SUMMARY AND PUBLICATION OF BEST PRACTICES IN ROAD SAFETY IN THE MEMBER STATES

THEMATIC REPORT:

STATISTICS & IN DEPTH ANALYSIS

THE FINAL REPORT OF SUPREME CONSISTS OF 14 PARTS:

PART A	METHODOLOGY
PART B	LIST OF MEASURES COLLECTED AND ANALYSED
PART C	BEST PRACTICES IN ROAD SAFETY HANDBOOK FOR MEASURES AT THE COUNTRY LEVEL
PART D	BEST PRACTICES IN ROAD SAFETY HANDBOOK FOR MEASURES AT THE EUROPEAN LEVEL
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PART F9	THEMATIC REPORT: POST ACCIDENT CARE

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CERTH/HIT	CERTH/HIT Hellenic Institute of Transport	EL
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INRETS	INRETS Institut National de Recherche sur les Transports et leur Sécurité	FR
NRA	NRA National Roads Authority	IE
SIPSiVi	SIPSiVi Italian Society of Road Safety Psychology	IT
ETHK	ETEK Cyprus Scientific and Technical Chamber	CY
CSS	Celu satiksmes izpete, SIA (Road Traffic Research Ltd)	LV
TRRI	TRRI Transport and Road Research Institute	LT
KTI	KTI Institute for Transport Sciences	HU
WHO	WHO Europe World Health Organization - Regional Office for Europe	

ADT	ADT Malta Transport Authority	MT
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TRL	TRL Limited	UK
CIECA	CIECA Commission Internationale des Examens de Conduite Automobile	INT
ETSC	ETSC European Transport Safety Council	INT

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Introduction

1 The SUPREME project

The objective of the SUPREME project is to collect, analyse, summarise and publish best practices in road safety in the Member States of the European Union as well as in Switzerland and Norway, with a view to implementation in as many partner states as possible. By making the study results available to a broad target audience across Europe – and thereby encouraging the acceptance of successful strategies – the project wants to contribute to reaching the 50% reduction target of road fatalities, which the European Commission set in its White Paper "European transport policy for 2010: time to decide" (2001).

Analysis, synthesis and further selection of collected data were carried out on nine categories of measures and covers all areas of road safety work.

1. Education & Campaigns
2. Driver Education, Training & Licensing
3. Rehabilitation and Re-Licensing
4. Vehicles (incl. ITS)
5. Infrastructure (incl. ITS)
6. Enforcement
7. Statistics & In-depth Analysis
8. Institutional Organisation of Road Safety
9. Post Accident Care

In order to avoid overlapping between these categories, a detailed list of subcategories and – in some cases including even sub-subcategories - has been provided.

Accordingly, nine "Thematic Reports" (of which this one is number seven) shall give a detailed description of best available practices for each of these categories, featuring basic characteristics such as target groups, quantitative and qualitative goals, key issues, duration of implementation and effects, coverage, costs, actors involved, implementation procedures as well as **key success factors** and potential **implementation barriers** in other countries or at the European level.

The crucial task of the project lies within the sound **identification of best practice** from the vast amount of available measures. In order to facilitate this process, a set of tools for collection, classification, selection and ranking of measures has been developed, along with guidelines for the assessment process at the country level. As the common basis of all further activities, a list of eight best practice criteria was developed and transferred into a questionnaire. While the major part of this questionnaire consisted of a common set of core elements, some questions also addressed key features for each category.

On this basis, the SUPREME network of "Country Experts" has provided information from various stakeholders in cooperation with the respective Analysis Group members. Although 227 questionnaires have been completed, not all subcategories of road safety measures have been addressed. So this is the first step of data collection.

As an additional step, a list of road safety measures that had not been covered by questionnaires but were considered potential best practices by the SUPREME consortium was compiled. Additional

information was gathered from available scientific literature and earlier European projects. This extended list of potential best practices was the starting point for the second step of selection and analysis within each of the nine Thematic Reports.

Further SUPREME activities

Based upon these findings, 27 country surveys will be produced. The current status of implementation of best practice measures as well as implementation barriers shall be addressed and necessary steps shall be outlined.

Further, two separate handbooks will be provided, one for the European level (European institutions, international organisations, global industries) and one for the Country level (Ministries, regions, local level: stakeholders, policy makers, professionals and the interested public).

For more information about the SUPREME project and latest results, please visit the SUPREME website, which is http://ec.europa.eu/transport/supreme/index_en.htm.

2 Objectives of this volume

One of the major obstacles to promoting a scientific approach to road safety is the poor quality of data in many countries. The more we know about the causes of road crashes, the better able we will be to design and implement appropriate solutions. Reliable statistics are essential for effective research and the development of well founded national road safety strategies.

In the category "statistics and in-depth analysis", one cannot speak about measures as it is done in the other categories, because there are no measures but methods of collecting data. In this report, we will refer to the "measures" as data collection practices, which might be a Best Practice.

Each topic (category) in the SUPREME project was subdivided in subcategories and sub-subcategories (see section 3). Country experts were encouraged to fill in a questionnaire for each data collection practice they considered to be a Best Practice.

A standardised questionnaire was used for each category. The standardised questionnaire contained questions related to the standard selection criteria which applied for each category. However, the category Statistics and In-depth Analysis did not include any road safety measures, but data collection practices. Data collection practices themselves have no influence on road safety. Therefore, criteria for the category Statistics and In-depth Analysis were formulated and questions were formulated (see 10) by the Analysis Group (particularly the author).

In order to avoid double work, results from other European projects were used within SUPREME. When Best Practices in certain sub (sub) categories were identified in other European projects, that sub (sub) category was excluded in the questionnaire and the Analysis Group referred to the results of those projects or they used the results of those projects. The most important European project that overlaps with the objective of SUPREME for the category Statistics and In-depth analysis was SAFETYNET (see section 4). Other European projects are described in section 5.

3 Subcategories

In the category Statistics and In-depth analysis, we distinguish five subcategories, which are all required to do road safety research:

- crash data
- exposure data
- infrastructure data: infrastructure SPIs (safety performance indicators)
- characteristics of people in traffic (behaviour SPIs)
- in-depth analysis

The subcategories were divided in sub-subcategories. The subcategories and sub-subcategories are shown in Table 1. Infrastructure is not shown in Table 1 because this subcategory is completely covered by SAFETYNET (see section 4).

4 SAFETYNET

SAFETYNET is an ambitious and exciting project that brings together all of the most experienced organisations within the EU to form a "European Road Safety Observatory (ERSO)". The ERSO will assemble a coordinated set of data resources that together will meet the EC needs for policy support. The European Road Safety Laboratory will enable the Commission to monitor progress towards targets, identify Best Practise, and ensure that new regulatory and other safety actions will result in the maximum casualty reduction. The SAFETYNET project will end April 2008.

For SUPREME, the most important fact is that Best Practices on statistics and in-depth analysis will be identified within the SAFETYNET project. SAFETYNET will cover many topics of the subcategories in the category Statistics and In-depth analysis. SAFETYNET will report on best data collection practices regarding several topics, which are listed below (see section 4.1). In order to avoid double work, we don't describe Best Practices for these topics in our report, but we only refer to the SAFETYNET report, which will be due after the SUPREME project is finished. Furthermore, SAFETYNET will question on specific topics which they will not report on. These topics fall in the subcategory exposure data (see Table 1 and section 4.2). For these topics, we will use the SAFETYNET questionnaire to define a Best Practice.

Workpackage 5 of SAFETYNET (Independent Accident and Injury Database) deals with in-depth analysis. The main goals are to develop a data gathering methodology and recording system with respect to fatal accident data (Task 1) and general accident causation data (Task 2). Reports are available on methodology development detailing the task of setting up an accident causation data collection routine across six EU partner countries. The report details how the task will work with existing accident investigation networks to develop an in-depth accident causation database. Two of these are the widely known networks GIDAS and CCIS. The **G**erman **I**n-**D**epth **A**ccident **S**tudy (GIDAS) is a large and continuous in-depth accident study in Germany. GIDAS is carried out by the Accident

Research Unit of the Medical University of Hanover. The **Co-operative Crash Injury Study** (CCIS) is a continuous in-depth accident study in the United Kingdom. It is carried out by the Vehicle Safety Research Centre (VSRC) of the Loughborough University.

Because the harmonized SAFETYNET methodology is still being developed it has not been presented here as a best practice.

4.1 Best Practices reported on by SAFETYNET

SAFETYNET will report on the following best data collection practices:

- Crash data (SAFETYNET WP 1):

CARE database

Linking medical files with crash data

- Exposure data (SAFETYNET WP 2):

Population by age, gender, region

Driver population, by license type, age, gender

Road length by road category

Vehicle fleet by type, age, make, mass, EuroNcap score

Vehicle kilometres by type, month, day, hour, region, …

Fuel sales by type, month

- Infrastructure data (SAFETYNET WP 3):

Several network and design characteristics/SPIs (safety performance indicators)

- Characteristics of people in traffic, independent of crash involvement (SAFETYNET WP 3):

Alcohol and drug use of traffic participants

Speed (average, V90, variance % exceeding limit) by road type

Seatbelts/restraint systems/helmets

Daytime running lights

Trauma management: timing and quality of treatment

The SAFETYNET reports on these topics can be found on the ERSO website under SAFETYNET results:

http://www.erso.eu/safetynet/content/safetynet_results.htm

4.2 Topics questioned by SAFETYNET

SAFETYNET will question the following topics, but won't report on them:

- Exposure data (SAFETYNET WP 2):

Person kilometres (National Travel Survey or Multiplication of vehicle km by occupation rate)

Number of trips

Time in traffic

Information from the SAFETYNET questionnaire is used to find Best Practices for these types of data. These sub-subcategories were not questioned in the SUPREME questionnaire to avoid double work.

5 Other European Projects

Apart from SAFETYNET, there are other European Projects that describe Best Practices. These are all projects on In-depth analysis (PENDANT, CHILD, RISER, ETAC, EACS, MAIDS and ECBOS). The reports of these projects will be referred to when we describe Best Practices regarding In-depth Analysis.

Overview

6 Subcategories

An overview of the subcategories that we report on is shown in Table 1. For some included topics, there is no data available. As far as we can see, there is no Best Practice for collecting this type of data, see also section 9.

