

DESIGNING THE EUROPEAN ROAD ACCIDENT OBSERVATORY

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Extent and nature of casualty problem in EU

In 2001 there were over 40,000 people who were killed on the roads of the 15 member states of the European Union, additionally around 3.3 million people were injured (1). The costs to society exceeded €180 billion which is around twice the annual budget of the European Commission and 2% of EU GDP. In May 2004 a further 10 countries will join the EU increasing the total population to over 450 million people and the estimated numbers of road crash fatalities by 25% to over 50,000 each year (2).

In 2001 the European Commission adopted a target of reducing fatalities by 50% (3) and identified several areas where it could make a direct contribution within the constraints of subsidiarity. The target was reaffirmed in 2003 (4) in the Road Safety Action Programme (RSAP) which provided further detail about actions it planned to introduce.

Background to EU decision making

The RSAP identified that there was a structural deficit at EU level of harmonised data describing the totals and detailed characteristics of crashes and casualties. It

recognised that its road and vehicle safety could not be better directed without more systematic and detailed information. Without such information there was an inability to compare crashes between countries, prioritisation of countermeasures was more difficult and there was a lack of detailed feedback on the effectiveness of countermeasures. Table 1 compares data types and availability at EU.

The CARE database, which assembles the national accident data from the Member States was the most developed with transformation rules that permitted a useful core data set to be derived. The IRTAD database¹ does provide harmonised fatal accident data for many EU countries but only at aggregate level. No intermediate level data was available at EU although the EACS provided some data on accident causation, mostly for one country and the new Pendant project planned to put in place the framework for a representative crashworthiness database. A number of specialist sets of accident data had been developed as part of broader Fifth Framework Programme research projects (eg RISER², CHILD³, ECBOS⁴). These generally focussed in on specific research issues and were only available within the respective projects. Significant data gaps existed that prevented inter-country comparisons, particularly for the 10 New Member States, and also at in-depth level where there was very limited detail available on accident causation.

¹ IRTAD – International Road and Traffic Accident Database

² RISER – Road Infrastructure Safety on European Roads (5FP)

³ CHILD - Child Injury Led Design (5FP)

⁴ ECBOS - European Coach Occupant Safety (5FP)

Table 1: Availability of accident data at EU level

Level	Main Source of Data	Functions	Availability at EU level
Base Level (low detail, many cases)	National accident data	<ul style="list-style-type: none"> • Priorities • Trends • Progress to targets 	CARE database IRTAD
Intermediate level	Specialist police reports Insurance reports	<ul style="list-style-type: none"> • Identification of blame • Reconstruction of pre-crash events 	None available
In-Depth level (high detail, few cases)	Special investigations	<ul style="list-style-type: none"> • Accident causation • Injury causation • Basic research • Engineering feedback • Technical standards 	5FP Pendant project (crashworthiness) EU Accident Causation Study (EACS)
Specialist	Research studies	<ul style="list-style-type: none"> • Specific research questions 	Small scale 5 FP projects (eg CHILD, RISER, etc)
Exposure data	National level surveys	<ul style="list-style-type: none"> • Estimation of risk • Comparison between countries 	None available

European Road Safety Observatory

The European Commission has decided to initiate the development of the Road Safety Observatory by funding the SafetyNet project under the Sixth Framework Programme to prepare a suitable framework. The project is an extensive one, lasting over four years, and plans to build the basic structure as well as gathering new data at several levels. The Observatory will bring together harmonised data at several levels and eventually cover all 25 member states and further additional countries outside the EU. The data will provide a resource at EU and member state level and the outputs will be widely available across the Web. The technical and management structure is shown below in Figure 1. The activity is categorised into three main areas with the work being conducted across seven Work Packages. Macroscopic data addresses issues concerning national level data and international comparisons, in-depth data provides much greater detail on accident causation and supports new priority identification while the Data Application will provide a gateway to the accident information over the web and develop

statistical approaches. The approach of the project is influenced by several reports from the ETSC (5-7).

