

Summary Report

Final Event - Workshop Session 3

(18th Feb Afternoon WS sessions)

Field Operational Testing - Potential for system development and evaluation methodology for Intelligent / Integrated Safety Systems. Chairman Trent Victor

Mr. Trent Victor opened the workshop at 13.00 and welcomes all participants and speakers. He introduced the objective and intended aim of this workshop session:

Field Operational Testing - Potential for system development and evaluation methodology for Intelligent / Integrated Safety Systems

- Discuss and agree on a common understanding of the "assessment and benefit analysis of integrated safety systems " and the possibilities of FOTs and alternative / complementary methods to answer this.
- Outlook on future research and a link to the Active Safety area.

To give a first impression of existing methods in the area of field data oriented studies, he presented an overview of examples of Field Operational Tests (FOT) and Naturalistic Driving Studies (NDS) worldwide. In this context he proposed a first definition of this kind of studies and a systematic mapping. Keywords to describe the basic principle and aim of the studies have been suggested:

Naturalistic Methodology / -Driving Study → "Observation"

Experimental Field Test / -Study → "Function"

Christian Mayer (APROSYS SP task leader "system evaluation") was then introduced as the first speaker within the workshop session. He presented an overview of the results of the evaluation and testing of the APROSYS intelligent safety system (side pre-crash sensing):

Results of the APROSYS FOT / Real Traffic System Evaluation. Focus: Technical assessment of safety systems in real traffic

CM reported details on the technical equipment and execution of the field test. The project team also carried out some track testing in the course of APROSYS. Focus of the study was the evaluation of the system in terms of a false alarm rate / real traffic performance. The project finally recommended three clusters to classify the observed alarm events: False / Plausible / Acceptable.

Discussion / Questions: Transfer of observed "critical situations" to test scenarios seems feasible but might be limited to the development process of a system (not for final assessment).

As next speaker Aria Etemad (Project coordinator "euroFOT") was then introduced by Mr. Victor. He gave a presentation on the "euroFOT" project:

euroFOT - European Large-Scale Field Operational Test on In-Vehicle Systems. Performance and efficiency of active safety systems in real traffic Focus: Analysis based on naturalistic driving data.

AE presented the objectives of this NDS and the current status of the project. He stated, that in contrast to the previous presented study, the focus of euroFOT will be the observation of ordinary drivers in real traffic – handling intelligent vehicle systems in day-to-day operation. The driver behaviour and impact on safety is carried out in three functional clusters: Longitudinal control functions (e.g. ACC) / Lateral control functions (e.g. LDW) / Advanced applications (e.g. SafeHMI). Reflect the results on currently developed "Hypothesis" were presented as an approach to analyse the data.

Discussion / Questions: > (comment:) It seems difficult to assess Active Safety Systems – in this context: How to deal with combined systems/functions (e.g. function cascading → ACC – collision warning – emergency braking) !? > Several FOTs / NDS are currently running or planned worldwide – intensive "Networking" would create additional benefit and knowledge (all partners / participants agreed → e.g. see www.fot-net.eu). > Definition / criteria to classify an "Event" ? → Additional technical instrumentation needed for recording and documentation ? - in this context: how to deal with the "human factor" ?

Prof. Brian Fildes (Monash Univ. / TRACE Partner) was then introduced to present the results and findings of the TRACE project:

The TRACE project - Results and methodology. Focus: Evaluation of system benefit and efficiency of safety technology. Development of a prediction methodology.

On behalf of the TRACE consortium BF presented the findings of this FP6 project (Jan06 – June08). He also commented on the possible interaction of the methodologies NDS <> Accident Causation Studies. Based on this crash causation study TRACE developed a stepwise approach. Identify “User Needs” and related safety technologies (a priori analysis of potential benefit > optimised technical design > a posteriori or real world analysis) was then finally followed by an estimation of the safety benefit of the selected technology and safety functions.

The possible overlap with FOT/NDS and complementary aspects were then discussed with the generation of additional databases to determine the User Needs (as well the “human factor” interacting with technology) and, of course, estimating technology effectiveness in traffic.

The last presentation within this workshop session was then given by Ann Brach (Deputy Director of the SHRP 2 Program):

Naturalistic driving studies within the SHRP2 Program Focus: Objectives and outlook on methodology.

AB gave an overview and outlook on the NDS to be carried out within the SHRP 2 program and the next three years on 4-8 sites in US. The strategic focus of the study will be on the driver behaviour. So to collect more and objective pre-crash and accurate crash data – as well determine a relative crash risk for different (human) factors. It’s also intended to transfer related roadside data and results (e.g. driver interaction and perception related design) to administration bodies responsible for infrastructure / highway operation. Special emphasis is required to handle the access to the databases in terms of privacy but on the other hand to allow a transfer of the findings to all interested and involved stakeholders. In this context Mrs. Brach again pointed out the “Networking” aspect for this research area.

Discussion / Questions: (comment:) How to define a “Normal Driver” !? in this context again: criteria for “Event” !? (not possible to give an answer within this workshop) > A first approach to harmonise (tech.) guidelines and terminology to run FOTs / NDS the FESTA methodology was developed and is now available as a handbook.

Trent Victor closes the workshop at 15.00 and thanks everyone for their contribution. The main findings and outcome of this workshop session were then presented in final conclusions:

- Discussed definitions for Naturalistic Methodology and Field Operational Tests
 - Keywords: “Observation” vs “Functionality”
- Methodology is harmonized (through FESTA) – EU-US
- Naturalistic Driving Studies and FOTs “merging”
- Intelligent Safety Technology and Human Factor are much more “linked” compared with classic passive safety

Open points

- How to deal with multiple systems ?
- Definition of Events / Incident ?
- Access to database / transfer of results e.g. roadside data ?
- Options for virtual tools ?
- Normal driving / driver ?