

**SIXTH FRAMEWORK PROGRAMME
PRIORITY 1.6.2
Sustainable Surface Transport**



**INFRASTRUCTURE AND SAFETY
(IN-SAFETY)**

506716



Amsterdam Workshop Minutes

Amsterdam, April 6th 2006

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Plenary presentations Thursday morning

1. E. Bekiaris (CERTH/HIT): Opening

The IN-SAFETY coordinator, Dr. Evangelos Bekiaris, welcomed the audience and made a short overview of the aim and programme of the workshop.

2. T. Pemberton (West Sussex County Council): The perspective of local authorities on road safety

The relevant presentation follows in Annex A.

Mr. Pemberton showed the roles the local authorities, and in particular his own, take to address road safety. He put a stress on the importance of cooperative systems. He also noted that the navigation systems should be correct and the traffic signs harmonised.

He also gave some information on the POLIS working group on road safety, whose role is to exchange experiences and disseminate good practices, in order to reduce differences across Europe.

He pointed out that road safety is ruled by the three “E”s: Education, Engineering and Enforcement, as well as a fourth one, which is the Evaluation of the previous three.

Finally, he gave an example road safety measure that is applied in West Sussex. They run a one-day assessment course for motorcyclists, aged from 17 to 74 years old. The course combines class lessons with on-road assessment with professional police motorcyclists.

3. Wolfgang Höfs (European Commission; DG Information Society and Media. ICT for Transport): Vehicle to infrastructure co-operative safety systems in the Intelligent Car Initiative

The relevant presentation follows in Annex B.

The background and the aims and activities of the Intelligent Car Initiative (e-Car) were shown by Mr. Höfs.

Dr. Bekiaris asked about the provisions regarding clean vehicles in FP7. Mr. Höfs replied that the INFISO program within FP7 includes clean vehicles as well. He also mentioned that the INFISO work program for 2007-2008 is currently being prepared. Five workshops are going to take place, whose topics would be cooperative systems, mobility, etc. Within these workshops, experts are discussing the research needs in various topics. These discussions will be documented and their results and decisions are going to be published in May 2006.

4. E. Bekiaris (HIT): IN-SAFETY project: Towards road fatalities reduction through the enhancement of forging and self-explanatory roads

The relevant presentation follows in Annex C.

Dr. E. Bekiaris of CERTH/HIT gave an overall presentation on the IN-SAFETY project. The main objectives of the project were presented, together with some first results of the work performed in each WP.

Presentation 3 and 4 were given in the reverse order for practical reasons.

5. A. Dijkstra (SWOV): Influencing Route Choice: Tools and Models

The relevant presentation follows in Annex D.

Operationalisation of Sustainable Safety is explained and the criteria for SuSa in terms of the types of roads to be used, the succession of roads for a trip etc.

6. T. Benz (PTV): Modelling Safety

The relevant presentation follows in Annex E.

The domain and aims of macroscopic models and microscopic models in In Safety are presented..

7. P. Simlinger (IIID): Telematics for self-explaining road environments

The relevant presentation follows in Annex F.

The In Safety approach for signs for self explaining roads and harmonisation is presented.

A question was posed about the requirements for VMS that are being taken into account. Mr. Simlinger answered that there are European Standards that are being followed. The new signs that are being produced within IN-SAFETY are focusing upon future technology.

8. K. Brookhuis (TUD): Scenarios for hazard signaling to avoid accidents

The relevant presentation follows in Annex G.

18 different measures were presented to address the safety hazards identified in Germany (as an example). The measures were classified as in a vehicle, infrastructure, or cooperative in-vehicle and infrastructure based. These measures were scored earlier on the criteria per stakeholder group, by several members of the Consortium.

Multi Criteria Analysis session Thursday afternoon

9. *V. Marchau (TUD), K. de Brucker (VUB), C. Macharis (VUB), L. Walta (TUD): Multi Criteria Analysis (MCA). Safety measures*

The relevant presentation follows in Annex H.