Macroscopic data

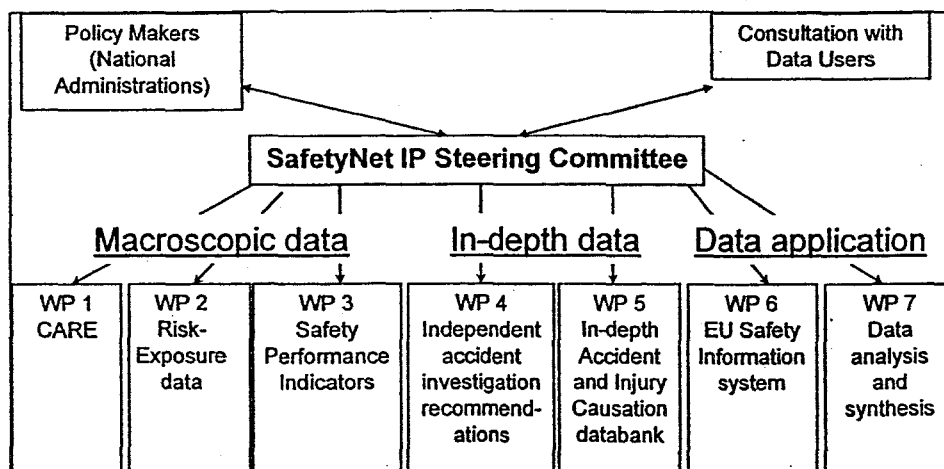
The three Work Packages addressing macroscopic data structures will together develop new harmonised methods for gathering and processing accident information and then apply them to populate the structures with data. The WPs themselves will not gather data but will work in close collaboration with Member States (MS). Data will be gathered at national level and supplied to the Project thus following a formal request by the European Council of Transport Ministers (8). The EU CARE and the recently formed Safety Performance Indicators Working Groups will provide the umbrella in an effective manner. The project will provide the focus and technical direction for close cooperation between the European Commission, Member States and the research community.

WORK PACKAGE 1 - CARE DATA

The CARE database is the only pan-

European accident data set, comprising the

Figure 1: SafetyNet Management and Technical structure



national accident databases from the 15 current Member States. A series of transformation functions have already been developed to produce a smaller but harmonised dataset for fatal crashes. The Work Package will extend these transformations to include the data from the 10 new Member States, Switzerland and Norway. The WP will also produce a series of analyses of the complete data, the first ever that will be publicly available. It will finally examine the issues of classification of non-fatal but serious injury crashes.

WORK PACKAGE 2 – RISK EXPOSURE DATA (RED)

International comparisons are frequently best conducted using risk evaluations rather than numeric comparisons. Many Member States do gather exposure data, in order to calculate risk, however these measurements are frequently not comparable between countries. This WP will provide the relevant methodology according to the state of the art, organise the data gathering and develop new transformation rules that will be applied to data from the Member States permitted comparable comparisons.

WORK PACKAGE 3 – SAFETY PERFORMANCE INDICATORS

Safety performance indicators are support tools to understand better the causes of accidents and to monitor policy interventions. Examples include measurements of seatbelt usage rates, road speeds and alcohol in drivers. They are needed in addition to a count of crashes or injuries for several reasons:

- crashes and injuries are subject to random fluctuations and a recorded number does not necessarily reflect the underlying 'expected' number;
- recording of crashes and injuries is incomplete
- a count of crashes says nothing about the processes that produce crashes

This WP will develop a new framework within which data gathered by Member States will be brought together in a comparable format.

In-depth data

WORK PACKAGE 4 – INDEPENDENT ACCIDENT INVESTIGATION RECOMMENDATIONS

In the field of road safety, the "independence" of the investigations is not

the main quality of the common studies. Each team has its own history and the need for independence is not felt as an individual necessity. Conversely, with a European protocol for a European survey, the need for independence becomes a very strong element for the recognition of the work value.

The concept of independence has many aspects. First there is the question of who defines the target of the investigation and how it is financed. It leads the discussion to issues such as selection of accidents (which groups are emphasized), their representivity, items to be investigated (for example, is speed important?) etc. This WP will examine these issues and produce guidelines for assessing the independence of accident data and its analyses. It will also give guidance on constraints of existing EU legislation and particular requirements in the investigation of major accidents.

