



SEVENTH FRAMEWORK
PROGRAMME
THEME 7 TRANSPORT



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PROLOGUE

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Understanding of road user behaviour in **E**urope

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Strategy and materials for regional work- shops

Deliverable D5.8

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Project Consortium

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3		KfV Kuratorium für Verkehrssicherheit	A
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6		Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek - TNO	NL
7		TØI Institute of Transport Economics	NO
8		Test and Training International Planning and Service GmbH	A
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Description

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Abstract

This report specifies the strategy and materials for the regional PROLOGUE workshops, which are scheduled for the second half of the project. It contains the aims of the meetings, all preliminary issues such as specification of the region/period and the intended participants as well as the recommended timeline for the respective event organisation and a suggested workshop programme.

The main objective of the regional workshop is to acquaint as many organisations and stakeholders (road safety, traffic management and environment) as possible of the new approach of naturalistic driving (ND) and its potential benefits as well as to get their support for a large-scale European ND study.

In this regard, six regional workshops will be held in Austria (KfV), Greece (CERTH/HIT), Netherlands (SWOV), Norway (TØI), Spain (University of Valencia), and the UK (Loughborough University) in the second half of the project.

All helpful documents, deliverable summaries and existing presentations are provided on the project's ftp-side; some are also available as attachment in the document.

Outcomes and recommendations from these events will contribute to the final pan-European workshop programme and to the Deliverables of WP4 "Recommendations for a large-scale European naturalistic observation study".

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1 Background

The project 'Promoting real Life Observations for Gaining Understanding of road user behaviour in Europe – for short PROLOGUE (Seventh Framework Programme of the European Commission) - aims to contribute to reducing the number of road casualties in Europe by further developing and testing the naturalistic observation methodology. Improvements in the field of data collection, data storage and data mining make it possible to gather and analyse data on a large scale. Naturalistic observation studies generally study the interrelationship between driver, vehicle, road and other traffic in normal situations as well as in conflict situations and in actual collisions. This information helps not only to enhance road safety, but also to increase understanding of the environmental effects of driving and develop more effective traffic management systems.

However, PROLOGUE is a feasibility study, and one of the feasibility aspects is that stakeholders need to become familiar with the concept, express their specific interests with regard to the topics that need to be researched and support the idea of a large scale European naturalistic driving (ND) study. In order to reach all target groups in an efficient way as well as to coordinate the different approaches of the concerned organisations and stakeholders a regional workshop in six regions (based on the results of the first pan-European workshop and held in the respective regional language) is thought to be essential in order to enhance the distribution of results and deliverables of PROLOGUE. As many stakeholders are to be found amongst national road authorities, policy makers etc, and these people likely prefer to speak their native language rather than English. That is another important reason for having *regional* workshops besides the fact that this is expected to imply a larger audience.

2 Aims of the regional workshops

The main aim of the regional workshops is **to convince as many parties as possible of the usefulness of ND studies, to get their support, and to identify application areas of ND results** that are relevant for the different parties, related to **road safety, traffic management and eco-driving**.

That means that the focus of these workshops is first on the explanation of the methodology, the potential application areas and the added value as compared to more traditional research methods, and secondly on the identification of the interests of the potential users of naturalistic data. Technical issues like instrumentation and methods of analysis are rather input (for explaining the possibilities of the naturalistic method) than an issue of discussion. The focus is on issues of implementation, research questions, the user's interest (how would they implement the knowledge they are looking for) and particularly, the potential benefits on naturalistic studies for decision makers.

Results and experiences from these regional events, including the results of a short questionnaire on research questions and priorities in Naturalistic Driving studies, will feed into recommendations for a large-scale European naturalistic observation study and will also provide input for the second Pan-European workshop that is planned in June 2011.