Subcategory	Sub-subcategory	Included topics	Data from:
Databases with **crash**, driver and casualty information containing information about special topics (alcohol, safety restraints, etc.) of people involved in a crash	Completeness and representativeness of the crash file	- check fatalities (Causes of death total population)	NL
		- check out-patients/slight injury (??)	FR
		- check Material Damage Only crashes (??)	No data, see section 9.1.
	Special crash characteristics, Method to accurately collect:	Driver: alcohol / medicine / drugs, license, purpose (known route), daytime running lights	No data, see section 9.2.
		Occupant/rider: seatbelt, other restraints	No data, see section 9.2.
		Manoeuvres	NL
		Location (link to national network/map, coordinates from navigator)	MT, EE, CZ
	Easy reporting (data collection)	reporting procedure (police), police equipment (handheld computers), coding of data	NL, IT
	Other Database aspects		LV, BE, IT, New Zealand
Exposure data		Person kilometres (National Travel Survey or Multiplication of vehicle km by occupation rate)	questionnaire by SAFETYNET
		Number of trips	
		Time in traffic	
Characteristics of people in traffic, independent of crash involvement (**behaviour SPIs**)	Offences	red light, tailgating, stop for pedestrian crossings by cars drivers, use of ped. crossing by pedestrians, … (Survey or enforcement data)	CH, UK
	Visibility	use of reflecting clothes by vulnerable road users, …	No data
Data obtained from **in-depth analysis**	Methods and collection systems on independent in-depth data		PENDANT, SAFETYNET wp5 and other European projects
			NL

Table 1 - An overview of the subcategories that we report on. The first column shows the subcategory. The second column shows the sub-subcategory. The third column shows the included topics. However, we don't report on all these topics, because for some data collection practices, there is no Best Practice (column 4).

7 Submitted Potential Best Practices

Table 2 shows an overview of the data in the category statistics. 14 European data collection practices (topics) were submitted and one non-European data collection practice (New Zealand) was submitted. Easy reporting and location aspects are very closely related and well covered with 6 data collection practices. Other topics are covered with one or two data collection practices.

	Sub-subcategory		country	data collection practice
1	check fatalities	7.1.1	NL	linking police registration with court data and death causes (GBA)
2	check out-patients/slight injury	7.1.1	FR	Rhône road trauma register (Register of road crash casualties in the Rhône Department in France)
3	manoeuvre	7.1.2	NL	manoeuvre diagram
4	modern equipment location	7.1.2	IT	Integrated Road Safety System
				geocoded and centralised crash data, province of Milan
5	modern equipment location	7.1.2	MT	Accident Geographic Information System
				GIS
6	modern equipment location	7.1.2	CZ	Crash location by GPS
				200 cars
7	modern equipment location	7.1.2	EE	GPS usage in crash location
				GPS and GIS
8	modern equipment	7.1.3	IT	Crash data collection and analysis trough the implementation of a method intended to improve data reliability and Crash location
				electronic forms, GIS, province of Ferrara
9	modern equipment	7.1.3	NL	Practical test Improvement Traffic Accident Registration
				PDA (electronic forms), GPA, Friesland
10	database	7.1.4	BE	road safety barometer
				monthly quick indicators on road safety
11	database	7.1.4	LV	Road Safety Informative system
				register of vehicles, drivers, crashes and violators of Road Traffic rules
12	database	7.1.4	New Zealand	CAS - Crash Analysis System, New Zealand
				CAS is a centrally held and organised crash database with open access to all road safety engineers in New Zealand.
13	offences speed, alcohol	7.4.6	CH	Traffic delinquency indicator system
				Indicators include levels of police checks, violation rate, severity of sanctions, fatal crashes as well as the responses of drivers about relevant safety rules and their enforcement.
14	offences mobile phone	7.4.6	UK	mobile phone offences
15	in-depth	7.5.1	NL	Accident Analysis of Heavy Trucks With On-scene Database (AAHTWO)
				control group, DAF and Scania

Table 2 – An overview of the submitted data in the category statistics.

8 Potential Best Practices from SAFETYNET

8.1 Exposure data (SAFETYNET WP 2)

One of the main goals of SAFETYNET WP2 is to acquire a good knowledge of the current state-of-the-art of the methodologies and practices dealing with RED (risk and exposure data) in the European Union. For nine RED indicators questionnaires were sent out to all countries of the European Union.

SAFETYNET WP2 selected indicators (collected variables) on availability and compatibility with CARE. Indicators which were not selected still provide useful information on national or small-scale international level. Three indicators were not widely available, namely person kilometres, number of trips and time in traffic (Houwing, 2006). For these three indicators, we looked for Best Practices. SAFETYNET will report on the other six indicators, see section 4.1. In order to find Best Practices, the SAFETYNET questionnaires and reports were analyzed.

8.2 Overview of potential Best Practices in person kilometres, number of trips and time in traffic.

The availability of potential Best Practices in Person kilometres, Number of trips and Time in traffic was checked in SAFETYNET (Houwing, 2006). A country expert indicated whether certain RED indicators are available. This is not investigated by the SAFETYNET project. The disadvantage is that we have to rely on the knowledge of the country expert about the presence of data.

Table 3 shows in which countries these RED indicators were stated to be available.

Person kilometres are at least partially available in 8 countries. Most countries that have data partially available do not collect national data on bicycles, mopeds, trams or motorcycles.

Number of trips and time in traffic are regarded as being available in the UK and partially available in 8 other countries. Most countries that have data partially available do not conduct a national survey annually.

The response on the SAFETYNET questionnaire provided information about national travel surveys from nine countries. These countries correspond with the countries that have data (partially) available on person kilometres, number of trips and time in traffic (Table 3).

Indicator	Available	Partially available
Person kilometres	FI, NO, SE, UK	BE, DE, DK, NL
Number of trips	UK	BE, DE, DK*, MT, NL, NO, FI, SE
Time in traffic	UK	BE, DE, DK*, MT, NL, NO, FI, SE

Table 3 – Overview of potential Best Practices in Person kilometres, Number of trips and time in traffic. *: Denmark does not use the variables number of trips and time in traffic, but they could be derived from the data.

We consider the nine travel surveys as potential Best Practices, because the data on person kilometres, number of trips and time in traffic was collected in the same travel survey. So, the individual indicators are no Best Practices.

9 Sub-subcategories with no potential Best Practices

Table 1 shows some gaps. In other words, for some sub-subcategories there are no Best Practices submitted. Furthermore, there are no European projects which cover these topics such as in the subcategories Exposure and In-depth Analysis. The gaps are discussed in the next sections.

9.1 Check Material Damage Only crashes

Material damage only crashes are reported very poorly by the police, because they are given no priority. Other sources of information for this type of crashes are for instance insurance companies or car (respraying) shops. A major problem with these data sources is that every car shop and every insurance company has its own accounting system. It is very hard to cooperate with many companies in order to link all databases together.

9.2 Driver/occupant characteristics

Driver characteristics (alcohol / medicine / drugs, license, purpose (known route), daytime running lights) and driver/occupants characteristics (restraints) are hard to measure after a crash. Some of these characteristics can easily be changed by a (slightly) injured driver who does not want to be at fault, such as seatbelts and daytime running lights. Sometimes police have other priorities (in case of licence information) or it is technically hard to measure (alcohol in fatalities). We hoped that some countries would contribute with some good suggestions for these problems, but in advance we did not know of any Best Practices in this sub-subcategory.

In the future, technical solutions may be introduced to reduce drink-driving (the alcohol lock) and unrestrained driving (seatbelt interlock). Furthermore, a black box can help to register these characteristics. For the field of road safety research, we are in favour of such data collection practices.

Description of the selection process for submitted potential Best Practices

10 Selection criteria

In order to judge whether the submitted potential Best Practices are really Best Practices, objective criteria were formulated in the SUPREME project. The general criteria do not apply to the Statistics and In-depth analysis category, because Statistics themselves have no influence on road safety. Therefore, adjusted criteria for the category Statistics and In-depth Analysis were formulated by the Analysis Group (particularly the author) and questioned about in the questionnaire. These criteria imply data quality and correctness and accessibility of the data. These are important requirements for a data collection practice to be a Best Practice (= reliable and usable dataset).

Apart from the criteria in the questionnaire, other selection criteria were used for the selection of Best Practices in order to find maximally one Best Practice in each sub-subcategory. The criteria listed below are used for selection of the data collection practices in the Statistics and In-depth Analysis category. Not all criteria have the same importance. For instance, when a data collection practice is very novel, it is less important that the criteria in the questionnaire are met. This is only valid for novel types of data, which were not measured before. A novel method to measure an existing type of data should result in better data according to the criteria in the questionnaire to be considered as a Best Practice.

Criteria for the selection process:

1. The number of data collection practices of each type should be one, because there is only one Best Practice. In practice, it means that there is maximally one Best Practice in each sub-subcategory. However, some sub-subcategories contain very different data collection practices. Then, the different data collection practices can both be Best Practices.
2. The criteria in the questionnaire:

correctness (missing values)

quality of the data (underreporting or representativeness)

accessibility of the data

3. Availability of documentation about the data collection practice
4. A fully implemented data collection practice is preferable above a pilot experiment
5. A national data collection practice is preferable above a regional
6. Novelty of the data collection practice (new type of data)

11 Scaling system for the assessment criteria

A scaling system was developed in order to select the Best Practices in a systematic way. Table 4 shows the values that a possible Best Practice can score on each criterion with a verbal description.

Criterion		Value	Value label
1	Category	No colour code	No other countries submitted the same data collection practice
		Colour code	Countries with the same colour submitted a data collection practice in the same category
2a	Correctness	0	A lot of missing values
		1	Nothing reported
		2	Few or no missing values reported, but not reliable
		3	Few / no missing values
2b	Quality	0	Low reporting rate or (for surveys) no good representativeness, sample size and response rate
		1	Nothing reported
		2	High reporting rate or (for surveys) good representativeness, sample size and response rate, but not reliable
		3	High reporting rate or (for surveys) good representativeness, sample size and response rate
2c	Accessibility	0	Not accessible via the web
		1	Central database accessible via the web
3	Documentation	0	No
		1	Intern
		2	Foreign language
		3	Yes
4	Fully implemented or Pilot	0	Pilot
		1	Fully implemented
5	National or regional	0	Regional
		1	National
6	Novelty of the type of data	0	Same type of database known
		1	Novel

Table 4 - Scaling system for the assessment criteria of statistics and in-depth data collection practices.

12 Scores on the assessment criteria

The scores for each of the submitted data collection practices on the selection criteria are shown in Table 5.

