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PRIORITY 1.6.2
Sustainable Surface Transport

INFRASTRUCTURE AND SAFETY (IN-SAFETY)

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1. Welcome – Dr. Evangelos Bekiaris (CERTH/HIT)

The Coordinator Dr. E. Bekiaris welcomed the participants to the 2nd IN-SAFETY Workshop. He expressed his content on the great number of attendees and pointed out the fact that representatives of 3 DGs (DGTREN, DGRTD and DGIST) were present, which was a special occasion.

2. Introduction – Mr. Sandro Francesconi (European Commission - DGTREN)

The IN-SAFETY project officer, Mr. Francesconi of DGTREN made an introduction to the Workshop.

He noted that infrastructure is an area of interest also of other DGs apart from DGTREN.

He made a short overview of the progress of the Directive on Infrastructure Safety.
More precisely, the proposal on the Directive was first made in October 2006. The Council has put intensive work on it during the Finish, German and Portuguese presidencies. There was an expert meeting with 9 experts from EU countries, 8-9 meetings to work on the text of the Directive. Finally, the prize to pay for the Directive to be accepted was to lighten the text of the proposal.

On the 2nd October the Council reached a general approach, according to which the text should be lighter. The 4 proposed procedures and the skeleton would remain but the annexes should be removed.

The member states would come with more interest to receive recommendations, etc. Thus the results of the work performed in research projects are essential.
Administrative obligation has been introduced by the Parliament. However the proposal was not welcome by the TRAN committee and was withdrawn. Then the coordinators of the committees were met and decided to restart the discussion and redraft the report. Thus, by the end of November 2007 a new draft of the report will be available, to be rated in early 2008.
Mr. Francesconi commented that there is still risk to lose the Directive but this time the chances for succeeding are better.
Moreover, DGTREN is looking forward to the results of IN-SAFETY and other related projects to support the proposal.

Dr. Bekiaris assured the Project Officer that the project will support the effort with scientific evidence. He also noted that in 1991-1992 he drafted the Directive for disabled driving, which finally came in 2000. Consequently, the project results are expected to come into application in a 10 years horizon.

3. ICT for Transport – Ms.Eva Boethius (European Commission - DGIST)

The presentation follows in Annex P1

Ms E. Boethius of DGIST gave a presentation on the ICT view in Transport.

She spoke about the challenges of congestion, energy efficiency and emissions, as well as traffic safety. She also referred to the i2010 Intelligent Car Initiative and the relevant new Commission Communication. She also suggested the participants to visit the Intelligent Car website (**http://ec.europa.eu/intelligentcar/**) to get more information and also take a fun quiz on intelligent systems.

Moreover, Ms. Boethius spoke about the FP7 ICT for Transport and the calls launched so far, as well as the actions foreseen for the future. Finally, she pointed out the importance of the intelligent infrastructure and transport management issues.

Dr. Bekiaris stressed out that ASFINAG and ASECAP are supporting IN-SAFETY. He also noted that only few of the infrastructure operators have considered the usefulness of the developed applications. IN-SAFETY comes to bridge the gap between research and operation. Moreover, IN-SAFETY is one of the first projects which are introducing the notion of "cooperative" action of systems.

4. IN-SAFETY Overview – Dr. Evangelos Bekiaris (CERTH/HIT)

The presentation follows in Annex P2.

The Coordinator of IN-SAFETY, Dr. E. Bekiaris of CERTH/HIT, gave an overview of the project and its achievements. He presented the aim, objectives and the innovation of the project, as well as its main achievements.

More specifically, he presented the six scenarios that were defined in the project and tested in 4 pilots throughout Europe, the new pictograms that were designed and tested together with existing ones, in order to achieve text-independed information provision on in-car and infrastructure based displays, applications of several micro and macro traffic simulation models, the development of a multimedia training tool and manual for road operators and finally, the setting of implementation priorities and policy recommendations as well as business models as part of the exploitation strategy of the project.

5. Delivering a Safe, Sustainable and Robust Transport Infrastructure for the future - Prof. Phil Blythe (UNEW)

The relevant presentation follows in Annex P3.

Prof. Phil Blythe of UNEW presented the Foresight concept and implementation framework. The scope of the project is "to explore how science and technology may be applied over the next 50 years to the design and implementation of Intelligent Infrastructure Systems that are robust, sustainable and safe."