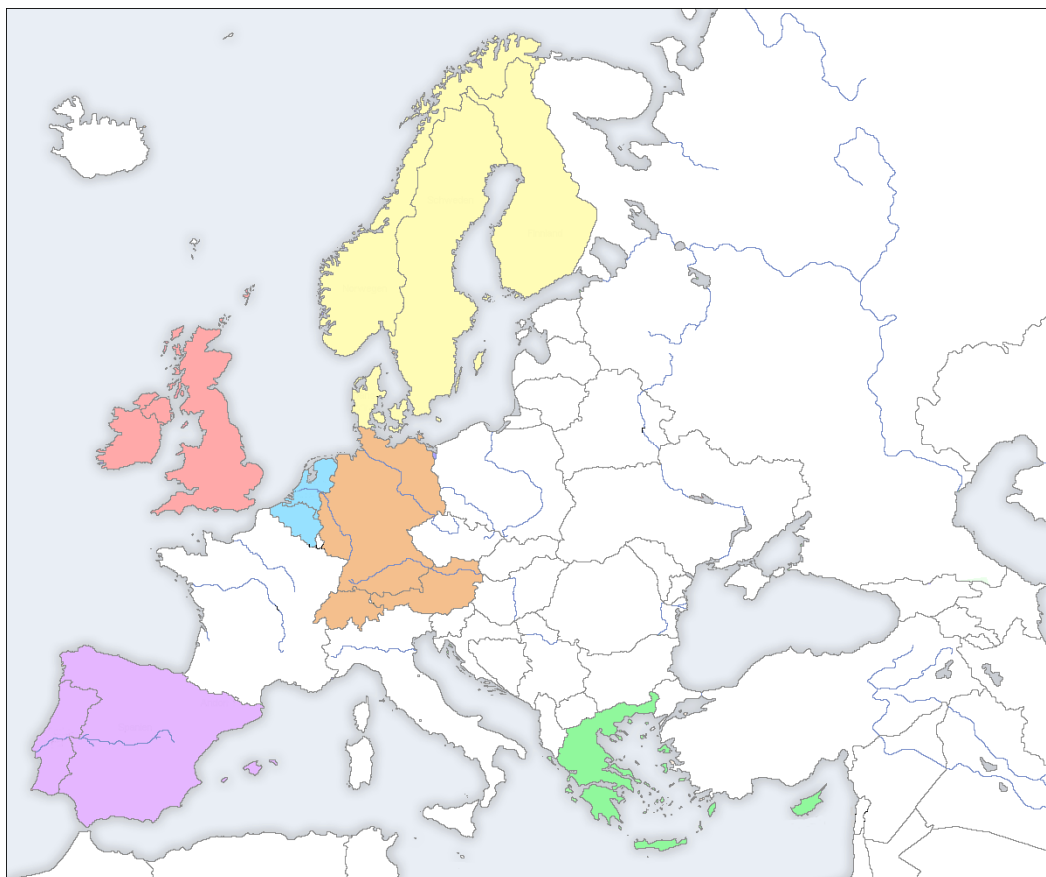
3 Where, when and for whom

3.1 Where: specification of workshop regions

There will be six regional workshops:

- Austria, including participants from Germany & German speaking Switzerland (responsible organiser: KFV)
- Spain, including participants from Portugal (responsible organiser: University of Valencia)
- Norway, including participants from Sweden, Denmark & Finland (responsible organiser: TØI)
- Netherlands, including participants from Dutch speaking Belgium (responsible organiser: SWOV)
- Greece, including participants from the Greek part of Cyprus (responsible organiser: CERTH/HIT)
- UK, including participants from Ireland (responsible organiser: Loughborough University)

Figure 3.1: EU coverage of workshop



The workshop will be held in the respective national language or the common language in that region. Therefore, the workshop programme should not or hardly include speakers that have to use another language!

3.2 When: specification of the period

The regional workshops will be held in the second half of the project. As specified in the Description of Work, the workshops have to take place between month 12 and month 18 that is between July 2010 and January 2011. It is advised, however, to plan the workshop in September to December 2010. Each project partner is supposed to find an appropriate date for his own regional workshop and communicate the date to the leader of WP5, i.e. KfV.

3.3 For whom: the intended participants

The main target group are the potential users and interested parties in the respective region or country. The workshops should serve as platform for getting in contact with and/or strengthening the relationship to these potential clients of naturalistic studies. Obviously, also research organisations and/or persons that could carry out naturalistic studies are welcome to attend.

A minimum number of 25 participants is expected.

