PROJECT

PROLOGUE

Promoting Real Life Observations for Gaining Understanding of Road Behaviour in Europe

Funding: European (7th RTD Framework Programme)
Duration: Aug 2009 - Jul 2011
Status: Complete with results
Total project cost: €2,462,556
EU contribution: €1,999,228

Call for proposal: FP7-SST-2008-RTD-1
CORDIS RCN: 91180

Background & policy context:

The number of road fatalities in Member States is decreasing too slowly to meet the EU-targets. A new generation of measures is needed, underpinned by a new generation of research methods. Recent technology developments allow for this: naturalistic observations. This means that road user behaviour is observed unobtrusively in a natural setting for a longer period of time. This technique allows analysing the interrelationship between road user, vehicle, road and other traffic in normal situations, in conflict situations and in actual collisions. It will lead to a better understanding of these interrelationships.

Objectives:

The main objective of PROLOGUE was to prove the feasibility and usefulness of a large-scale European naturalistic observation study. The project aimed at road safety researchers and other stakeholders including car industry, insurance companies, driver training and certification organisations, road authorities, and governments. Whereas road safety is the main motive, the project also looked at the relevance for environmental issues, e.g. CO2 emissions, and traffic management.

Methodology:

Using the naturalistic observation research method will lead to a better understanding of road safety and help to realise an intrinsically safe road transport system, including in-car technology, self-explaining roads, driver training, etc.

Based on inventory studies, five small-scale field trials, and close involvement of user groups and stakeholders, PROLOGUE set out to result in recommendations and an outline for a large-scale naturalistic study, dealing with research questions, methodology and technology for data collection, data storage, data reduction, data mining and data analysis.

The five field trials were conducted in Israel, Austria, the Netherlands, Spain and Greece. The trials varied in a number of aspects, such as the technology used, type and number of cars involved, research questions addressed, target populations, samples and sampling strategies, data handling and storage, data reduction techniques and data analysis. From the technological point of view, all field trials included a technological system measuring basic g-force based driving parameters. Beyond this, the various technological systems varied substantially, ranging from simple accelerometers to fully equipped cars. This diversity in experiences contributes to the identification of aspects to be considered in a subsequent large-scale Naturalistic Driving (ND) study. Moreover, the trials provided an illustration of the type of information that ND research can provide.

Communication and dissemination to all potential stakeholders are vital to gain their support for and involvement in a large-scale European study.
The PROLOGUE consortium consisted of 9 partners institutes, well spread over Europe and included Israel. The consortium has a wide experience on all aspects relevant for naturalistic observations, and a large international network of road safety and transport experts.

**Related Projects:**

See PROLOGUE ('Promoting real Life Observations for Gaining Understanding of road user behaviour in Europe'). This FP7 project deals with reducing the number of road casualties in Europe by developing and testing the naturalistic observation methodology.

For learning from the experience in the US regarding technical, organisational and methodological aspects of naturalistic observations, see the Strategic Highway Research Program2 (SHRP2).

**Parent Programmes:**

- FP7-TRANSPORT - Transport (Including Aeronautics) - Horizontal activities for implementation of the transport programme (TPT)

**Institute type:** Public institution

**Institute name:** The European Commission

**Funding type:** Public (EU)

**Lead Organisation:**

Stichting Wetenschappelijk Onderzoek Verkeersveiligheid

**Address:**
Bezuidenhoutseweg 62
2594 AW Den Haag
Netherlands

**EU Contribution:** €331,402

**Partner Organisations:**

Kuratorium Fuer Verkehrssicherheit

**Address:**
Schleiergasse
1100 Vienna
Austria

**Organisation Website:**
http://www.kfv.at

**EU Contribution:** €305,716

Ethniko Kentro Erevnas Kai Technologikis Anaptyxis

**Address:**
Charilaou Thermi Road
57001 Thermi Thessaloniki
Greece

**Organisation Website:**
http://www.certh.gr

**EU Contribution:** €171,453

Nederlands Organisation For Applied Scientific Research

**Address:**
Schoemakerstraat 97
6060 DELFT
Netherlands
<table>
<thead>
<tr>
<th>Organisation Name</th>
<th>Address</th>
<th>EU Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organisation Website:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TNO</td>
<td><a href="http://www.tno.nl">http://www.tno.nl</a></td>
<td>€281,650</td>
</tr>
<tr>
<td>Universitat De Valencia</td>
<td>AVENIDA BLASCO IBANEZ 13</td>
<td>€160,208</td>
</tr>
<tr>
<td>Test &amp; Training International</td>
<td>Fahrsicherheitszentrum Teesdorf Parz 301/4</td>
<td>€146,700</td>
</tr>
<tr>
<td>Transportokonomisk Institutt</td>
<td>GAUSTADALLEEN 21</td>
<td>€254,665</td>
</tr>
<tr>
<td>Loughborough University</td>
<td>Ashby Road</td>
<td>€81,425</td>
</tr>
<tr>
<td>Or Yarok Association</td>
<td>Hanagar 22</td>
<td>€266,010</td>
</tr>
</tbody>
</table>

**Technologies:**
- Safety systems
- Evidence-based research for road safety
Key Results:

Conducting a large-scale ND study requires a great number of decisions and considerations, on all sorts of issues and at all levels. The findings and experiences in PROLOGUE finally resulted in a set of recommendations for a large-scale study covering the research questions, the potential users, methodology and equipment. The most important general recommendations are:

- The European Naturalistic Driving study should include pedestrians and (powered) two-wheelers (VRUs), and trucks, in addition to cars thus distinguishing it from the U.S. studies.

- 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.

- Difficulties associated with 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 timetable of the study.

- In part of the study site-based and in-vehicle observations should be combined.

- 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.

- Automatic recording of behaviour should be supplemented by driver interviews e.g. to investigate look-but-did-not-see incidents with powered two-wheelers. The Naturalistic Driving database should also be enriched by adding other driver background data like sensation seeking, Driver Behaviour Questionnaire, and past violations and crashes.

- Emissions and on-line fuel consumption should be recorded for analysing ecodriving and environmental effects.

- Route and lane preferences and their relationship to background variables should be observed in order to provide relevant data for traffic management purposes.

- Inputs and/or insights from different stakeholders 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.

- Some aspects of the data collection measures should be harmonized with those of SHRP2 and other large-scale naturalistic driving databases for the purpose of comparing European data with data from the U.S. and elsewhere and also for

Strategy targets

An efficient and integrated mobility system: Acting on transport safety (saving thousands of lives)