At the finish line

It has been two interesting and very challenging years, which will come to an end on 31st of July, 2011. PROLOGUE will then have seen 730 days of innovative, constructive and fruitful cooperation between nine partners from seven countries. PROLOGUE researchers will have prepared 24 public and a number of additional deliverables; among them, recommendations for a large-scale naturalistic driving study (D4.1) and the Final Report (D4.2) will summarise the core of PROLOGUE’s output. Two pan-European and six regional workshops will have been organised, where 309 participants received information about naturalistic driving and participated in animated discussions. More than 350 experts will have joined the PROLOGUE User Forum. A couple of dozen presentations, posters, papers and articles will have been prepared. But above all, the European Commission will have issued a call for a large-scale European Naturalistic Driving study.

The Final Prologue Workshop: Lessons Learnt

The final pan-European PROLOGUE workshop took place on 22 June 2011 in Vienna, Austria. Over sixty people participated and were presented with a concise overview of the findings of PROLOGUE and the latest information about ongoing research activities in the field of naturalistic observations. After a word of welcome by coordinator Rob Eenink from SWOV and host Klaus Rosino from KFV the conference started with an overview of PROLOGUE’s findings and conclusions. Rob Eenink introduced the project itself. Tsippy Lotan from Or Yarok presented the results of five small-scale field trials performed within the project. She also provided an insight into a multi-layer spatial system of road safety data which is used in Israel. Fridulv Sagberg from TØI continued with recommendations for a large-scale naturalistic driving study. After the overview on the results of PROLOGUE, five speakers reported about their experiences with naturalistic driving studies in the US, in Austria and within three major EU projects (DaCoTA, INTERACTION and 2 BE SAFE). The third part of the conference was dedicated to Field Operational Tests (FOTs) in Europe. It started with a representative from ERTICO who introduced the work of the FOT-Net platform. Then the audience was provided with concise information about the ongoing work in the EU projects EuroFOT and Telefot.

Last but not least, a selection of representatives from user groups of ND research results (environment, insurance and car industry) took the floor to talk about their interest in the new methodology and about their expectations. Each of the sessions was followed by a lively and interesting discussion, which once more highlighted the huge challenges in designing a large-scale ND study and the strong interest in its expected results.

Read more: www.prologue-eu.eu/prologue/final-workshop
Large-scale naturalistic driving observations, EU FP7 Work Programme 2012

One of the main goals of PROLOGUE was to pave the way for a large-scale European ND study. This goal seems to be achieved, since the European Commission has published an “Orientation paper; Work programme 2012 – Transport” on their website. A level 2 – CP-IP is proposed, called “Large scale naturalistic driving observations for safe and sustainable transport” focussing on:

- Road user behaviour in normal conditions, near miss accidents and crashes;
- Driver/vulnerable user interactions;
- Eco-driving;
- Road user behaviour related to road design and road network characteristics;
- In-depth analysis of the effects of fatigue and drowsiness on driving;
- Setting safety and environmental performance indicators for monitoring developments over time.

The official call was launched on 20 July 2011 and will be open until November 2011.

Read more: Transport Work Programme 2012 Orientation Paper

User Statement: Dr. Peter Weisz, Styrian Regional Government

“I am engaged in discussion, implementation, administration, and enforcement of the various Austrian federal traffic laws, i.e. the road code, vehicle regulations, and licensing and testing. In particular, I am responsible for training and retraining of driving school teachers and expert witnesses for the driving test. From naturalistic driving, I expect input for unerring design of road safety programmes at regional and local level. Currently, we are developing a road safety strategy for the Styrian municipalities. Advanced knowledge about young drivers’ behaviour would be very helpful in order to improve driver training and make testing more accurate. In particular, we could benefit from more insight in how young drivers take risks or avoid them, and what reasonably can be expected from young drivers in terms of hazard perception and risk avoidance. Finally, I expect support in elimination of “pedestrian traps”. In other words, ND seems to be a useful method to identify risk factors and will help us to reduce pedestrian injuries, e.g. by improved guidelines for design of pedestrian crossings.”

User Statement: Col. Friedrich Schmidhuber, Head of Traffic Police, Salzburg Region

“The final workshop of PROLOGUE on June 22nd, 2011 contained very important approaches for traffic police. Enforcement of traffic rules must not be for its own sake. The only target we should (all) have to achieve is to increase road safety. We make big efforts and the success is not so bad. On the other hand I think the reduction of traffic accidents could be much larger if we knew more about the real causes. For example, we know that many accidents happen because the driver does not pay sufficient attention. He does not notice important information (traffic signs…) or other road users, especially pedestrians or cyclists. But what are the reasons?

To my opinion, naturalistic driving offers a big chance for all stakeholders in traffic safety to get more information about the “why” of driver behaviour. It is not enough to do more of the same, such as enforcement of speeding, tailgating, drink driving. Many years ago I was told by David Zaidel (Israel): “If it does not work, change it!”
Greening Traffic by driving naturalistically

Fuel emissions in traffic are determined by the vehicle (engine, after-treatment, mass and aerodynamics), traffic conditions (speed, road type and level of congestion) and driver behaviour (intentions and skills). Standardised procedures for measuring fuel consumption are based on standardised “cycles”, i.e. a procedure running the engine at certain speed and power output for a certain time. Studies have shown that the cycles used for type approval do not perfectly reflect real life car use. In particular, exhaust gases produced by aggressive driving differ from the standardised cycle by a factor of more than seven. Statistical analysis of speed, time and location information will contribute considerably to the knowledge base that is necessary for assessing the influence of driving styles on environmental performance and for the correct design of advanced traffic management measures, both in-car and site-based. ND data will also provide input for the design of more accurate test cycles.