Target group: regional stakeholders, decision makers, members of the User Forum and potential future users, representing:

- Ministries of transport, governmental organisations
- National and regional road authorities and operators
- Road user organisations
- Automotive industry
- Driver training and licensing agencies
- Insurance companies
- Environmental organisations
- Universities and research institutes
- Traffic Law Enforcement organisations
- Accident analysis and reconstruction organisations
- Traffic management organisations
- Traffic journals, press & media
- And all other professionally interested in transport related issues

4 Preparation of the workshop

4.1 Budget

In the travel budget per partner, 1.5 trips are included to contribute to the regional workshops. Budgeted costs for the organisation and promotion of each regional workshop: € 7,000 (venue, catering etc.).

4.2 Workshop organisation

The overall organisation of the local logistics is supposed to be done by the local project partner.

The organiser of each workshop is responsible for

- preparing an invitation list
- sending out the invitations in national language (by post, e-mail etc.)
- the registration process
- inviting speakers
- preparing the final programme/agenda
- translating the survey and sending the completed questionnaires (unless completed online) to SWOV
- providing workshop folders (if possible with PROLOGUE logo)
- booking the workshop venue (congress centre/meeting room, catering etc.)
- and if necessary, for arranging hotel room reservations

Table 4.2: Workshop timeline

To do	Timeline
Fixing a date	2 months before WS*
Preliminary organisation (invitation of speakers & participants, booking of venue, catering etc.)	2 months before WS
Final programme and instructions to lecturers	1 month before WS
Translation of presentations that will be used, translation of brochure & questionnaire (if necessary)	3 weeks before WS
Print brochures, questionnaires etc. (if necessary)	2 week before WS
Collection of all presentations and print of hand-outs, if required	1 week before WS
Preparation of workshop folders	1 week before WS
Workshop	Between July 2010 and January 2011

* WS = workshop

4.3 Workshop materials in situ

The following workshop materials are made available for the workshop organisers:

- Invitation template (with text examples in English, translation has to be done by the respective project partner, to be found on the ftp-site/WP5/T5.3 face2face)
- PROLOGUE power point presentation template (to be found on the ftp-site/WP5/T5.3 face2face)
- PROLOGUE brochure (in English, if translation into national language is required, this has to be done by the respective project partner). Brochures were distributed at the last pan-European workshop. If additional material is needed KfV is to be contacted in sufficient time.
- PROLOGUE video (in English only) (A DVD or USB flash drive will be sent by post)
- Presentations (ppt format) of the first pan-European workshop (to be found on the ftp-site/WP5/T5.3 face2face)
- Final results (about 5 to 10 slides, each) of important finished deliverables (see Appendix I; also available at the ftp-site/WP5/T5.3 face2face)
- Questionnaire for workshop attendees (in English, translation into national language has to be done by the respective project partner). Both an online version and a paper version will be made available by SWOV.
- A file with the User Forum members and their e-mail addresses per country (to be found on the ftp-site/WP5/T5.3 face2face)

The pan-European workshop presentations and final deliverable results are supposed to function as a basis for the regional workshop presentations on PROLOGUE and Naturalistic Driving. It is preferred to adapt the slides in such a way that they are in line with the type of attendees at the respective workshop (case-by-case decision), and that they are in the working language of the workshop. The slides with the summaries of the deliverables that have been submitted so far (see appendices) are up to date. When using the pan-European workshop slides, it has to be checked that the information is still valid and in line with the submitted Deliverables. For help with updating specific slides, the responsible task leader of the deliverable can be contacted. For additional help, KfV is to be contacted.

5 The workshop programme

5.1 A suggested agenda

The event is intended to be a one-day dissemination workshop at regional level where the focus should be on user's interests. Useful input from potential stakeholders and potential ND clients should be considered as essential outcome of the workshop. It is expected that new members for the User Forum can be attracted as well.

At the beginning of the meeting introductory speeches will be held in order to present PROLOGUE and ND. Subsequent to this introduction, presentations by potential users of ND studies will follow. Not only road safety but also topics like traffic management and environmental issues are most welcome in this regard.