Data collection practice number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Category	check fatalities	check slight injury	manoeuvre	modern equipment location				modern equipment		database			offences speed, alcohol	offences mobile phone	in-depth
Correctness	3	3	2	3	0	1	1	3	3	2	0	1	3	3	3
Quality	3	3	3	2	2	1	1	3	0	0	3	0	3	3	3
Accessibility	1	0	1	1	0	0	0	0	1	1	0	1	0	1	1
Documentation	0	2	0	2	0	1	0	0	3	0	3	3	3	3	3
Fully impl./ Pilot	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1
National/ Regional	1	0	1	0	1	1	1	0	0	1	1	1	1	0	1
Novelty	0	1	0	0	0	0	0	0	0	0	1	0	1	1	0

Table 5 - The scores for the submitted questionnaires (first row) on the selection criteria (first column). A good score was marked white and a bad score grey. The description of each collection practice is shown in Table 2

13 The selection process

The selection process was carried out by the author and checked by the Steering Committee and the other members of the Analysis Group.

13.1 Step 1: criteria from the questionnaire

Three criteria from the questionnaire, which are required for a reliable and usable dataset, have been included in Table 5: correctness, quality and accessibility. From these three criteria, correctness and quality are the most important. Accessibility is important, though it can be improved in the future even for data from the past. Whereas, once data is registered with bad quality and correctness, this can never be corrected. Therefore, accessibility was not taken into account in the first step of the selection process.

When a data collection practice scores bad (marked grey in Table 5) on quality and / or correctness and it is not a novel type of data, then the data collection practice is not considered as a Best Practice.

For novel data collection practices, we reject a data collection practice when it scores badly on both quality and correctness. Eight data collection practices were rejected as a Best Practice in the first step, see Table 6.

data collection practice		Country	criterion	Why not?
3	7.1.2	NL	correctness	Manoeuvre diagram is determined from type of crash (frontal, side, etc.). Type of crash is determined from points of collision. This is not reliable. Before 2003, the manoeuvre diagram was determined by the police, which was a more reliable method.
4	7.1.2	IT	quality	Milan reports a reporting rate of 100% of all road crashes with casualties, because they determined reporting rate by law. Theft is forbidden by law, but still it occurs. Although police agents and offices are obliged to report, they might not do it (for example because there is no police present). They should have used an external source to compare with. A reporting rate of 100% is not possible.
5	7.1.2	MT	correctness	45% missing fields for locations with this new method for determining the exact location.
			quality	MT reports a reporting rate of 100% of all injury crashes. They determined the reporting rate by comparing the number of crash forms with the police crash register. They should have used an external source to compare with. A reporting rate of 100% is not possible.
			accessibility	Data is not available via the web.
6	7.1.2	CZ	correctness	Number of missing fields unknown
			quality	Reporting rate unknown
			accessibility	Data is not available via the web.
7	7.1.2	EE	correctness	EE has doubts about the accuracy of the coordinates, whereas this data collection practice deals about adding location to the crash database.
			quality	Reporting rate unknown
			accessibility	Data is not available via the web.
9	7.1.3	NL	quality	The reporting rate is rather low due to technical problems (batteries low, etc.)
10	7.1.4	BE	correctness	BE reports no missing fields at all. This seems impossible.
			quality	Reporting rate unknown
12	7.1.4	New Zealand	correctness	The quality of the data is the responsibility of the Police. The number of missing fields is unknown. Although, there is a robust checking system in place that corrects as much data as possible.
			quality	Underreporting by the Police is an issue.

Table 6 – Overview of the four rejected data collection practices (in step 1) with argumentation. The descriptions of the collection practices are shown in Table 2.

13.2 Step 2: all criteria

In the second step, we look at all selection criteria. When a not novel data collection practice scores bad (marked grey in Table 5) on 2 or more of all selection criteria (except novelty), then the data collection practice is not considered as a Best Practice. For novel data collection practice, we reject a data

collection practice when it scores badly on 4 or more of all selection criteria. One data collection practice was rejected as a Best Practice in the second step, see Table 7.

data collection practice		Coun -try	criterion	Why not?
8	7.1.3	IT	accessibility	No good accessibility yet, but they are planning it.
			documentation	No documentation available.
			Nat./Reg.	Regional

Table 7 - Overview of the four rejected data collection practices (in step 2) with argumentation. The description of the collection practice is shown in Table 2.

13.3 The selected Best Practices

Six Best Practices were selected after the 2-step selection process, see Table 8. After the 2-step selection process all criteria were unique, which means that there are no other Best Practices in the same sub-subcategory.

No Best Practices in the sub-subcategory modern equipment (GPS, handheld computers) were selected. This does not mean that it is not a good idea to computerize the data collection. Using GPS and handheld computers can save a lot of time. It can make data collection more accurate and reliable. However, up to now the quality and correctness of the data is often not good enough. Technical problems have not been solved yet. This type of data collection has not been introduced on a large scale. Still, we think these techniques are promising for the future and might be used on a large scale.

	sub-subcategory		country	Best Practice
1	check fatalities	7.1.1	NL	linking police registration with court data and death causes (GBA)
2	check outpatients/slight injury	7.1.1	FR	Rhône road trauma register (Register of road crash casualties in the Rhône Department in France)
11	database	7.1.4	LV	Road Safety Information system
				register of vehicles, drivers, crashes and violators of Road Traffic rules
13	offences speed, alcohol	7.4.6	CH	Traffic delinquency indicator system
				Indicators include levels of police checks, violation rate, severity of sanctions, fatal crashes as well as the responses of drivers about relevant safety rules and their enforcement.
14	offences mobile phone	7.4.6	UK	mobile phone offences
15	in-depth	7.5.1	NL	Accident Analysis of Heavy Trucks With On-scene Database (AAHTWO)
				control group, DAF and Scania

Table 8 – An overview of the Best Practices in the category statistics selected from the submitted questionnaires.

Description of the selection process for exposure data

14 Selection criteria

The selection criteria for the national travel surveys are in principle the same as for the other potential Best Practices (see 10 Selection Criteria)

However, interpretation of some of criteria was slightly modified.

Some of the selection criteria were dropped, because they applied for all national travel surveys. All travel surveys were fully implemented on a national level. None of them were a novel data collection practice. All data was submitted to SAFETYNET. Therefore, all data will be available via SAFETYNET. Furthermore each country has its own website with information about the national travel survey.

The following selection criteria were formulated:

1. The number of data collection practices in each sub-subcategory or for each topic should be one, because there is only one Best Practice. Within the subcategory Expose, there are only national travel surveys, which do not differ enough to have more than one Best Practice in each sub-subcategory.
2. quality of the data

a) continuity

b) sufficient sample size (both in number of persons and in number of person days)

c) modalities

3. is documentation available?

For criterion 2, three sub criteria were formulated which fit in with the SAFETYNET questionnaire. These criteria are similar to the criteria from the SUPREME questionnaire.

15 Scaling system for the assessment criteria

Table 9 shows the scaling system for the assessment criteria for the SAFETYNET questionnaire.

The sample size (in person days) was calculated by multiplying the number of persons in the sample by the total length of the survey (in days). Some countries asked people about the travel behaviour of one day, for instance the Netherlands, whereas other countries asked about travelling during one year, for instance Germany. The second type of country receives 365 times as much information from one person than the first type of country. Therefore, the sample size was calculated in person days.

Underreporting takes place if a respondent only states part of the vehicle journeys. Non-response and underreporting may happen if the burden on the respondent is felt too high. It may be in form of a lengthy interview or a questionnaire requesting reporting of many data. Therefore, it is better to

obtain a large sample size (in person days) by having a large number of persons in the sample and a relatively short length of the survey (one day to one week).

Data availability of three types of modalities (bicycles, mopeds and motorcycles) was checked, because data of these types of modalities was most frequently lacking (Houwing, 2006). The reason that these modalities are most frequently lacking is that the group of users of these modalities is much smaller than the most commonly used modalities, such as cars. One way to have enough bicycle, moped and motorcycle users in the sample is to have a large sample (a second reason to plead for a large number of persons in the sample). Other ways imply adjusting the sample.

Criterion		Value	Value label
1	Uniqueness	No colour code	No other countries who submitted the same data collection practice
		Colour code	Countries with the same colour submitted the same data collection practice
2a	Continuity	0	No continuity
		1	Triennial survey, but continuously measured
		2	Annual survey
2b	Sample size (person days)	0	Less then 50,,000 person days
		1	Between 50,,000 and 100,,000 person days
		2	More then 100,000 person days
2b	Sample (persons)	0	Less then 5,000 persons
		1	Between 5,000 and 30,000 persons
		2	More then 30,000 persons
2c	Modalities	0	Bicycles, mopeds and motorcycles not available
		1	Bicycles, and motorcycles available
		2	Bicycles, mopeds and motorcycles available
3	Documentation	0	No
		1	Yes
		2	Yes, extended documentation

Table 9 - Assessment criteria for the SAFETYNET questionnaire.

16 Scores on the assessment criteria

Table 10 shows the scores of nine national travel surveys on the assessment criteria. Information about the selection criteria was obtained from the websites from the national travel surveys of the concerning countries. Note that for some countries (BE, DK and FI) we don't know whether data from all modalities was available. By the time this report was written this information was not (yet) available on the internet and in SAFETYNET WP 2. However, this is not a problem because these countries do not score well on the other selection criteria (see section 0) and will not be selected as a Best Practice.

Indicator	BE	DE	DK	FI	MT	NL	NO	SE	UK
Category	travel survey								
Continuity	0	2	2	0	0	2	0	0	1
Sample size	0	2	1	0	0	1	0	0	2
Sample	1	0	0	2	2	2	2	1	2
Modalities	?	1	?	?	0	2	1	1	2
Documentation	1	2	1	1	1	1	1	1	2

Table 10 - The scores for the national travel surveys on the selection criteria (first column).

17 The selection process

The selection process was carried out by the author and checked by the Steering Committee and the other members of the Analysis Group.

The first step in the selection process consists of rejecting all the national travel surveys which score a zero (marked grey in Table 10) on one or more of all selection criteria except the availability of documentation (this last criterion is not required for a reliable dataset). Seven of the nine travel surveys were rejected. Table 11 shows an overview of the rejected criteria with argumentation why these travel surveys are not a Best Practice.

country	criterion	Why not?
BE	continuity	Last travel survey was carried out in the years 1998/ 1999. When the previous one was carries out was unknown.
	sample size	17,000 person days is too low to analyze disaggregated data.
DE	sample	The number of people in the sample (2000) is very low.
DK	sample	The number of people in the sample (2100) is very low.
FI	continuity	There was six years between the last and the previous survey.
	sample size	39,602 person days is too low to analyze disaggregated data.
MT	continuity	Last travel survey was carried out in 1998 and the previous one in 1989.
	modalities	Only data of passenger cars was available.
	sample size	Malta asked 15,000 households about their travelling during one day. Although the sample size was rather low, for a small country such as Malta the sample fraction was high.
NO	continuity	There was four years between the last and the previous survey.
	sample size	Only 43,300 person days.
SE	continuity	There was three years between the last and the previous survey.
	sample size	Only 7,982 person days.