10. *A: Determining the weights*

First the stakeholder groups “Users” (10) and “Authorities and Society” (11) determined the relative weights of the criteria via pairwise comparisons. Then the “Manufacturers” (5) determined their relative weights.

Data collection: criteria weights

Introduction

To perform the multi-criteria analysis, the weights that stakeholders attach to the different criteria had to be elicited. This was performed during a workshop of the In-Safety project, parallel to the 2006 Intertraffic trade fair in Amsterdam. The workshop hosted about 80 people, half of which were partners of the In-Safety project. After some presentations introducing and giving backgrounds on the In-Safety project, the room was rearranged to facilitate a *Group Decision Room* (GDR) session. A GDR consists of a network of computers running *Group Systems* software, which enables the participants in the session to anonymously give their opinion, and be heard without having to draw the attention to oneself. The GDR facility is generally used when a group of people have to decide on a specific issue. In this workshop it was used in order to have real time results on stakeholder preference for criteria, and to have an anonymous brainstorm session on the validity of the proposed criteria.

Participants

The stakeholder groups the criteria should be assessed for were the user, society/authorities and manufacturers. The starting point was to include visiting participants of the workshop only, but as these were mainly representatives of the society/authorities, also In-Safety partners were invited to join. Few representatives of user organizations (motoring clubs, etc) were attending, so people were asked to represent themselves as a user (car driver). Some participants represented more than one stakeholder group in the session. Table 1 shows the number of participants for each stakeholder group.

Table 1 GDR session participants

Stakeholder group	Participants
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User	7 car drivers 1 fleet owner 1 other Total: 9
Society/authorities	5 road managers 3 policymaking 1 enforcement 2 other Total: 11
Industry	3 equipment manufacturers* 3 system providers* 1 car manufacturers Total: 7
Total	27

* The terminology “equipment manufacturers” and “system providers” might not have been clear enough to make a distinction between these. Originally “service provider” was meant where the term “system provider” is used.

Tasks

As has been mentioned above, there were two tasks to be performed by the stakeholders, including a survey on criteria weights and a criteria validation session. The approach and the results of these tasks will be discussed in the next two paragraphs.

Survey and results

Each stakeholder had an own set of criteria to be weighed. This task was performed by pair wise comparisons of the criteria by which the importance of one criterion over another had to be given on a nine point scale varying from Equal (1) to Extreme (9).

The questions were presented to the participants as depicted in figure 1 and 2. To facilitate the task and to make it provide the right results for weight computation, the questions were split up in two (opposite) pair wise comparisons. First, it was asked if the stakeholder considered one criterion to be more important than another. If the answer was yes, the next question came to the front which asked how much more important the criterion is to the other on a 9-point scale (Figure 1). If the answer was no, the second next question came to the front which reversed the order of the criteria (Figure 2).

2. Is "driver comfort" more important to you than "full user cost"? Y N
 Select either Yes or No.
 {Skip to Q. 4 for No}

3. To what extent do you consider "driver comfort" more important than "full user cost"? 1-----9
 Equal/Extreme importance of one criterium over another (9-point)
 Equal (1), Equal to Moderate (2), Moderate (3), Moderate to Strong (4), Strong (5), Strong to Very Strong (6), Very Strong (7), Very Strong to Extreme (8), Extreme (9)
 {Skip to Q. 5}

4. To what extent do you consider "full user cost" more important than "driver comfort"?
 Equal/Extreme importance of one criterium over another (9-point)
 Equal (1), Equal to Moderate (2), Moderate (3), Moderate to Strong (4), Strong (5), Strong to Very Strong (6), Very Strong (7), Very Strong to Extreme (8), Extreme (9)

Figure 1 Pairwise comparison of criteria

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 Select either Yes or No.
 {Skip to Q. 4 for No}

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Figure 2 Reverse pairwise comparison of criteria

All possible comparisons of criteria were included in the survey, with different surveys for the three stakeholder groups, and all in the same way as described above. It appeared, during the survey that some criteria were not clear to the participants and had to be explained again. For similar cases it seems a good idea to hand the participants a list with criteria and explanations.