Read more: Hoedemaker & Smokers: ND - Relevance to reducing environmental impacts of traffic

Complementary data sources when studying vulnerable road users

Combining ND data and site-based fixed camera data has clear added value when studying the interaction between cars and vulnerable road users. That was one of the outcomes of a small-scale field trial that was performed in the Netherlands. The study looked at an urban traffic-light regulated intersection. The bicycle and the car get green light simultaneously, which may result in a conflict between cars turning right and bicycles going straight-on.

The information from the site-based, high-mounted cameras showed that the non-halted encounters (arriving when the light is green) are relatively more critical than the halted encounters (accelerating after the red light turns green). The in-vehicle measurements showed that drivers look more and longer in the direction of a potential cyclist in a halted situation than in a non-halted situation. Moreover, fixed camera data makes it possible to define the exact position of both the car and the bicycle enabling, for example, quantifying the time-to-collision. The in-vehicle data, on the other hand, provides more explanatory data. So, both methods yield complementary information about car-bicycle interactions.

Read more: PROLOGUE’s D3.4

Support to Decision Making by ND: DaCoTA Deliverable D6.1 published

WP6 of DaCoTA, Driver Behaviour Monitoring through Naturalistic Driving, aims to develop an implementation plan for a large-scale activity that uses Naturalistic Driving Observations to continuously monitor relevant road safety data within the framework of the European Road Safety Observatory (ERSO).

The first Deliverable from the DaCoTA project (D6.1) reports on an inventory of variables and measurement tools necessary to monitor road safety through naturalistic driving. This was achieved by performing the following activities:

- Generating an inventory of relevant variables to monitor road safety within ERSO.
- Generating an inventory of relevant variables to monitor through naturalistic driving observations.
- Combining 1 and 2 to define the variables to be measured within ERSO by naturalistic driving observations.

Overall, the deliverable provides summary tables of the specific variables that have been recommended for data collection in two ‘Scenarios’.

- Scenario 1, which utilises a simple and relatively cheap Data Acquisition System; and
- Scenario 2, which involves enhanced data acquisition to supplement the Scenario 1 approach.

Overall, the ‘variable lists’ are based on assessments of the feasibility of collecting each individual ‘variable’ given the technology available now, or in the immediate future. However this does not preclude the consideration of collecting additional ‘variables’ within a future large scale activity if technological advances make this more practical and cost-effective.

Read more: DaCoTa Deliverable D6
The “ND Chain”

As an illustration of the various phases in carrying out an ND study, PROLOGUE has used a modified version of the so-called FESTA “V” or the FOT Chain. The “V” was developed originally in the EU project FESTA (“Field operation test support action”). Although this is a tool made for FOT studies, it is clearly relevant for ND research as well. In the ongoing project FOT-NET 2 the FESTA methodology is being revised and adapted to ND studies in addition to FOTs.

In order to convert the FESTA “V” into an ND “V” the PROLOGUE project has suggested some changes; and the modified version is shown in the figure. Compared to the original FESTA “V” the following changes are made. On the downward slope of the V the boxes “User/stakeholder involvement” and “Topics selection” have replaced the previous boxes “Function identification...” and “Use cases”. On the upward part the box “System and function analysis” in the FESTA “V” has been skipped. At the top, “Dissemination” has been added.

An important aspect of the “V” is that there are corresponding phases before and after the data acquisition phase (the tip of the V). For example, the definition of research questions and hypotheses on the downward slope of the V corresponds to the analyses of research questions and hypotheses on the upward slope. Read more: PROLOGUE D4.1

Summary of PROLOGUE recommendations

At a common meeting of the Advisory Board and the PROLOGUE steering group in June 2011, a list of recommendations for a future large-scale study in Europe was formulated:

Study design
- As distinct from U.S. studies, the European study should include VRUs and trucks, in addition to cars.
- Some aspects of the data collection measures should be harmonised with those of SHRP2, for the purpose of making comparison between U.S. and Europe, and also for combining databases to get larger samples for analysing crash risk.
- Site-based and in-vehicle observations should be combined where suitable.

Data Acquisition
- Automatic recording of behaviour should be supplemented by driver interviews, e.g. to investigate look-but-failed-to-see incidents with PTWs. The ND database should also be enriched by adding other driver background data, like sensation seeking, Driver Behaviour Questionnaire, and past violations and crashes.
- An integrated data acquisition system is recommended, because use of different technologies and vendors within the same project creates validation and data compatibility issues that lengthen the study and make it more expensive.
Research Questions

• Some specific research questions should be stated, and the design should be geared to answering them. An example of a design adaptation to specific research questions is over-sampling of certain groups, like young drivers, old drivers, or new vehicles.
• Emissions and on-line fuel consumption should be recorded for analysing eco-driving and environmental effects.
• Route and lane preferences, and their relations to background variables, should be observed, in order to provide relevant data for traffic management purposes.
• Inputs and/or insights from different stakeholder groups should be used to identify specific research questions.
• Cultural differences in driving patterns should be investigated; this requires data about type, number and locations for different observation sites.

Organisation

• Difficulties of recruiting drivers, as experienced in the SHRP2 project, should be taken into consideration when planning the large-scale study, and should be addressed in the design and the time-table of the study.

Contact and imprint

This is the fourth and last PROLOGUE Newsletter. The PROLOGUE Newsletter has been published twice a year during the course of the project. All newsletters are accessible through www.prologue-eu.eu/prologue/deliverables.

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For more information about the PROLOGUE project, please have a look at www.prologue-eu.eu or mail to infoprologue@swov.nl.
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PROmoting real Life Observations for Gaining Understanding of road user behaviour in Europe