Table 11 - Overview of the seven rejected data collection practices with argumentation.

Two potential Best Practices left, namely the national travel survey of the United Kingdom and the Netherlands.

In the second step, we selected the national travel survey of the United Kingdom as Best Practice. Both the UK and the Netherlands score an intermediate (1) on one criterion, namely the Netherlands has a 1 on sample size and the UK on continuity. However, the UK is improving the continuity by performing an annual survey, whereas the Netherlands is decreasing the number of households.

The UK has as an advantage that they have very extended information available on the internet. They describe how they carry out the survey and how to deal with errors due to sampling. Another advantage is that the UK has no age limitation. Age limitations occur in many countries (seven out of nine). Most countries do not measure infants and small children.

Although the UK travel survey is selected as Best Practice, this does not mean that this travel survey is conducted in the perfect way. In some countries business trips are excluded (three out of nine). In the UK, only personal travel is included, whereas it would be better to include all trips.

Description and analysis of the Best Practices

18 Check fatalities (NL)

18.1 Description

From a policy point of view, it is important to know the real number of traffic fatalities. CBS (Statistics Netherlands) compares various data sources in order to calculate the real number of traffic fatalities:

1. Crash registration by the police. This data was coded by AVV Transport Research Centre (part of the Ministry of Transport organisation).
2. Court files with unnatural deaths
3. Death causes file from the GBA (municipal population records)

CBS combines data from the second and third source (CBS data). Together with AVV, CBS combines the CBS data with the AVV data. The combination of these three data sources gives the registration rate of each of the separate data sources and the real number of traffic fatalities.

Linking AVV data with CBS data is conducted with the following keys: date of birth, date of death, type of unnatural death (suicide, traffic crash, etc.), municipality of death, gender. Some fields are more reliable from one source than from the other source. Therefore, they use from the AVV files: crash date, crash municipality, transport mode and crash hour. From the GBA file is used: municipality of death, date of death, date of birth and gender.

18.2 Correctness and quality of the data

The database with the real number of traffic fatalities is a complete register. CBS is responsible for data management. Data management and statistics is their main activity.

The registration rate of the real number of traffic fatalities in the database is very high (99.4.% for 2004), because three data sources have been combined. The individual registration rates are 90% (AVV), 88% (court data) and 95% (GBA). In the linked file fields are missing according to the individual registration rates. The maximum percentage of missing values is 12% for certain fields. In order to guarantee continuity, every year, the data has been linked according the same work plan (since 1996).

Various checks are carried out. Fatalities, which were reported as suicide in the CBS data, are removed from the AVV database with traffic fatalities. When it turned out from the death causes form (GBA) that someone died before the crash, the fatality is removed from the AVV database. A traffic fatality can be registered in the AVV database as hospitalized, when the police did not know that the person has died later on. A crash in the CBS database can be wrongly coded by CBS. AVV tests whether it is a traffic crash. CBS tries to trace the fatalities in the police registration which are not in

the other data sources. They find about 5 of them in the database of unnatural deaths of the court files.

18.3 Accessibility of the data

The data is stored and can be obtained at CBS. Data can be disaggregated to age group, gender, region, modality, day of the week and month. Combinations of disaggregations are not obtainable, because of privacy aspects. The aggregated data is also available via the SWOV website:

http://www.swov.nl/cognos/cgi-bin/ppdscgi.exe?toc=%2FEnglish%2FCrashes%2FReal%20numbers%2FCasualties

18.4 Costs

The costs are not exactly known, because determining the real number of traffic fatalities is part of the regular tasks of CBS and AVV. The costs are rather low (a few person months a year), because the method uses existing databases.

18.5 Transferability

Laws on privacy and availability of data might be obstacles in this method.

18.6 Legal framework and privacy aspects

It is allowed to have a database with data on the level of individual households, persons or crashes, but this database may not leave CBS. Data on individual level may not be published. Therefore, data can be disaggregated to age group, gender, region, modality, day of the week and month. However, combinations of disaggregations are not obtainable.

19 Crash data collected by medical institutions (FR)

19.1 Description

The goal of collecting data by medical institutions is two-fold:

- Estimating the real number of non-fatal casualties.
- Obtaining more information about injury severity and long-term impact.

Crash data collected by the police forces (police files) is not complete and information on injuries is very poor. Road safety cannot be improved by counting fatalities as serious injuries that are a heavy burden on health services, on families, on the economy and on society in general. Hence is shown the need for a more complete data collection on road crash injuries coordinated by epidemiologists and performed in health and medical professionals.

The Register of Road Crash Casualties (Rhône road trauma register) was thus created in 1995 in one French "département" (or county). It has been developed by UMRESTTE (Unité Mixte de Recherche Epidémiologique et de Surveillance sur les Transports, le Travail et l'Environnement), a joint research department between INRETS, University Claude Bernard-Lyon1 and the Institute of Health Surveillance (InVS).

The registry is based on the participation of all health care facilities in the county (and its close surroundings) that could receive casualties of a traffic crash. The medical centres providing the data are organized into a network represented by ARVAC, the Association for the Register of Traffic Crash Casualties in the Rhône County; ARVAC includes 96 first-line hospital services (pre-hospital emergency care, emergency departments, intensive care units, surgery units), 160 follow-up services and 11 recovery centres (rehabilitation departments). A common data form has been established to be filled in for each victim, and the corresponding database is managed by UMRESTTE. Over 10,000 cases had been recorded by the end of 2005.

Data analysis is performed systematically by the team in UMRESTTE, focussing on specific themes. Decision makers often raise questions that only data from the register can answer, so these analyses are widely disseminated. The main themes treated over the last two years include safety of elderly road users, gender differences in crash rate, characteristics of injuries sustained by young road users, child injuries, pedestrian injuries, road crashes and injuries related to work, operational definition of injury severity, etc.

The register is also a tool for research and is often coupled with other sources of data or with specific field investigations. Among these, a follow up of casualties has been established to evaluate the long-term consequences of injuries: based on the register, a representative cohort of crash casualties (ESPARR) has been set up and is being monitored through periodical investigations. At the end of 2005, the first postal questionnaire was sent to the members of the cohort. The data collected includes per-

sonal risk factors before the crash, social and professional or school life before and after the trauma, quality of medical care received by the patient, and indicators of possible depression.

The register is now planned to be extended to the Region Rhône-Alpes to include a wider variety of road traffic conditions; later, similar registers should be set up in other parts of France. As it is a costly exercise, the extensions will take place slowly.

19.2 Correctness and quality of the data

The register has been "qualified" by the National Committee of Registers and is periodically re-evaluated. The fact that the register is certified (and periodically re-assessed) ensures near completeness.

The registration rate of the Rhône road trauma register was computed by using the capture-recapture method, which has been used in epidemiology (Amoros et al., 2006a; Amoros et al., 2006b). After the data from the Rhône road trauma register was linked to the police files, the total number of non-fatal casualties was estimated by applying a two-list capture-recapture method. Then, the registration rate was calculated. The registry ascertain rate was 73.5.% in 2001, whereas the police ascertain rate was 28.6%. A comparison between injury data yielded by the register and crash data collected by the police force has shown that injuries were very underreported by the latter, particularly for some types of crashes or groups of road users (cyclists, for example).

Some data may be systematically missing, for example if the casualty does not actually go for a medical visit in the Rhône département.

The data in the register come from medical institutions, so the information concerning the identity of the casualty such as age and gender are well completed. Only less then 1% of these variables is missing. The items, which are often missing, are the exact location of the crash (e.g. the name of the street about 10%) and the helmet for motorcyclist (about 5%).

19.3 Accessibility of the data

The database is at UMRESTTE, INRETS, Avenue François Mitterrand, Bron (near Lyon).

The database is protected by confidentiality laws and can be made available for specific research studies to researchers who are responsible for keeping with the confidentiality rules. The website to apply is:

www.inrets.fr, look for Research Departments, UMRESTTE.

19.4 Costs

The operating costs of the register are funded by the Ministry of Transport (DSCR: Directorate for Road Safety and Traffic), the Institute for Health Surveillance and INSERM (the French national Institute for Epidemiology and Medical Research).

The cost is approximately 310 K Euros per year, not including salaries of UMRESTTE's personnel.

19.5 Transferability

Transferability on a larger scale:

The Rhône road trauma register is planned to be widened from "département" to Region (région Rhônes-Alpes), which is quite a different scale. The organisation is, of course, more complex, and the great obstacle is cost and finding sustainable funding. The advantage of a register at a larger scale is that it would provide more reliable estimates of the magnitudes of injury problems at the national level. A later step would be to develop registers in two other regions in order to improve representativeness even more. But this is not likely to happen immediately. As it is, the register already provides invaluable knowledge on injury processes and is a basis for epidemiological studies such as following up a population of crash casualties to assess long-term medical, social and psychological effects of injuries.

Transferability to other countries:

The main condition for such a register to provide complete data is that road crash casualties actually contact a recognized medical service where they can be recorded. This is usually the case in European countries, but maybe not yet in all of them: patients must have access to medical treatment, which implies generalized social health insurance or similar dispositions. Another condition is to ensure sustainable funding as organizing a register and keeping it going is expensive. Funding can be expected from both the Transport and the Health sectors.

Another condition again is to be able to ensure privacy of the information collected: such epidemiological data should only be available in its raw form for epidemiologists or researchers who are bound to respect the ethics of the system. Protection of data is thus needed (see section 19.6 for information about the legal framework in France). Finally, there is in France a Committee of Registers which periodically reviews completeness and quality of the data collected. There should be such a quality check or the register would not be reliable.

Transferability of medical methodology

The methodology to build up a register is common to most epidemiological issues concerning health (cancer, heart diseases, etc.) (see also the World Health Guidelines on Injury Surveillance). However, specific efforts have been made by the UMRESTTE team in Lyon to adapt the data collection form to the specific issue of road injuries.

19.6 Legal framework and privacy aspects

The Rhône road trauma register is approved for ethical and scientific aspects by the French “Comité national des Registres”. Personal data concerning the crash and injuries are protected by different laws. In France, there is a legal framework applying to the use of computer files including personal data; permission to access such files or to cross them with other files has to be sought from the

Commission "Informatique et Libertés". The Rhône road trauma register was authorised by the “Commission nationale informatique et liberté”. For medical data, there is also a “secret medical” law: it is forbidden for medical workers to disclose every medical data to everyone except the patient himself. The register database is protected. In conclusion, the register has got all authorisations to be in possession of medical data. It is itself considered as a medical research team.