The Intelligent Infrastructure Study was presented together with its key findings. Moreover, the scenarios defined and used in the Foresight project were described and relevant key issues (in terms of technology, safety, environment, etc.) were underlined. Further on, the achievements of the project, defining and/or forecasting the future opportunities, and their possible contribution in decision making, were outlined, thus illustrating the needs for the best achievement of the goals set and the promising implementation possibilities. Finally, he clearly illustrated the change of the presumptions adopted by the decision makers from 1955 to today and their projection in a 50 years' horizon.

6. Models for Safety Analysis – Thomas Benz (PTV)

The presentation follows in Annex P4.

Dr. Thomas Benz of PTV gave a presentation on traffic simulation models and the way they are treated within IN-SAFETY.
He distinguished the used models in macro- and micro-simulation models. In the case of macro-simulation models, traffic assignment and routing were the main areas of interest, through route choice applications. The models applied, the road safety-depended classification of roads performed, as well as the model software upgrades and example applications were presented.
Concerning micro-simulation models, the safety assessment applications were presented, together with the application scenarios. The influence of drivers' parameters on safety parameters was investigated and example applications were elaborated for road safety assessment, also involving ITS.

7. Operators Training MMT – Lila Gaitanidou (CERTH/HIT)

The presentation follows in Annex P5.

Ms. Lila Gaitanidou of CERTH/HIT presented the operators training Multimedia Tool, as developed within the context of the IN-SAFETY project.
The MMT was developed "in order to support and complement the IN-SAFETY Operators' Training Manual, and thus provide an effective and complete training procedure". An overview of the tool, describing its main contents and functions was presented.
Multimedia Flash Player 8 was used and a simple, user friendly design applied. Then the structure and contents were described and, finally, an extended demo of the tool was presented.

8. Cooperative pilots and new ideas – Andreas Tapani (VTI)

The presentation follows in Annex P6.

Mr. Andreas Tapani of VTI gave a presentation on the IN-SAFETY pilots. The scenarios tested and the pilot sites were presented, together with relevant results of the performed tests.
Within IN-SAFETY, 4 pilot sites were selected and tests were performed, testing specific scenarios defined within the project. More specifically, the sites were:

- Linköping - Sweden
- Stuttgart - Germany
- Turin - Italy
- Athens – Greece

The applications tested and the results of each pilot were presented, along with the methodology used in each case. Important conclusions drawn from the pilot results were also stated.

9. Policy Recommendations – Jessika Kleine (BASt)

The presentation follows in Annex P7.

Ms Jessika Kleine of BASt presented the policy recommendations task undertaken within the IN-SAFETY project. The major aim is first to identify the main stakeholders and then to address them with relevant recommendations.
All the tasks of the project have contributed to this collection of recommendations, thus covering a wide spectrum of issues related to traffic safety and relevant applications.
Accident data analysis and cost-benefit analysis, together with the scenarios elaborated within IN-SAFETY have been used as background. Several groups of related stakeholders have been identified. The different issues and how they are tackled within the project were analysed and the cooperation of the different stakeholders' groups towards the achievement of the final targets, as set already in their broad sense by EU legislation, was pointed out.

10. Recommendations for European harmonized conventional and electronic road signs for the TERN – Peter Simlinger (IIID)

The presentation follows in Annex P8.

Mr Peter Simlinger of IIID presented the findings of IN-SAFETY towards the harmonisation of conventional and electronic road signs throughout the TransEuropean Network. The main objectives were to create comprehensive pictograms, to optimize existing pictograms for impaired visibility conditions, as well

as optimize verbal messages of VMS. New pictograms were designed and they were thoroughly tested, together with existing ones, in 5 countries (The Netherlands, Spain, Czech Republic, Hungary, and Austria). More than 80 referents were tested (regulatory, danger warning, informative, miscellaneous) in the comprehensibility judgement test and more complementary tests. Moreover, special tests were performed for impaired visibility conditions in order for typefaces to be enhanced accordingly. Finally, recommendations on the VMS content structure, as deriving from the research performed in IN-SAFETY, were presented.

11. Summary – Dr. Evangelos Bekiaris

Dr. Bekiaris summarized the issues raised from the presentations above. He pointed out that all partners in IN-SAFETY have worked hard to come up with the results presented. As the project is coming to its end, all tasks were at the moment under elaboration and final results would be available by the end of the project.
Then, Dr. Bekiaris gave floor to the discussion session.

12. Discussion – Presentation: Klaas De Brucker (VUB), Moderators: Marion Wiethoff (TUDelft), Lila Gaitanidou (CERTH/HIT)

The presentation follows in Annex P9.

Prof. De Brucker of VUB presented the scenario generation and prioritization procedure. He described the error identification procedure, the definition of the methodology, the initial and final prioritization.
Dr. M. Wiethoff of TUDelft presented the scenarios and the steps of the prioritization procedure. She presented relevant diagrams illustrating the prioritization results per actor, as well as a comparative one.