Finally, constructive discussions and interaction between all participants should be considered as very important aspect of the workshop. An example of an agenda:

Timeline	Topics	Comments
11:00	Welcome & aim of the workshop	
11:05	Introduction to the PROLOGUE project (what is it about, aims, who is involved etc.)	
11:20	Presentation of the PROLOGUE video	Video length: 8 minutes
11:35	Presentation of aims and potential of ND studies	What and why including practical examples of one can get by means of ND
12:00	Presentation of the national field trial and examples of other possible application areas	*1
12:30	Lunch	Hand out of questionnaire *2
13:30	Presentation by potential users of ND studies	*3
13:50	Discussion	
14:00	Presentation by potential users of ND studies	
14:20	Discussion	

14:30	Presentation by potential users of ND studies	
14:50	Discussion	
15:00	Coffee break	
15:20	Presentation by potential users of ND studies	
15:40	Discussion	
15:50	Panel discussion	*4
16:45	Wrap-Up and conclusions	
17:00	END	

*1) as an illustration, the workshop could provide more detailed information on the field trial, which is carried out in the respective region. If there is no field study in the region, which is the case in Norway and the UK, this workshop can provide general information about one or more of the field studies in the other countries.

*2) the questionnaire preferably should be completed during the workshop (online or as a paper-and-pencil one)

*3) three to four presentations by potential users of ND studies

E.g., representatives from

- car industry
- insurance companies
- licensing agencies
- etc.
- and also the input of a non-safety person is highly recommended and would certainly contribute to the success of the event.

Preferably these persons belong to the network of the organising institutes so that they can be properly instructed.

*4) Each workshop task leader has to decide if there should be discussions in sub-groups or not. Depending on the different topics and the programme in place a discus-

sion after each user presentation makes sense in order to identify further relevant issues in that area: However; discussion and interaction between all participants should be considered as very important aspect of the workshop!

5.2 Final remark

The programme structure of course can be adapted to the particular conditions and needs of each workshop but the sight of the main aims of the workshop should not be lost!

Therefore, it is suggested to create a proposal for each regional workshop agenda, considering all relevant items (what, who, where, when) and if required, this programme can be discussed. In any case, the local organisers have to provide the task leader (KfV) with the final programme including all basic data (date, workshop venue, speakers) as soon as possible.

6 The output of the workshops

Results and experiences from these regional events, including the outcome of a short questionnaire on research questions and priorities in Naturalistic Driving studies, will feed into recommendations for a large-scale European naturalistic observation study and will also provide input for the second Pan-European workshop that is planned in June 2011.

Minutes have to be prepared for each of the workshop (D5.11a-e). These minutes would more or less follow the format and level of detail of the minutes of the first Pan-European workshop (D5.6). The minutes would need to be in English and submitted in draft one month after the event.



Appendix I: Summary slides of relevant previous Deliverables

PROmoting real Life Observations for Gaining Understanding of road user behaviour in Europe

PROLOGUE

Summary of PROLOGUE D1.1

Topics and applications of previous and current naturalistic driving studies

What is naturalistic driving observation?

PROLOGUE

- Objective and unobtrusive observation of normal drivers
- Observation of:
 - Driving behaviour (speed, braking, lane keeping, acceleration etc)
 - Crashes
 - Near-crashes and incidents
 - Vehicle
 - Other road users
 - Environment
- Drivers' own vehicles
- Vehicles equipped with data logging device and one or more cameras

Objectives of D1.1

PROLOGUE

1. Discuss naturalistic driving observation and compare this method to other more traditional methods for studying driver behaviour and crashes
2. Review and discuss the literature on naturalistic driving observation

Why ND?