Much information is lacking (occupation, family, income, medical history….) because UMRESTTE voluntary reduced the number of data collected by medical services. It was a condition to obtain their participation for a long time.

There is no problem to publish, the analyses being of course entirely anonymous. It is allowed to make every recommendation. With the register, we mainly describe facts, which could be used by policy makers, associations of casualties and so on.

20 Linked Database (LV)

20.1 Description

To solve the road traffic safety problems and to take adequate decisions, it is necessary to have operative and credible information. Such information can be obtained only with the help of a Road Safety Information System. From the first days of its existence (the beginning of the 1990s), the Road Traffic Safety Directorate (RTSD) paid great attention to this problem. The RTSD has worked out a strategy of development of Road Safety Informative system and created several registers and databases:

- register of vehicles;
- register of drivers;
- register of crashes;
- register of violators of Road Traffic rules.

To find the necessary data from different registers it is possible to develop links between registers to create statistical reports, cross-tables of different levels, with different indicators. Many European countries have different databases, but in general they are separated and owned by different institutions. In Latvia, it is possible to find the necessary data from different registers by developing links between registers to create statistics reports, cross-tables of different levels, with different indicators. The vehicle identification key indicator is the Vehicle Identification Number (VIN) or plate number of vehicle. To link data between register of vehicles and register of crashes the key indicator is the plate number of the involved vehicle. To link data between register of drivers, register of violators of Road Traffic rules and register of crashes the key indicator is personal identification number.

The implementation was carried out step by step:

1993: The RTSD formed a register of vehicles and a register of drivers;

1994: The information system (local PC networks and dial-up data download) was introduced in regional offices;

1995: Data of Technical Inspection was imported to the register of vehicles;

Data of annual payments of transport revenue was imported to the register of vehicles;

The register of road traffic crashes was created;

1996: On-line data transmission network was developed and data of the registers were transferred into the ORACLE medium;

1997: Data of compulsory third-party insurance was supplied to the register of vehicles;

2004: Data of violators of Road Traffic Rules was imported in register of drivers.

20.2 Correctness and quality of the data

The Road Traffic Safety Directorate is responsible for data management of the four registers (crashes, drivers, vehicles and violators). Data management is only one of the tasks of the RTSD.

According to the country expert of Latvia, the reporting rate of the above mentioned registers is high, but they cannot give exact numbers.

There is a consistency check within the database by using the re-licensing period. A driving license is valid for 10 years. This means that re-registration of the driving licenses occurs every 10 years.

20.3 Accessibility of the data

The RTSD is responsible for collection and storage all information necessary for the Road Safety Informative system. There is no electronic accessibility for third parties.

20.4 Costs

The costs of maintenance of the Road Safety Information System are born by the RTSD, which is a self-financing organisation and its income is forming from rendering of services (of vehicle registration, vehicle technical inspection, registration of drivers and etc.).

All data are registered while the RTSD, the Road Police and the Insurance companies are carrying out their regular tasks. No additional staff is necessary for collection of data in involved institutions.

20.5 Transferability

The Road Safety Information System is transferable to other countries. Transferability of the Road Safety Information System to other country depends on structure of the institutions which are responsible for all mentioned functions in the country and possible linkage between them to obtain necessary data.

20.6 Legal framework and privacy aspects

In Latvia, there is a law on the crashes investigation. The crashes investigation is under the responsibility of the State Police, but the analyses of crash data is under the responsibility of Road Traffic Safety Directorate.

The RTSD is allowed to publish its findings. The RTSD has been published several statistical reports, which are very thorough in their analyses and summaries:

- The annual statistical report “Statistics of Road Traffic Crashes in Latvia” (from 1994)
- The annual statistical reports “Statistics of registered vehicles in Latvia” (from 1997), which from 2003 was divided in several separate editions:

“Summary of vehicles statistics in Latvia”

"Statistics of registered vehicle with gross weight up to 3.5 tons"

"Statistics of registered vehicle with gross weight over 3.5 tons

- The statistical report "Report of vehicle technical inspection in Latvia" (from 1998, published once per two years)
- The annual statistical report "Statistics of drivers in Latvia" (from 1999)
- At the moment, the RTSD is creating a new version of the statistical report, which will contain information about drivers, their violations and crash statistics.

The data of personal identification are confidential and are not allowed to be published.

21 Speed and alcohol offences (CH)

21.1 Description

An indicator system to monitor developments in the areas of speeding and drink driving has been introduced and is available on Internet. Indicators include levels of police checks, violation rate, severity of sanctions, fatal crashes as well as the responses of drivers about relevant safety rules and their enforcement.

The data is collected for the Swiss federal roads authority and the Swiss council for crash prevention in order to document trends in law enforcement and efficiencies of sanctions and for research purposes. Swiss Federal Statistical Office (SFSO), department of crime and criminal justice is responsible for implementing the Indicator system.

The following organizations are collecting the data:

- Aggregating data into the indicator system: SFSO
- Crashes and enforcement: Police
- Convictions: Penal court
- Driving licence withdrawal: Administrative bodies
- Driver's responses and attitudes: Survey company

The following methods were used to collect the data:

- Indicator system: Analytical methods on all available data.
- Crashes and enforcement: Police register crashes while they carry out their other tasks.
- Convictions: Courts register sentences after decision and send information to the Central Criminal Records. Data are sent to SFSO after control.
- Driving licence withdrawal: Administrative bodies register sentences and send information to the Swiss federal roads authority.
- Driver's responses and attitudes: The survey company contacts sample by phone using Computer Assisted Telephone Interview (CATI).

21.2 Correctness and quality of the data

Fatal crashes (UNF)

The fatal crashes (UNF) register is a complete register. CH reports a full reporting rate, because every crash with casualties must be declared to the police, which must declare it to the Swiss federal statistical office. CH reports no missing values.

Consistency is checked in many ways. Plausibility is checked in the application for collecting the data. Furthermore, it is checked when the data are received by the Swiss federal statistical office. If problems occur, corrections are requested from the police authorities.

Police enforcement (SPV)

The police enforcement data (SPV) is a survey of the aggregated data of all police authorities.

Consistency was checked in many ways. Plausibility was checked in the application for collecting the data. Furthermore, it was checked when the data are received by the Swiss federal statistical office. If problems occur, corrections are requested from the police authorities.

Convictions (SUS)

The convictions (SUS) register is a complete register. CH reports an almost full reporting rate, because occasional studies on cantonal level with Justice Administration reports gave good results with regards to completeness of reporting. CH reports no missing values.

Consistency checks were included in the application for collecting the data. Other checks are done when the data are received by the Swiss federal statistical office. If problems occur, corrections are requested from the courts.

Driving licence withdrawal (ADMAS)

The driving licence withdrawal (ADMAS) register is a complete register. CH reports an almost full response rate. Response rate has not been estimated, but every licence withdrawal must be declared to the Swiss federal roads authority. CH reports no missing values.

Consistency was checked in many ways. Plausibility was checked in the application for collecting the data. Furthermore, it was checked when the data are received by the Swiss federal statistical office. If problems occur, corrections are requested from the police authorities.

Driver's responses and attitudes (ECoM)

The driver's responses and attitudes data (ECoM) is a telephone survey (CATI) with random sample of households. The sample size n = 6000 households (0.17% of all households having a fixed telephone connection in Switzerland, in 2004 about 92% of the people have a fixed telephone). The target group is the total driver population. The response rate is 76% of all reached and eligible households (87% out of 6000 were reached, n = 5228).

The survey significance depends on the research question. The sample size is usually not the total target group. e.g. if we observe a change in seat belt wearing rate (self-reported behaviour) inside urban area of from 60% to more than 65%, this is only significant (95% level) if the sample size is 2000 or bigger; e.g. if we observe a change in the percentage of drivers admitting having driven a car under the influence of alcohol from 91% to less than 89%, this is only significant (95% level) if the total sample size (not only respondents) is 6000 or bigger.

The data has been weighted with a post-stratification to be representative of the general population. The results of the survey were compared to the results of other sources and showed high similarities. The other sources are:

- Register of traffic crashes: number of crashes with severely injured casualties.
- Swiss labour force survey (SLFS): profession learned
- Survey on traffic behaviour (telephone survey with a sample of 41,108 people): percentage of population holding a driving licence.

The data is collected every 2-3 years. Stability of responses does not request higher frequency.

21.3 Accessibility of the data

There is a central location where the data is stored and can be obtained for each type of data. Most data can be obtained at the Swiss federal statistical office (Indicator system, Police enforcement, Crashes, Convictions and Driver's responses and attitudes). Driving licence withdrawal data can be obtained at the Swiss federal roads authority.

There is no electronic accessibility of the data. Part of the data can be found on:

http://www.bfs.admin.ch/bfs/portal/fr/index/themen/rechtspflege/03/01.html

21.4 Costs

For the Indicator system, one person is collecting the data. It takes 1 man-year. No coding is involved, because SFSO receives electronic files. Managing the data collection takes 0.5 man-years.

The financial costs for the Indicator system and enforcement data collection are the following:

- Investments 50,000.- Euro
- maintenance costs 150,000.- Euro / year
- administration costs 50,000.- Euro / year

The financial costs for the survey (CATI) are 70,000. - Euros per year. The police at cantonal level do have some additional costs (they collect data anyway, but have a bit more work because of the traffic delinquency indicator system), which can't be easily estimated.

The financial costs are born by the Swiss council for crash prevention, the Federal state (Swiss federal statistical office, Swiss federal roads authority), the Cantonal state and the Police authorities.

21.5 Transferability

The indicator system is fully transferable to any country.

21.6 Legal framework and privacy aspects

The legal background for data collection is decreed by 2 laws: Federal Statistics Act (http://www.admin.ch/ch/f/rs/c431_01.html) and Ordinance on the Conduct of Statistical Surveys (http://www.admin.ch/ch/f/rs/c431_011.html). There is also a road traffic law: Loi sur la circulation routière (road traffic law; http://www.admin.ch/ch/f/rs/c741_01.html)

It is allowed to have a database with data on the level of individual households, persons or crashes, if the need is proven. There is no privacy sensitive information in the database. Everything is allowed to be published, as long as an identification of a person is not possible

22 Mobile phone offences (UK)

22.1 Description

73% of UK adults owned or used a mobile telephone by 2003. It is therefore of interest to monitor the proportion of drivers who use a mobile phone. Surveys of mobile phone use were carried out in October 2002, September 2003 and April 2004 by TRL on behalf of the Department for Transport. The April 2004 survey was carried out shortly after legislation restricting drivers' use of mobile phones came into force. Roadside surveys were carried out at 38 sites on a representative cross-section of roads in South East England. Observers equipped with an electronic mobile phone detector counted the drivers who were using (= talking, listening and dialling) mobile phones. Phone use was recorded using a combination of visual observation and electronic detection to maximise the reliability of the observations. It is likely that some phone use was not observed, especially of hands-free phones, so the results may underestimate the actual level of use to a limited extent. Over 110,000 cars and 27,000 other vehicles were observed in the April 2004 survey.