WORK PACKAGE 5 - INDEPENDENT ACCIDENT AND INJURY DATABASES

This WP will develop a framework for two new representative accident databases and populate them with data gathered by the Project. The main purpose is to provide a sound basis for EU policy development. A database of approximately 1300 fatal accidents will be assembled to describe the key characteristics of these crashes, with some interpretation of causation. The data will be comparable to the US FARS dataset, with around 100 variables recorded, but will focus on European issues. The second database will provide an in-depth description of the causation of around 1000 crashes and identification of key risk factors. Typically 400-500 variables will be gathered for each crash with particular attention to infrastructure safety and the needs of eSafety technologies.

Data Application

WORK PACKAGE 6 - EUROPEAN ROAD SAFETY INFORMATION SYSTEM

WP 6 will assemble an extensive range of information and data related to traffic accidents including the results of other SafetyNet WPs. It will provide a single source for policy makers and researchers wishing to obtain details of accident related information. Examples include analyses of the data gathered or assembled in SafetyNet, results and reports from other projects, comparisons of regulations for EU Member States and comments on enforcement activities.

WORK PACKAGE 7 - DATA ANALYSIS AND SYNTHESIS

Accident statistics in themselves are not sufficient to model the complexity of the accident process and road safety in general. It is necessary to link accident data with various relevant databases dealing with road safety in order to enable a multivariate analysis, based on these co-ordinated data sources. These analyses will allow experts in road safety to identify different kinds of risk factors and to propose effective and objective policy decisions. WP 7 will review available techniques and apply them to data to demonstrate the added value.

Project Implementation

The project is to start before the summer 2004 and over the first 18 months will lay down the framework and produce the first results. It will not be conducted in isolation but will seek to develop links with other EU and national activities. It will consult with potential data user groups to identify

needs and form consultative links to the High Level Group on Road Safety.

The SafetyNet consortium comprises 21 leading road safety organisations from 15 EC Member States under the coordination of VSRC at Loughborough University. Together the SafetyNet team provides the wide-ranging, multidisciplinary range of skills necessary to face the high complexity of the task. Many of the organisations (e.g. SWOV, INRETS, TRL, KUSS, IBSR and TOI) are also members of the Forum of Road Safety Research Institutes (FERSI).

Challenges of the European Road Safety Observatory

The creation of a common independent gateway that will bring together EU accident and injury safety data as well as road safety information and support activities is the primary challenge of the European Road Safety Observatory. This Observatory would also be constructed for the benefit of road safety practitioners and the general public. Part of the establishment of such an organisation will be the development of new tools for gathering and analysing EU road safety data in Member and New States according to impartial and open procedures.

The challenge for the SafetyNet Integrated Project is to provide for the first time to the European Community (EU, national, regional and local authorities, enterprises and other organisations) the necessary scientific support for the intensification of efforts towards safer roads in Europe. Exchange of experience, as well as

stimulus from the multi-country comparisons within the SafetyNet pan-European road safety platform are fundamental benefits of all those struggling every day for the improvement of road safety at local, regional, national and European level.

Finally, the project meets the since long call for a European Accident Causation Database specified by DG-Enterprise and Information Society under the eSafety policy (use of new technologies for the improvement of road safety in the European roads).

References

- 1 European Transport Safety Council, Transport Safety Performance in the EU a Statistical Overview, Brussels, 2003
- 2 Ibid
- 3 European Commission White Paper, European transport policy for 2010: Time to decide, Brussels, 2001
- 4 European Commission, Road Safety Action Plan, COM(2003) 311 final, 2.6.2003, Brussels
- 5 European Transport Safety Council, Transport, Accident and incident investigation in the European union, Brussels, 2001
- 6 European Transport Safety Council, Transport EU Transport accident, incident and casualty databases:- current status and future needs, Brussels, 2001
- 7 European Transport Safety Council, Transport safety performance indicators, Brussels 2001
- 8 Council doc. 10753/1/03 REV 1 – discussion on the road safety action programme – conclusion #8, 5 June 2003, Brussels