PROLOGUE

Methodological strengths	Methodological weaknesses
<ul style="list-style-type: none"> – Direct observation – High ecological validity – Unobtrusive – Long duration – Objective – Generalisation of results – In-depth information about factors contributing to crashes 	<ul style="list-style-type: none"> – Low internal validity with respect to causal explanation, low control over external variables – Potential for biased samples – Potential for observer effects – Resource demanding (sample, duration, data gathering, storage and analysis)

Review of NB literature

PROLOGUE

- Topics studied by means of ND
 - Driver distraction and inattention
 - Drowsiness and fatigue
 - In-vehicle systems
 - Lane change behaviour
 - Heavy-vehicle – light-vehicle interaction
 - Driver characteristics (age, experience, personality) and states (diseases)
 - Applied use of ND – driver training, graduated driver licensing programs
- Further potential of ND
 - Eco-driving
 - Traffic flow/traffic management
 - Relation between self-report and ND observation

PROmoting real Life Observations for Gaining Understanding of road user behaviour in Europe

PROLOGUE

Summary of PROLOGUE D1.2

Areas of interest of potential users for naturalistic observation studies

Background and aim of D1.2

PROLOGUE

Background:

A large-scale ND study requires a large amount of resources. Therefore, such a study must be broadly supported and the results must be useful for as many people as possible.

Aim of D1.2:

To identify the interests of potential users of knowledge provided by the ND approach

Sheet 2

Method

PROLOGUE

- Online survey amongst road transport professionals
- 72 respondents (response rate: 53%) from 18 European countries, representing
 - Government (10)
 - Industry (6)
 - Research organisations (31)
 - Other (25)
- Questions about the importance of 17 topics related to road safety, eco-driving and traffic management, as identified in D1.1

Sheet 3

Some results (1)

PROLOGUE

“Which of the following areas would you consider to be interesting to investigate with the use of a large-scale European ND experiment?”

Area	Percent
Road safety	92
Eco-driving or environmental effects of road traffic	61
Traffic management	46

Sheet 4

Some results (2)

PROLOGUE

“How important do you think it is to address the topics below in a large-scale European ND study: Not at all / somewhat / important / very important?”

Topic	Very important (%)	Important (%)
Risk taking behaviour (speed, alcohol)	~85	~15
Practical behaviour	~80	~20
Crash avoidance behaviour	~75	~25
Driver conditions (fatigue, stress, medication use)	~70	~30
In-vehicle safety support systems	~65	~35
Distractions inside the vehicle	~60	~40
Manual behaviour (e.g. occupancies, ...)	~55	~45
Vulnerable road users	~50	~50
Driver Characteristics	~45	~55
Distractions outside the vehicle	~40	~60
Situational influences (weather, traffic, time)	~35	~65
Environmental effects	~30	~70
Roadway design	~25	~75
Driver training	~20	~80
Cross-country issues	~15	~85
Traffic flow	~10	~90
Vehicle type (size, weight, mass)	~5	~95

Sheet 5

Conclusions

PROLOGUE

Please note: sample is small and may be biased. So: indication only!

- Potential users have a broad interest
 - Respondents considered almost all topics (very) important
 - Respondents pointed out many additional topics
- Road safety issues received most interest; eco-driving and traffic management issues somewhat less
- Only slight differences between organisation type and country
- 82% wants to participate in an ND study, 10% wants to contribute in kind and 4% financially

Sheet 6

Summary of PROLOGUE D1.3

A catalogue of applications and research topics for future naturalistic driving studies



Objectives of D1.3

- Specify research topics where the ND approach is expected to provide useful knowledge beyond what can be obtained by more traditional approaches
- Describe and discuss practical applications using the ND approach to driver observation
- Based on input form
 - Deliverable 1.1. Literature review
 - Deliverable 1.2. User perspectives on ND
 - Draft deliverables from WP 2 on technical, methodological and organizational aspects of ND studies
 - Expert knowledge of the research team, PROLOGUE partners, and User Forum members

Framework for defining research questions

- Description of research topics that are especially relevant and suitable for being investigated in future ND studies and presentation of a framework for defining more specific research questions in such studies.
- The research topics are defined in terms of combinations of:
 - 1) categories of driving behaviour and driver states, and
 - 2) conditions under which these behaviours may be observed.
- A matrix resulting from combining the two sets of categories above is considered to be a useful framework for classifying and defining more specific research questions for future ND studies.