22.2 Correctness and quality of the data

The survey is a sample of sites and times, but a full count of vehicles was performed during the sessions. About 100,000 vehicles were observed in each survey. Standard errors can be calculated but are nominal; site selection probably affects levels significantly.

Obscured windows and reflections prevented about 1% of drivers being observed. Furthermore, some (hands-free) mobile phone use was not observed. So the results are an underestimation.

Unannounced visits by survey supervisor to the TRL staff at the collecting sites were used to convince people to cooperate to collect all data correctly.

22.3 Accessibility of the data

Reports of the surveys have been available via the TRL website:

http://www.dft.gov.uk/stellent/groups/dft_transstats/documents/page/dft_transstats_610054.hcsp

22.4 Costs

The mobile phone survey grew out of the long running seatbelt survey. TRL collects observational data under contract to Department for Transport.

About 2 to 3 people per site collected the data. In total, it took about 40 site-days in the spring survey and another 40 in the autumn survey.

Manual counters were used; observations from each session entered on a laptop.

The amount of time necessary to manage the data collection is negligible.

An investment has to be made to purchase the electronic detectors.

Concluding, the costs of this survey are relatively low.

22.5 Transferability

The survey is easily transferable; only significant difficulty is to find motivated and reliable observers.

22.6 Legal framework and privacy aspects

Privacy laws do not apply for this type of surveys, because personal details such as age and gender cannot be observed. Only Health & Safety laws, which restrict suitable survey locations, apply for this type of data.

23 In-depth analysis (trucks) (NL)

23.1 Description

The goals of the Accident Analysis Heavy Trucks TWO (AAHTWO) project were to explore the primary and secondary safety improvement possibilities of in-depth truck crash collection and to stimulate the international use and the harmonization of an in-depth truck crash collection methodology.

Traffic crash in-depth data is collected from on-site inspections and police and hospital information. The crashes are reconstructed and analysed. 30 crashes were collected and 30 control group locations were investigated.

This data collection practice consists of an integrated crash collection and control group data collection method, which is unique. While in medicine control groups are required, it is ignored in crash investigation even though exposure is a very important part in the collected frequencies.

The data was collected by the TNO Research Organisation and the Dutch Police of four regions covering the whole of the province of Zuid-Holland.

The data was gathered according to a methodology developed by TNO and based on previous international in-depth studies (MAIDS, EACS). TNO was notified by the technical police department of a crash satisfying the set criteria. Within 24 hours the location was inspected. Vehicles were inspected later. Interviews were sent out to involved parties and witnesses. Special worksheets and questionnaires had to be made for this project. The police collected the data according to their own national methodology and submitted this information to TNO.

23.2 Correctness and quality of the data

TNO is responsible for the maintenance of the database.

The codification of the data in the database was done by the TNO crash investigators in a multifunctional database, according to TNO guidelines.

The database is a sample of all heavy truck crashes. At this time the collected data is a pilot study of 30 truck crashes and 30 control group locations. In the future, it should be a sample study, using stratified sampling in a region. The collected sample will be scaled up and weighted towards national statistics. It is estimated that a complete sample of approximately 1000 crashes can give significant answers and improvements. The present sample size has to be increased enormously.

The required sample size to observe a significant change depends on the effect of the subject of study. Large effects can be detected with relatively small sample sizes (with 30 crashes, crashes with right turning trucks with bicycles are already visible (not yet significant). Smaller effects (as will likely already be the case with current standards) will require larger sample sizes (about 1000 crashes/ year).

In theory, every crash of which the technical police are notified is reported to TNO. In practice we believe this is around 90% (comparison with police later on). No biases exist in the missing crashes. Approximately 45-50% of the truck drivers respond to the interview. Car drivers notoriously ignore interviews (20% response rate).

A clean up of data collection after the pilot study was done. All fields with a response rate lower that 40% were removed from the data collection process (e.g. centre of gravity trailer at time of crash).

Consistency was checked for important analysis variables and key variables linking crashes, vehicles, persons, injuries and contact codes. Other mistakes were considered to be noise.

The sampled data represents the region. Regional differences (road layout, types, business) will make it difficult for any sample study to be representative out of the collection area and should always be weighted as best as possible to be representative.
Dutch National statistics and European wide CARE can be used to check representativeness. However, representativeness is very difficult to achieve. It may look representative if all variables are considered independent of each other, however in practice this is not the case. This is a discussion in every European project on traffic crashes. So far TNO has not seen a good solution. Data weighting seems nice, but in practice the data to create the weight factors (CARE) is not detailed enough and the collected sample sizes are too small. TNO believes the samples should be already as representative as possible. A stratified sampling (e.g. every fatality or every 10th in-patient) with a good notification is the best option to be representative. This means, representative of the region in which the data is collected. Go further and large uncertainties will be introduced.

23.3 Accessibility of the data

Only aggregated data is available. Results can be found in the Final Report published by TNO. Statistical analysis data is also available for research purposes.

Database facilitation by internet is possible and data will then be stored on a central server. This is at this time not done. A main problem will be to do this over countries due to privacy laws.

23.4 Costs

The costs in financial terms are 3000 Euro per crash and 1000 Euro per control group location.

Sponsors of the project were DAF Trucks, SCANIA Trucks Holland and the Dutch government. For eventual continuation the Government bears the financial costs of the data collection.

23.5 Transferability

The methodology is transferable and was set up to be a harmonised, flexible in-depth crash collection method. Questions in the database include the best of the most frequently or widely used and new studies (Gidas, EACS, PENDANT, MAIDS, CARE). Method development for scaling to national level is currently in progress.

The methodology can be used for all types of traffic crashes.

23.6 Legal framework and privacy aspects

Permission has been given to TNO by the Justice department to obtain addresses of involved parties. Hospital review committees have also granted TNO access to the medical data when written permission is given by the casualties.

It is allowed to have a database with data on the level of individual households, persons or crashes, as long as all personal privacy related information is removed. Names, addresses and contact information are not present in the database. All other information needed for the research is present. Results on aggregated data and analysis can be published.

It is possible to decide which cases can be investigated. A stratification plan can be used to sample some cases more frequently than others. This can be decided by the financial contributors. It is recommended to sample all types of crashes even if it is with very low frequency to have some reference material.

24 National Travel Survey (UK)

24.1 Description

The National Travel Survey (NTS) provides up-to-date and regular information about personal travel within Great Britain and monitors trends in travel behaviour. The Ministry of Transport commissioned the first NTS in 1965/1966. In 1988, the NTS became a continuous survey (i.e. fieldwork was conducted on a monthly basis) with an annual set sample size of 5040 addresses which had increased to 5796 by 2001. In 2002, the annual set sample size increased to 15,048 addresses.

The NTS gathers information about several different aspects of travel including for one week: purpose of travel, method of travel (walk, car, bus etc.), origin and destination of trips, time travelling and distance, as well as detailed information about individuals, vehicles and households. The Department for Transport (DfT) publishes the survey results.

24.2 Correctness and quality of the data

The survey is a sample of households. The samples for 2003 and 2004 were designed to provide a representative sample of households in Great Britain for each survey year. The annual issued sample size in both years was the same as 2002 at 15,048 addresses. The sample size was increased in 2002 to provide the degree of precision required by DfT with just one year's data. Previously, it had been necessary to combine three years' data for most analyses.

Only households classed as 'fully cooperating' are included in the response calculations. A national response rate of 60% was achieved in 2003 and in 2004. When analysis is done on the 'fully cooperating' households, there is no problem with missing values, because these households completed the questionnaire.

The sampling error depends on the research question. In "National Travel Survey: Technical Report 2003/04", the calculation of sample errors is explained and several examples are shown. This report is available via the internet:

http://www.dft.gov.uk/stellent/groups/dft_transstats/documents/page/dft_transstats_610054.hcsp

The contents of the CAPI (computer assisted personal interviewing) questionnaire were edited and checked (for instance inter-county distance checks), and all interviewer notes examined. During this process the interviewers were contacted if there were any queries that could not be resolved by the coders. If necessary, the interviewer re-contacted respondents to resolve any issues. An edit checking program was run on the coded data to do a comprehensive set of consistency checks, with a report being produced. Quality checks were also made on selected interviewers on a rota basis and ten percent of addresses were back-checked.

24.3 Accessibility of the data

The 2005 National Travel Survey (NTS) is the latest in a series of household surveys designed to provide a databank of personal travel information for Great Britain. It is part of a continuous survey that began in July 1988, following ad hoc surveys since the mid-1960s. The survey is designed to pick up long-term trends and is not suitable for monitoring short-term trends. The data is available via the internet:

http://www.dft.gov.uk/stellent/groups/dft_transstats/documents/page/dft_transstats_612468.hcsp

24.4 Costs

The costs include interviewing, programming, coding and operations staff. The costs for annual travel surveys are rather high. However, they can be shared with other research organisations (e.g. mobility) and industry, because this data is interesting for a wide range of purposes.

24.5 Transferability

The survey is easily transferable.

24.6 Legal framework and privacy aspects

Respondents were informed in the advance letter that their participation was voluntary and that any information they provided would remain confidential and would not be passed on to anyone outside NatCen in a form that could be used to identify them.

There is no privacy sensitive information in the database, because the data is aggregated.

Recommendations

25 General

The most important recommendations are:

1. Countries should check the completeness of fatality records by comparing various sources of data, as is done in the Netherlands.
2. Countries should try to monitor the level of reporting in official crash statistics by setting up reporting systems at hospitals as is done in the Rhône region – or even better: there should be a system for electronically merging injury records kept by hospitals and police reported injury crashes. Furthermore, data of insurance companies should be used to monitor Material Damage Only crashes.
3. Countries should measure the long term impact of injury caused by road crashes in order to set targets to reduce the number of people living with lasting impairments as a result of traffic injury.
4. Travel behaviour surveys should be carried out regularly to collect data on exposure (e.g. national travel surveys).