The output of the survey showed the frequency of answers for each point on the nine point scale. The weights of the criteria were to be determined based on the geometric means of the results of each pair wise comparison. To compute the geometric mean, the scale used in the reversed comparisons was transformed from (1, 2, 3, ..., 9) into (1, 1/2, 1/3, ..., 1/9).

11. B: Brainstorm on the criteria

More or less all participants in the round A participated in the brainstorm session, sometimes successively after other participants.

The objective of the brainstorm session was to add criteria if needed, and to make comments on the predefined criteria, as a validation procedure.

- The manufacturers group did not add a criterion. However, earlier, one of the manufacturers did mention: “market demand” as an extra criterion, since the term “investment risk” was seen as too complex a construct.
- The users added “ integration of functions on board” and “harmonization”.
- The Authorities and Society added a number of criteria, a.o. “accessibility of transport”

Criteria validation and results

Validation of the criteria took place using the *Categorizer* function of the GDR. With this function, a list of items can be built, participants can add items to the list easily, view what has been added by other participants, and comment on each item on the list. A separate list was created for each stakeholder containing the criteria used in the multi-criteria analysis as a starting point. After finishing this task, the importance of criteria added to the list was assessed in a discussion.

Table 2 gives an overview of the criteria added by the stakeholders. The manufacturers did not add criteria, but commented on the existing criteria only.

Table 2 Criteria added by stakeholders

Society/authorities	Users
Human factors	Maintenance cost
Public consultation	Integration of functions on board
Socio-economic impact	Harmonization
Network interrelations	
Communicative context	
Harmonisation	
Accessibility of transport system	
Self-explainability and clarity in design	
Liability of public authorities	
Public health	
Implementation questions	
International harmonization of data exchange	

The discussion about the criteria gave the following insights on the importance of criteria:

Society – Local Authorities

The Authorities and Society added a number of criteria, a.o. “accessibility of transport.”

Implementation questions: There was a project mentioned in Norway: “Supreme” that collects best practice cases on implementation. We could learn from that.

International harmonization of data exchange: important issue, since we see that , for instance in Germany, data collection is not harmonised, and this is a problem. The EC is taking up this issue already.

Accessibility of the transport system, or accessibility of different locations should also be an additional criterion. There are two issues really: accessibility of locations as an aim (everyone, also for instance the elderly, should be able to go to places, also when they are dependent on public transport), and accessibility of transport as a source for personalisation (e.g. provide personalised information to the driver with his/her specific limitations and goals).

Users

The users added “integration of functions on board” and “harmonization”.

It was stated that integration of functions into one concise and well designed “box” instead of a multitude of different functions in different appliances, not well integrated together, was considered very important.

Harmonization across countries (speed limits, infrastructural solutions) was considered very important for safety. There are several initiatives for this (e.g. on tunnels).

The discussion went on, on how to resolve the issues of “who sets the standards, how to deal with cultural differences etc. “ It finalised with the statement that this should occur through consultations and debate.

Manufacturers

The manufacturers group did not add a criterion. However, earlier, one of the manufacturers did mention: “market demand” as an extra criterion, since the term “investment risk” was seen as too complex a construct.

Liability Risk was considered highly important. It was stated that the public authorities should set standards and thus the liability risk for the manufacturers would decrease. Furthermore, there was a discussion between local authority and manufacturer about speed limits and manufacturers building cars for high speeds, and whether that was the best type of solution for comfortable and quality of driving.

12. Discussion

• Manufacturers

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• Users:

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It was announced that the relevant deliverable would be sent to all participants within the next few months.

13. L. Walta (TUD): Conclusions from the MCA in the workshop

The results had been calculated and presented, together with the prioritization of the measures for each stakeholders group.

The relevant presentation follows in Annex I.

The results follow in Amsterdam Workshop Results (to be completed later)