Topics, methods and technology

- Survey results
 - Road safety – the most interesting general topic for ND research compared to environmental effects (eco-driving) and traffic management issues.
 - “Risk taking behaviour” and “crash avoidance behaviour” considered (very) important by the largest number of respondents.
- Methodological topics
 - Validation of other methods
 - Validation of ND approach in itself
- Technology
 - The research questions presented in the report depend on the available technology for observing driver, vehicle, road and traffic parameters.

Non-research applications of ND

- Driver training
- Accident investigation
- Promoting safe and/or environmentally friendly driving
 - Feedback
 - Knowledge of being observed

PROmoting real Life Observations for Gaining Understanding of road user behaviour in Europe

PROLOGUE

PROLOGUE D2.1

Data collection, analysis methods and equipment for naturalistic studies and requirements for the different application areas

Objectives

- To Describe the current technical possibilities for data collection and data analysis in relation to the theoretical requirements for the research areas identified in WP1 or Prologue.
- By providing and inventory of
 - Data acquisition equipment
 - Data storage and management methods
 - Data analysis tools

Outcomes – Data collection, analysis methods and equipment

Data acquisition equipment

Questionnaires

- Data Logger
- CAN access
- Video and Eye Tracking
- Lane detection, Radar, Lidar

Data enhancement

Outcomes – Data collection, analysis methods and equipment

Data acquisition equipment and metric measured

Data acquisition unit

- GPS
- Accelerations
- Data storage + download

CAN access – vehicle based parameters

- Positions – pedal, gear, steering wheel
- Operations – lights, Wiper, seatbelts

Outcomes – Data collection, analysis methods and equipment

Data acquisition equipment and metric measured

Video and Eye tracking

- Distractions
- Sleep
- Presence – Passengers, devices
- Performance – non driving tasks
- Environment – processed from video data

Lane detection

- Lane measures
- Headways

Outcomes – Data collection, analysis methods and equipment

Data storage and management methods must consider

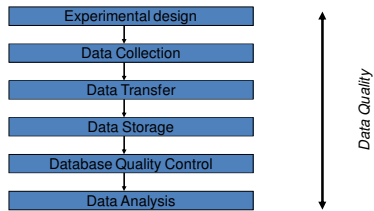
- In-vehicle data storage
- Off board storage and back up
- Database creation
- Database requirements
- Data Quality

Outcomes – Data collection, analysis methods and equipment



Data storage and management methods

- **Data Quality** needs to be considered through the *entire life* of the data



Outcomes – Data collection, analysis methods and equipment



Data analysis tools

- must provide the relevant **functions**
- Developing area – no prescriptive approach
- Many studies report developing **custom software** to meet analytical needs



Outcomes – Data collection, analysis methods and equipment



Data Reduction

- Extremely important to be able to 'derive' the data to be analyzed
- 'Core Raw Data' comprises many hours of video footage, not all relevant to the research question under consideration
- Data reduction procedures extract specific events of interest





PROmoting real Life Observations for Gaining Understanding of road user behaviour in Europe

PROLOGUE

PROLOGUE D2.2

Methodological and organizational issues and requirements for ND studies

Objectives

PROLOGUE

To describe:

- procedures for selection of vehicles and participants,
- variables to be measured,
- design,
- statistical analysis methods,
- organizational issues
- legal and ethical issues for naturalistic studies.

Outcomes – Procedures for selection of vehicles and participants (1)

PROLOGUE

Recommendations:

- Create a large and diverse subject pool
- Avoid geographical areas with relatively small populations
- Have a small number of “standby” participants to replace drivers removed from the study
- make sure that there is a random sample that represents the driver population in focus
- Choose vehicle makes that are popular
- When a study concerns in-car devices that may cause distraction from the primary driving task, participants should be experienced drivers (moderate to high-mileage drivers)
- Be aware of a possible “funnel effect” (increasing inclusion criteria results in shrinking of the participant population) when it comes to selecting on personality traits .

19th February 2010 WP2 steering group meeting, Brussels Sheet 3

Outcomes – Procedures (2)

PROLOGUE

- When studying driver characteristics, keep in mind that an ND-study is voluntary which means that this self-selection can have a biasing effect
- Find out if you need to consider a particular geographical aspect because it is relevant to the types of vehicles and or systems being studied
- Find out if a geographical aspect needs to be considered to ensure that the results obtained can be generalized to the wider ‘population’ of interest (i.e. external validity)

19th February 2010 WP2 steering group meeting, Brussels Sheet 4

Outcomes – Variables to be measured

PROLOGUE

A list of metrics that are necessary or optional to measure during a ND study is mostly based on recommendations from FESTA.