26 Check fatalities

26.1 Expertise

It would be valuable for other countries to have more documentation available about the applied methodology. However, CBS (Statistics Netherlands) is not very open about this subject because they are working with very privacy sensitive information.

26.2 Recommendations for policymakers

Countries should check the completeness of fatality records by comparing as many sources of data as possible. Possible data sources:

- Crash registration by the police.
- Court files with unnatural deaths
- Death causes file from the municipal records about population
- Others (car insurance, hospitals, etc.)

27 Crash data collected by medical institutions

The following recommendations are adopted from the ETSC report Social and economic consequences of road traffic injury in Europe (to be published in mid-2007).

27.1 Expertise

Studies designed to assess the level of reporting in official road crash statistics should be performed regularly.

Studies should address factors that influence the likelihood that an injury will be reported in official crash statistics and try to assess the amenability of these factors to interventions designed to improve reporting.

Studies should be made to determine the extent to which injuries recorded by medical institutions can be geographically located correctly.

Studies should be made to determine the possibility of electronically merging police records and hospital records of traffic injury in ways that will not violate protection of privacy and personal integrity.

27.2 Recommendations for policy makers

Countries are recommended to adopt a consensus-based prospective injury impairment scale based on the Abbreviated Injury Scale (AIS). Countries should provide training in the use of the AIS in order to make the use of this scale more common and thus make injury data more comparable between countries.

A simple injury scale should be developed for use by the police and other emergency services. Final classification of injuries according to severity should be performed by medical professionals.

Countries should encourage electronic linkages between sources of injury data, like the CODES system of the United States or STRADA in Sweden.

Countries should regularly monitor the level and accuracy of reporting in official road crash statistics and make the results of studies available to other countries.

28 Long-term impact of traffic injury

Long-term impacts of traffic injury are poorly documented in all countries. Little is known about these impacts. There are, however, reasons to believe that an increasing number of people live with lasting impairments as a result of traffic injury.

The following recommendations are adopted from the ETSC report Social and economic consequences of road traffic injury in Europe (to be published in mid-2007).

28.1 Expertise

Studies should be made to assess the applicability of various quality-of-life scales for the purpose of describing systematically the long-term impacts of traffic injury.

Surveys of the general population should be made at regular intervals to determine the incidence and prevalence of lasting impairments as a result of traffic injury.

28.2 Recommendations for policy makers

The number of people living with lasting impairments as a result of traffic injury is likely to be increasing. The EU and member states should therefore consider adopting targets for reducing not just fatalities, but also severe injuries.

The EU should encourage member states to adopt a common definition of slight and severe injuries and of lasting impairments. Implementing common definitions of these concepts would make road crash statistics more comparable between countries than it is today.

29 National Travel Survey

SAFETYNET WP2 will develop a framework for travel surveys. The framework will include transformation rules to make the variables comparable between European countries. It is recommended to carry out a national travel survey according to this framework.

The framework of SAFETYNET WP2 does not include person kilometres, number of trips and time in traffic. We recommend adding these variables because they are important crash rate indicators.

Both the UK and Germany provide extended documentation on carrying out a national travel survey, which complement each other very well.

30 Database

Every road safety researcher is dreaming of linking together data from several databases by the use of unique (and thus privacy sensitive) information. The Road Traffic Safety Directorate in Latvia has the disposal of four databases (register of vehicles, register of drivers, register of crashes and register of violators of road traffic rules) which all contain unique linking keys (VIN or plate number of vehicle, personal identification number). The data may be expanded with a database with hospital data, such that more is known about the severity of the crash and the long-term consequences of injuries.

Although the RTSD is a good example of a complete and linkable data collection, this is not possible in many European countries due to laws on privacy. These laws have to be changed for research purposes in order to get more knowledge about road safety. This might not be feasible. Therefore, it

might be better to find a method to electronically merge police records and hospital records of traffic injury in ways that will not violate protection of privacy and personal integrity.

31 Speed and alcohol offences

The indicator system to monitor developments in the areas of speeding and drink driving has its own website with documentation and articles based on the database, but the database itself is not available via the internet. This could be an improvement of the data collection practice.

32 Mobile phone offences

Many countries have experience with a seatbelt survey. A mobile phone survey can be set up in the same way. It is relatively easy to set up such a survey and the costs are relatively low. Using the mobile phone during driving seems to be an important risk factor, as it is as dangerous as drink-driving. The survey will give an estimation of the extent of the problem.

33 In-depth analysis (trucks)

The Accident Analysis Heavy Trucks TWO (AAHTWO) uses a harmonized European methodology such as described in PENDANT and SAFETYNET. For in-depth studies it is very important to use a harmonized methodology because the sample size is usually small and this allows us to compare data between different in-depth studies. The most frequently or widely used, new studies are EACS, PENDANT, MAIDS and SAFETYNET.

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Summary

The objective of this Thematic Report is to collect and analyse Best Practices in the category Statistics and In-depth analysis in road safety. Potential Best Practices were collected by using questionnaires that were filled out by country experts of the Member States of the European Union as well as in Switzerland and Norway. 15 data collection practices were submitted. Furthermore, the results of the SAFETYNET questionnaire were used as potential best practices in the subcategory exposure data. Nine travel surveys which were submitted in SAFETYNET were considered as potential Best Practice.

Best Practices were selected by means of selection criteria that were developed for the category Statistics and In-depth Analysis. The most important selection criteria were correctness (missing values), quality (underreporting or representativeness), accessibility of the data and novelty of the data collection practice (new type of data).

Seven Best Practices were selected and analyzed.

1. A method to check fatalities (NL)
   From a policy point of view, it is important to know the real number of traffic fatalities. CBS (Statistics Netherlands) compares three data sources (police registration, court files and municipal records) in order to calculate the real number of traffic fatalities.
2. Crash data collected by medical institutions (FR)
   The goal of collecting data by medical institutions is two-fold, namely estimating the real number of non-fatal casualties and obtaining more information about injury severity and long-term impact of traffic crashes.
3. Linked databases (LV)
   The Road Safety Information System contains several registers, namely registers of vehicles, drivers, crashes and violators of road traffic rules. In order to study connections between different variables, it is possible to link the registers by means of the VIN or plate number of vehicle or the personal identification number.
4. Speed and alcohol offences database (CH)
   This is an indicator system to monitor developments in the areas of speeding and drink-driving. Indicators include levels of police checks, violation rate, severity of sanctions, fatal crashes as well as the responses of drivers on a survey about relevant safety rules and their enforcement.
5. Mobile phone offences database (UK)
   Using the mobile phone during driving seems to be an important risk factor, as it is as dangerous as drink-driving. The road side survey will give an estimation of the extent of the problem.
6. In-depth analysis (trucks) (NL)
   The goals of the Accident Analysis Heavy Trucks TWO (AAHTWO) project were to explore the primary and secondary safety improvement possibilities and to stimulate the international use and the harmonization of an in-depth truck crash collection methodology.
7. National travel survey (UK).
   It is very important to have exposure data when carrying out road safety research. The National

Travel Survey (NTS) provides up-to-date and regular information about personal travel within Great Britain and monitors trends in travel behaviour.

Annex

34 Annex 1:
Questions/ input for the country survey

1. Most accident databases are incomplete (registration rate is not 100%). How do you deal with that?
2. A common problem in accident databases is knowing the injury severity. Police has to estimate how severely injured a victim is. That is a problem because they are not medically educated. How do you determine injury severity? Do you use other sources (e.g. hospital)?
3. The long term impact of injury caused by road accidents is often unknown. Do you study long term impact? How?

35 Annex 2:

List of all data collection practices in the category Statistics and In-depth Analysis.

	Sub-subcategory		country	data collection practice
1	check fatalities	7.1.1	NL	linking police registration with court data and death causes (GBA)
2	check out-patients/slight injury	7.1.1	FR	Rhône road trauma register (Register of road crash casualties in the Rhône Department in France)
3	manoeuvre	7.1.2	NL	manoeuvre diagram
4	modern equipment location	7.1.2	IT	Integrated Road Safety System
				geocoded and centralised crash data, province of Milan
5	modern equipment location	7.1.2	MT	Crash Geographic Information System
				GIS
6	modern equipment location	7.1.2	CZ	Crash location by GPS
				200 cars
7	modern equipment location	7.1.2	EE	GPS usage in crash location
				GPS and GIS
8	modern equipment	7.1.3	IT	Crash data collection and analysis through the implementation of a method intended to improve data reliability and Crash location
				electronic forms, GIS, province of Ferrara
9	modern equipment	7.1.3	NL	Practical test Improvement Traffic Crash Registration
				PDA (electronic forms), GPA, Friesland
10	database	7.1.4	BE	road safety barometer
				monthly quick indicators on road safety
11	database	7.1.4	LV	Road Safety Information System
				register of vehicles, drivers, crashes and violators of Road Traffic rules
12	database	7.1.4	New Zea-land	CAS - Crash Analysis System, New Zealand
				CAS is a centrally held and organised crash database with open access to all road safety engineers in New Zealand.
13	offences speed, alcohol	7.4.6	CH	Traffic delinquency indicator system
				Indicators include levels of police checks, violation rate, severity of sanc-tions, fatal crashes as well as the responses of drivers about relevant safety rules and their enforcement.
14	offences mo-bile phone	7.4.6	UK	mobile phone offences
15	in-depth	7.5.1	NL	Crash Analysis of Heavy Trucks With On-scene Database (AAHTWO)
				control group, DAF and Scania

16	exposure	7.2	BE	National Travel Survey
17	exposure	7.2	DE	National Travel Survey
18	exposure	7.2	DK	National Travel Survey
19	exposure	7.2	FI	National Travel Survey
20	exposure	7.2	MT	National Travel Survey
21	exposure	7.2	NL	National Travel Survey
22	exposure	7.2	NO	National Travel Survey
23	exposure	7.2	SE	National Travel Survey
24	exposure	7.2	UK	National Travel Survey

Table 12 – An overview of all data collection practices in the category statistics.

36 Annex 3: Questionnaire

SUPREME: Best Practice Questionnaire

Category "Statistics and in-depth analysis"

⇨ *SWOV, Ellen Berends*

Step 1: Selection of measure

Please select road safety measures from your country that are examples for very good - and possibly best - practice in road safety in Europe. **Best practice** refers to a road safety policy that is successful. A successful road safety measure is one that brings about a sustained **reduction in the number of road accidents and accident victims**, in particular fatalities and serious injuries.

Evaluation of measures and selection of best practice will be based on a list of criteria. Each measure you select will be assessed with an individual questionnaire, i.e. you fill out one questionnaire for each measure.