Then, certain questions were posed to the audience in order to gather the views of the participants.

- Question 1: Do you agree with the implementation of scenario 6 (overtaking assistant for rural roads) within 5 years?

Five of the participants answered ‘yes’. Prof. Macharis of VUB stated that as a user she would like to have it but maybe more research is needed. One of the participants, Mr. Winkelbauer of KfV, answered ‘no’. He exclaimed that maybe it could be sooner than that but more time will be demanded to develop a high penetration rate.
Most of the participants answered ‘don’t know’.

The response of the audience was more positive at the option of implementing the scenario in 20 years’ time, as it is an interesting one but not technically feasible in a short time.

Dr. Wiethoff pointed out that the accidents involving overtaking usually lead to serious injuries or even fatalities.

Dr. Bekiaris noted that car-to-car communication should be standardised. Probably it would be in the market in 12 to 15 years.

Mr. Francesconi stated that the hard barrier is a very cheap and effective measure for overtaking accidents, thus he does not consider the solution suggested by scenario 6 as a really interesting one. For this case it is too much to use ICT. In any case, the penetration rate is a very important parameter.

Dr. Bekiaris answered that to have a barrier at all rural roads needs a lot of funds. Cheap car-to-car communication could be a more cost effective solution in the future.

Another important parameter that was mentioned is the liability and compliance risk.

The next two questions affected the ways to break down the barriers for the manufacturers in order to implement this scenario. It was mentioned that very important is the existence of accurate and updated maps, where the place to safely overtake, should also be identified.

Ms. Marolda of the European Commission pointed out the importance of the human factor and the responsibility. What would be most preferable is a system that could 'teach' a better driving behavior. In all cases, the driver should keep the responsibility of actions.

- Question 4: Do you agree with the implementation of scenario 1 (in-car VMS for dynamic speed limits on motorways) within 15 years?

Most of the participants answered positively. It was noted that displaying the current speed limit in the car would also solve the problem of reducing the speed when approaching curves. This system should/could be applied even sooner (maybe in 5 years). The use of cameras, as well as individualisation issues was also considered important. It was though noted that such systems were usually underestimated by users and society, even though they are effective and highly feasible.

Ms. Spyropoulou of NTUA noted that intentional, apart from unintentional, speeding should be targeted and a stronger, more intrusive warning would be needed for intentionally speeding drivers.

Mr. Winkelbauer of KfV added that the system could be used also for other types of warning apart from speeding.

Mr. Franzen of CTI, Sweden expressed his scepticism about the penetration rate that could be achieved. An EU Directive, making the use of such a system mandatory could effectively contribute to reaching high penetration.

Dr. Bekiaris of CERTH/HIT answered that 100% penetration in specific roads is feasible, even without a Directive, if the service is provided by road operators, since the technology used (DSRC) is rather cheap. However, he agreed that, in order for a high penetration rate to be achieved in all roads, an EU Directive would be absolutely

necessary. The main target of such a system is first of all to cover roads with a high percentage of “black spots”.

- Question 7: Do you agree with the implementation of a combination of the scenarios 1,3,4,5 in a 15 year horizon?

Most of the participants answered that they don’t know if the implementation of such a system would be possible in the suggested time horizon. From the ones that voted positively, it was stated that this approach is structured in 4 pillars: positioning, accident detection, communication and Human-Machine Interface. In this concept, it is useful to define common interfaces for all applications. On the other hand, the few ones that expressed a negative opinion that there would not be much benefit from the LDW. Concern was also expressed in terms of driver workload due to possible information overload. Dr Wiethoff answered that the LDW helped the test persons at least in using more consistently the indicators. Moreover, it was noted that there cannot exist only warning; information are also needed. Another comment from the participants was that it would be good if the systems were categorised according to the technology used, their penetration rate, etc.

Dr. Bekiaris also added that in this approach IN-SAFETY tried to consider all aspects involved; the system integration results of AIDE IP were taken into account, as well as accident analysis, measures, etc. In the context of the Workshop an indicative part of this approach is presented mainly due to time restrictions.

13. Conclusion

Dr. Bekiaris concluded that in terms of enhancing the road environment, apart from building new infrastructure which is not always possible or affordable, optimization with the use of telematics would also be an effective and cost – efficient solution.

Finally, it was stated that ITS are not self sustainable, thus cost-effective solutions are suggested to substitute traditional measures. The 4 main axes at which the approach is focusing are: technology, behavior, organization and legislation.