Driver metrics:
 Driver characteristics (age, gender etc.)
 Driving behaviour (speed, lane changes etc.)
 Distraction and driver state (workload, stress etc.)

Vehicle metrics:
 Vehicle condition (type, mass etc)
 Vehicle parameters (brake force, time headway etc)

Situational metrics:
 Environment (snow, time, light/dark etc)
 Road (road type, number of lanes etc)
 Traffic (density, speed distribution etc)

19th February 2010 WP2 steering group meeting, Brussels Sheet 5

Outcomes – Study design

PROLOGUE

Although ND studies are typically observational, it still makes good sense to consider them in terms of experimental designs.

Recommendations:

- Use a case-crossover design for the ND-study.
- The length of the study should be at least 12 months.

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Outcomes – Statistical analysis methods



Usually, there are large amounts of data to be processed in ND studies. A major issue here is to spot important events in the data so as to relate these events to interesting explanatory variables. .

- § After specifying the specific research questions, the data need to be statistically modelled
- § Several statistical design considerations are discussed in the deliverable.

19th February 2010

WP2 steering group meeting, Brussels

Sheet 7

Outcomes – Organizational issues



Recommendations:

- Before the ND study starts, make a plan of action which documents the scientific, technical, administrative and procedural activities and tasks that need to be done.
- Before the ND study starts, perform a stakeholder analysis to identify the needs, interests and influence of every stakeholder. With this information, the stakeholders that have conflicting interests or concerns (with each other or with the project goal) can be identified.
- Communicate early and often with a wide array of stakeholders and keep them updated.
- If necessary or useful, give stakeholders their role / place in or around the project. .

19th February 2010

WP2 steering group meeting, Brussels

Sheet 8

Outcomes – Legal and ethical issues (1)



Recommendations:

- Obtain legal advice at an early stage of the project. Note that regulations and laws vary from country to country
- Ensure that participants have legal entitlement to drive the vehicles in question and are eligible for insurance.
- Formalize the arrangement between the organizations responsible for the relationship with the participants and those participants themselves. It is not necessary to do this in the form of a legal contract; alternatively a letter of agreement can be used. The participants need to be informed about the purpose of the study, the risks they may incur, the costs that are covered and not covered, whom to contact in case of a breakdown, etc. The agreement or contract needs to cover potential liabilities and which party is responsible.
- Consider the issue of who is allowed to drive the vehicle.

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WP2 steering group meeting, Brussels

Sheet 9

Outcomes – Legal and ethical issues (2)



Recommendations:

- Make sure the data is protected and ensure privacy. The data server must be protected from intrusion and personal ID information should be kept separate from the database and stored with additional protection such as encryption.
- let participants know in an informed consent that their information will only be released when a court demands it.
- Decide early in the project how to manage post-protect data.
- Ensure that the equipment that is installed in the vehicle and the modifications that have been made to the vehicle systems do not give rise to any undue hazards.
- Check with the appropriate authorities that it is legal to operate the modified vehicles on public roads.
- Gain ethical approval to conduct the ND study.

19th February 2010

WP2 steering group meeting, Brussels

Sheet 10

PROLOGUE

PROMoting real Life Observations for Gaining Understanding of road user behaviour in Europe

WP3 : summary of D3.1
specification and planning of field trials

EUROPEAN UNION
SOCIAL FUNDING PROGRAMME

PROLOGUE

PROMoting real Life Observations for Gaining Understanding of road user behaviour in Europe

Months

Task 3.1 - Specification and planning of field trials (6-7)

Task 3.2 - FT in Israel (8-16)

Task 3.3 - FT in Austria (8-16)

Task 3.4 - FT in Netherlands (8-16)

Task 3.5 - FT in Spain (8-16)

Task 3.6 - FT in Greece (8-16)

Task 3.7 - Summary and integration of field trials (17-18)