As different measures require different criteria, the questionnaire you fill out depends on the type of measure. At the end of this chapter you will find an overview of **categories** of safety measures, with examples of measures included in each of the categories. To open a questionnaire, please select the category for the measure you want to assess, and click on the link provided in the overview. There are two types of criteria: General description criteria (to be assessed for all measures, except for those in the categories "Statistics and In-depth analysis" and "Institutional Organization of Road Safety"), and specific description criteria (specific for measures in each category).

The questionnaire is organised as follows:

Part 1: The first part of each questionnaire contains questions on **background** information about the selected measure.

Part 2: General description criteria are assessed in the second part of the questionnaire. This part is identical for all measures in all categories. In some cases, not all criteria are applicable. In these cases, the criteria are marked "not relevant", or may be marked as such by the respondent. General description criteria are:

- **Focus of the measure**: A clearly defined **road safety problem** that the measure is intended to solve.
- **Size of the road safety problem**: Quantitative assessment of the number of accidents, fatalities and severe injuries that the measure is expected to influence.
- **Expected effects on safety**: Quantitative assessment of the likely impact of the measure on accidents or accident-contributing risk factors.
- **Evaluation of effects**: Actual impact of the measure on accidents or accident-contributing risk factors.
- **Costs and benefits**: Assessment and comparison to alternative measures.
- **Acceptance**: Public, policy maker, and user / driver acceptance.
- **Sustainable effects**: Commitment to the continued use of the measure, long-term effects.

- **Transferability**: Applicability on a wider scale, within and across countries.

Part 3: Specific description criteria are assessed in part 3 of the questionnaire. This part is specific for each category, you will find more detailed information in the questionnaires.

Resume: Summary of why the measure is proposed as Best Practice.

Categories

7.1 Data bases with accident, driver and victim information containing information about special topics (alcohol, safety restraints, etc.) of people involved in an accident

7.1.1 Completeness and representativity of the accident file

7.1.2 Special accident characteristics, Method to accurately collect

7.1.3 Easy reporting

7.1.4 Other

7.2 Exposure data:

7.2.1 Population:

7.2.2 Driver population:

7.2.3 Road length:

7.2.4 Vehicle fleet:

7.2.5 Mobility:

7.2.6 Other:

7.3 Data about infrastructure, Method to collect road characteristics:

7.3.1 Network characteristics:

7.3.2 Design characteristics sections (separation of (non)motorized traffic, obstacle free zone, barriers/median, speed, traffic calming, design consistancy, overtake facilities, parking, road width, nr. of lanes, road surface, ...):

7.3.3 Design characteristics intersections (separation of (non)motorized traffic, Intersection type, Traffic lights, traffic calming, ...):

7.3.4 Other:

7.4 Data about Safety Performance Indicators (surveys). Characteristics of people in traffic, independent of accident involvement:

7.4.1 Alcohol and drug use of traffic participants:

7.4.2 Speed:

7.4.3 Seatbelts/restraint systems/helmets:

7.4.4 Daytime running lights:

7.4.5 Trauma management:

7.4.6 Offences

7.4.7 Visibility

7.4.8 Other

7.5 Data obtained from in-depth analysis

7.5.1 Methods and collection systems on in-depth data

7.5.2 Other

Step 2: Questionnaire

Part 1: General background information

Name of the measure

- Please give the name of the measure as it is called in your country, and a common English name of the measure:

Classification of the measure

- This measure has been classified as:

> [*the classification (selected in the first step) will be repeated here to make sure that the correct questionnaire is being filled out; the answer boxes for "OK" and "not OK" will be linked to the rest of the questionnaire and the classification grid, respectively*]

- This is: OK (continue questionnaire): ☐

  Not OK (return to classification grid): ☐

Description of the measure

- Please give a short description of the measure.

Can or should the measure be combined with other measures to optimise the impact? Which measures are these?

Information source and contacts

- Please give relevant references to the measure, e.g. web-sites or reports.
- Please give information about the institution / organization that is responsible for the measure, and contact information (name of the institution, e-mail, telephone number):

Implementation of the measure

- **When** was the measure implemented?
- **Status of implementation**: What is the current status (e.g. fully implemented, partly implemented, implementation under progress)?
- **Duration of the measure**: Is the measure implemented permanently / once or for periods / in intervals / as a pilot scheme / …?
- **Level and density of implementation**: At what level and in which density is the measure implemented (e.g. number of units on national / regional / local / … level?
- How long does it **take to implement** the measure (e.g. may be implemented immediately, in 5 years, long term)?

- When can (90% of the) effects be expected (e.g. immediately, in 5 years, long term)?

In which other European countries is the measure currently in use or available?

- Please give information, if available.

Who is responsible for the measure?

- Responsibility refers to implementation, enforcement, incentives to use the measure, and activities related to the measure.

  E.g.: Legal form of implementing body/bodies, international organisation, authority, industry, NGOs, others.

What is the legal background for implementation of the measure?

- Legal background includes laws, directives, norms, certificates, incentives, voluntary measures.

Part 2: Specific part (Statistics and in-depth analysis)

Description

- **Source of description**: Who is the responsible authority for developing the data collection? Please specify the responsible authority and provide contact information (if available).

- **Source of description**: Who collects the data in the field?

  e.g. police, insurance companies, research institute

- **Source of description**: Why is the data collected (monitoring)?

  e.g. for research purposes, juridical, law enforcement or other purposes (please specify)

- **Source of description**: Who is the main party concerned? For who is the data collected?

- **Method**: How is the data collected?

  e.g. police register accidents while they carry out their other tasks, researchers sending out surveys to selected groups, from the population register license information is subtracted, etc.

- **Method**: How many people are collecting data? How much time does it take to collect the data (in man-years)?

- **Method**: Please provide ways to convince people to cooperate to collect all data correctly.

- **Method**: Are paper forms used? Or web forms? Or electronic forms?

- **Method**: How many people are coding data? How much time does it take them to manage the data collection (in man-years)?

- **Method**: Please provide ways to convince people to code and check accurately.
- **Implementation**: How was the implementation of data collection started?

  e.g. we started with a different purpose, we started collecting only a few variables, regions, etc.
- **Results**: What is the advantage of having such data, which results were obtained by having this data?

  e.g. we know that enforcement of wearing seatbelts is important. By collection information on the number of people caught for not wearing their seat belt, we are able to monitor the development (or by collecting the wearing rate on severe accidents).

  e.g. by showing speeders that 95% of the vehicles passing do not speed, they change their attitude to speeding.
- **Learning**: What should be done differently if implementation of data collection (methodology) could be started again?

What costs are associated with implementation of the data-base?

- Costs in **financial** terms: e.g. investments, maintenance costs, administration costs, long-term costs.
- **Who** bears the financial costs of the data collection (e.g. user group, state government)?

Transferability

Transferability includes prospects for using the collection methodology successfully in other **countries** or **regions**, or on a **larger scale**.

- To what degree is the methodology transferable? If available, refer to studies of the measure in other countries, explicit comparison with other countries, and publications about the measure in other countries.
- Which factors contribute or limit the transferability of the methodology? Contributing or limiting factors include **conditions** and potential **obstacles** for the effectiveness of the methodology in other countries or regions, or on a larger scale, and **specific requirements** necessary which may be difficult to fulfil elsewhere.
- To what degree can the methodology be effective for other types of data collections?

Correctness and quality of the data

- **Type of data collection**: Is the data collection a survey, a sample or is it supposed to be a complete register? Pleas provide a description of the type.
- **Survey size:** What is the sample size in absolute number and in % of the target group? What is the target group *(*e.g. all licensed drivers for person cars, total country population, etc.*)*? If possible, please give an estimate of the response rate (compared to non-response) of the survey?
- **Survey significance:** What is the required size to observe a significant change or what is the minimal change that is to be observed significantly given the current sample size?

e.g. If we observe a change in seat belt wearing rate inside urban area of from 60% to more than 65%, this is only significant (95% level) if the sample size is 2000 or bigger.

- **Data register completeness**: What is the reporting rate? Please give a percentage for the reporting rate if known.
- **Completeness**: How was the reporting rate estimated / computed?

  e.g. we determined the reporting rate by comparison with data from another source, namely ….
- **Correctness**: Are there missing items / values? How much? Please specify a percentage of empty fields in the data-base.

  e.g. The field 'license age' always missing, except in fatal accidents
- **Representativeness**: Does the sampled data represent the target group? Please specify.
- **Check**: Are there alternative sources to check representativeness? Please specify.
- **Check**: Is there a consistency check within the database (validation)? Please specify.
- **Frequency**: How often are the present variables being collected? Does this frequency limit its use?
- **Continuity**: What can be done to avoid trend breaks?
- **Data management**: Who is responsible for data management? How do they carry out their task? Do they have the money to carry out their task well? Is data management their main activity?
- **Interpretation**: Are the definitions clear? Are the definitions used in a correct and uniform way?
- **Learning**: What can be done to improve data quality, on any of the quality aspects named above?

Accessibility of the data

- **Uniformity**: Is there mutual correspondence of fields in different databases? Is it possible to link databases? Which of the following keys is available to enable linking of databases? Date of birth, date of incident, name of involved driver, license of involved driver, license plate number of involved vehicle, etc.
- **Centralized distribution**: Is there a central location where the data is stored and can be obtained? Please provide location.
- **Electronic accessibility**: is there a web-based database/application? Please provide URL/web address.

Legal framework and privacy aspects

Laws on privacy may impede data collection and research on road safety.

- **Legal framework:** Are there national laws on the safety (or accident) investigation and the investigation body which apply for this type of data? Please specify.

- **Data collection:** Is it allowed to have a data-base with data on the level of individual households, persons or accidents?
- **Data collection:** Which privacy sensitive information is lacking in the data-base? How does that impede research?
- **Linking:** Is linking possible although privacy sensitive information is lacking?
- **Publishing:** To what degree is it allowed to publish results? Which aspects can be published and which can legally not be published?
- **Publishing:** To what degree is it allowed to make recommendations? Are recommendations heard by policy makers?
- **Independent In-depth analysis:** To what degree is it possible to decide which cases can be investigated?
- **Hospital data:** To what degree is it allowed to use data from hospitals and public health institutions? Can analysis be done in-house or is it necessary to go on their site?
- **Police data:** To what degree is it allowed to use data from police? Can analysis be done in-house or is it necessary to go on their site?

Resume

Why should the measure be included in the list of best-practice road safety measures in Europe?

- Please give a short statement about what qualifies the measure as “Best Practice” in Europe.