheeled vehicles. She pointed out that the motorcycle does not have a dashboard/windscreen so secure fitting is a different concept and the field of view is also very different.

Two main issues were highlighted:

(1) From the perspective of the motorcyclist or other vulnerable road user, there is too much emphasis on the safety of the driver and the ESoP could be strengthened, perhaps by additional examples, to emphasise the characteristics of other road users and their interaction with the drivers. This point was generally accepted by the group.

(2) Whether the ESoP should be extended, or a separate ESoP constructed to deal with motorcyclists was a different issue. As noted above, many of the basic concepts are different. The SAFERIDER project will be investigating use of technology on two-wheeled vehicles and will be developing guidelines for HMI design towards the end of 2010. It was therefore suggested, and generally agreed, that the ESoP should continue to exclude motorcycles but that this could be re-examined as more scientific knowledge and practical experience (in particular from the SAFERIDER project) becomes available.

In further discussion, and concerning trucks, Johan Engström from Volvo expressed the view that the ESoP was suitable in its present form. Buses are also currently included and Stig Franzen noted that the European Future bus project was developing and evaluating new services for professional drivers which could shed light on further detailed requirements in this area towards the end of 2010.

Verification and Criteria (Champion: Marika Hoedemaeker, TNO, The Netherlands, Petr Bouchner, CTU Prague, Czech Republic, and, Katia Pagle, ICCS, Greece).

The ESoP contains relatively high-level design goals but deliberately avoids simplistic pass/fail criteria. Therefore, although the ESoP assists designers, it is not currently possible to decide objectively if a specific device is in accord with the ESoP. A key question is whether such an objective process is desirable, necessary or possible.

Petr Bouchner reported on contributions received and discussions since the last meeting on this very controversial topic. He said that both “Yes” and “No” responses had been received but there was concern that any verification should not be abstract or subjective or constrain innovation. Andreas Weimper said he has made an evaluation of NDs against the ESoP using internal criteria but that this was still difficult and subjective.

It was agreed that for an EC Recommendation (the current ESoP status) strict verification criteria are not necessary but for a Directive or a Regulation they would be required. It was noted that the AAM Guidelines and the JAMA guidelines do have some specific criteria; however, the philosophy of those documents are somewhat different from that of the ESoP. A current German national project, CAR-USE is investigating an HMI rating system.

It was agreed that there would be a significant difference between the ESoP, which provides assistance in design, and a document whose objective was to facilitate verification and certification. If such a document was required then one possibility suggested was to exploit the recognition of ESoP with a separate “ESoP-Select” document containing those aspects of the ESoP (such as safe fixing) where verification was more tractable, although possibly elements not in the ESoP would also be required for an overall HMI assessment. This would be a new document (of, as yet, undefined status) that could provide the technical basis for an assessment mechanism to provide certification and/or consumer information.

Safe Fixing (Champion: Theo Kamalski, TomTom, Germany).

The presentation described work in the Nomadic Devices eSafety Working Group including a possible roadmap for future development of in-vehicle fixings and communication to other on-board functions. The ND Group planned to meet shortly to develop their final report with a roadmap and recommendations and it

was anticipated that a draft could be available for discussion by the next WG-HMI meeting on 30th June.

The future possibilities include:

- Development of tests for external or self-certification of safe fixing
- A database of vehicles, safe fix locations and instructions
- A "Navi-Fix" standardised interface
- Standardised short-range communication interface

It had previously been noted that the ESoP refers to dashboard fixing whereas many devices are now fixed to the windscreen. It was suggested that there should be consensus that the obstruction of drivers' field of view cannot be accepted and, indeed, this appeared to be agreed by the group. It was also noted that there is cross-linkage between fixing position and other issues such as text size/readability.

In discussion, it became clear that the OEMs did not see the need for certification of safe fixing since they were responsible for the HMI in-vehicle design as a whole. However, they accepted that ND manufacturers may want to pursue certification themselves and/or in discussion with the EC, but that this was a separate issue from ESoP development. The final position of the ND manufacturer community on certification will be described in the ND Forum final report.

Misuse and Manipulation (Champion: Christhard Gelau, BAST).

Misuse and manipulation by drivers is raised in the ESoP by statements such as "should be made impossible to interact with by driving" and covers functions such as TV/DVD/gaming/internet access. There are also links to driver training and the Recommendations on Safe Use.

Christhard Gelau presented extracts from the ESoP/RSU and discussed the use cases being considered by the eSafety working group on eSecurity. His conclusion was that with the current scope of the ESoP, its intention and clarity concerning misuse and manipulation was perfectly clear and sufficient. However, he suggested that if the scope is expanded than these issues may need to be examined again.

In discussion it was clarified that internet access per se was not a problem (e.g. to update mapping information) but it was distraction caused by unrestricted HMI access to the internet that was the focus of safety concern.

International Harmonization (Champion: Wojciech Przybilsky, Motor Transport Institute, Poland).

The ESoP is relevant to vehicles operating in Europe. However, for vehicles from Japanese manufacturers, the JAMA guidelines apply. There are also Alliance guidelines in the US which concern OEMs (not aftermarket).

Wojciech Przybilsky discussed these different approaches and noted that contributors were willing to seek International /Intercontinental/ Global harmonisation but the route was unclear and probably needed an international mechanism and some funding. Possible routes were the UNECE WP29 and the eSafety Intercontinental Working Group and further investigation was required.

International co-operation and exchange also takes place at an ISO level. However, it can be questioned if this is the right forum for the harmonisation for the ESoP, JAMA-Guidelines and AAM-Guidelines.

Driver Training (Champion: Mirko Novak, CTU Prague, Czech Republic).

Mirko Novak had not received any input since the last meeting and presented some research ideas concerning the provision of bio-feedback to drivers. He suggested that more work was required and that professional drivers would be the most suitable first participants.

The application of this work would be to better prepare drivers to handle in-vehicle information whilst driving safely. However, the implications for ESoP development were not clear or immediate.

Next Actions and meeting close

Meeting notes and presentations should be available within two weeks of the meeting. All participants are invited to send Topic Champions any further comment and contributions.

The Co-Chairs will develop a pro-forma of questions for each topic area. The topic Champions will complete these in 1-2 pages which critically review the ESoP with respect to revision by 15th June and the Co-Chairs will circulate a harmonised document in time for discussion at the next meeting.

For the next meetings of the WG HMI the following dates are fixed in the eSafety Support calendar: June 30 2009 and September 08 2009. If no other information is given the meeting place will be in Brussels.

Christhard Gelau closed the meeting by thanking the EC as meeting host, all the participants and, particularly, the topic champions.

Annexes

- Annex 1: Meeting participants
- Annex 2: Topic Champions
- Annex 3: Presentation on Scope by Ana Paul, CTAG
- Annex 4: Presentation on Vehicle Categories by Aline Delhayé, FEMA
- Annex 5: Presentation on Safe Fixing by Theo Kamalski, TomTom
- Annex 6: Presentation on Verification and Criteria by Petr Bouchner, CTU Prague (plus contributions from Marika Hoedemaeker, TNO and Katia Pagle, ICCS)
- Annex 7: Presentation on Misuse and Manipulation by Christhard Gelau, BAST
- Annex 8: Presentation on International Harmonization by Wojciech Przybilsky, Motor Transport Institute, Poland
- Annex 9: Presentation on Driver Training by Mirko Novak, CTU Prague