Green Box Mobileye
Young Drivers (novice, experienced, Group model)

Audio-Video G-based
Novice Drivers

Site-based Video Cameras + Audio-Video G-based

ARGOS Instrumented car

FCW LDW

19/02/19
Brussels, 2019
Sheet 2

D. 3.1 - an overview

PROLOGUE

1. Introduction
2. Short description of field trials (micro level)
3. Specification and planing of filed trials (micro level)
4. A global overview of the trials (macro level)
 1. Global research questions
 2. Trials comparison

Sheet 3

D. 3.1 - Chap. 2: short description

PROLOGUE

An overview of each trial

2.3 Netherlands

In the in-vehicle naturalistic observation approach detailed information can be gathered from the driver and the vehicle. However, information about other road users, specifically vulnerable road users, is limited. In this trial, a site-based data collection with video cameras installed at specific locations (intersections) complements in-vehicle observations. This allows to observe all the traffic passing at a given intersection, including vulnerable road users such as bicyclists and pedestrians. In addition to in-vehicle observations, much can be learned from this approach about the behaviour at an intersection, i.e. the interaction between the different road users. Recently in the Netherlands, within the context of the Analysis of Road Traffic Accidents (ART), the observations to collect data on the pre-crash phase of collisions were used as a first attempt to evaluate separate approaches of in-depth accident analyses, road scene analyses and naturalistic observations - including traffic conflicts.

Collisions and conflicts have been analysed quantitatively using the VIDARTS (Video Analysis of Road Traffic Scenes) approach and conflicts scored according to the criteria of the DOCTOR (Dutch Objective Conflict Technique for Operation and Research) technique. Quantitative measures included speed, acceleration, and interaction measures such as Time-To-Collision (TTC) and Post-Encroachment Time (PET). Results from the collisions and conflicts analyses have been confronted with the results of the separately conducted road scene analyses to evaluate the various approaches and to formulate recommendations for safety improvements.

EXAMPLE

Sheet 4

D. 3.1 - Chap. 3: specification & planning

PROLOGUE

A micro level *detailed* description in Tablet format

- Task leader and other people involved
- Trial's main objective
- Naturalistic Research Questions
- Other Research Questions
- Trial design
- Technology
- Data
- Sample
- Recruitment procedure
- Number of systems installed or used
- Type of Intervention
- Additional research tools
- Schedule & time line
- Preparation / Basic Demands
- Limitations
- Risks
- Relation to self reports
- Comparisons within the field trial
- Legal and ethical issues
- Relation to other field trials in PROLOGUE
- Feasibility to large scale FT
- Additional issues

Sheet 5

D. 3.1 - Chap. 4: A global overview

PROLOGUE

- Global research questions
- Process comparison
 1. Type of data collected
 2. Technology, data collection and manufacturer
 3. sample

Sheet 6

D3.1 –Chap. 4: A global overview
macro level – FTs' comparison



Type of data collected	Performance variables	Time headway / time to collision Steering angle Speed Visual focus
	Behavioural observed measures (events)	Lane handling Turning Accelerating Braking Distance keeping Speeding
	Behavioural inferred measures	Aggressive driving Learning Distraction Sleepiness
	Situational variables	Type of road Weather Passengers indication Drivers' characteristics
	Outcomes	Interaction among road users Conflicts, near misses and crashes

D3.1 – Chap. 4: A global overview
macro level – FTs' comparison



Technology and data collection	Name of technology	
	Main purpose of technology	
	Source of Information and Types of Sensors	Cameras / Visual sensors G forces GPS sensors Can bus
	Location of technology	
	Location of objects observed	
	Outputs	
	Data registration	Location, technique
	Data transfer & download	
	Frequency of downloading/transmission data	
	Raw Data format	
	Storage	
	Data protection	

D3.1 – Chap. 4: A global overview
macro level – FTs' comparison



Sample	Size of sample / no. of participants	
	Type of car	participant's private car (p) / test car (t)
	No. of vehicles	
	No. of systems per vehicle	
	Main characteristics of the sample	
	Sampling method	
	Screening	
	Incentives	
	Informed consent	