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Proposing a framework for pan European transparent and independent road accident investigation

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PROPOSING A FRAMEWORK FOR PAN-EUROPEAN TRANSPARENT AND INDEPENDENT ROAD ACCIDENT INVESTIGATION

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ABSTRACT

Unlike the rail, civil aviation and maritime transport modes, there is currently no standard process for investigating road accidents within Europe. There is, therefore, a wide range of road accident investigation procedures and protocols in place across Europe. However, as countries work towards meeting both their own road safety targets and those set by the European Commission, it may be that existing investigation practices are no longer suited to facilitating the decision making processes of road safety policy-makers or practitioners.

SafetyNet is a European Commission supported project, which is building a European Road Safety Observatory to facilitate the formulation of road safety policy in the European Union. Work package 4 of SafetyNet is developing recommendations for a Transparent and Independent pan-European approach to road accident investigation.

These recommendations propose the establishment of an independent body for undertaking transparent and independent accident investigations where necessary, or the implementation of these investigations in existing national safety orientated accident investigation activities, in each of the EU Member States. This body would gather and manage accident investigation data and use this data to further progress road safety within the EU.

To define the framework in which this body might operate, 'Best practice' from existing investigative organisations across Europe was examined in order to produce a set of draft recommendations which focused on four categories of issues:

1. **Institutional**, referring to the structure and functioning of the body responsible for road safety investigations;
2. **Operational**, detailing how the body carries out investigations;
3. **Data**, addressing issues surrounding the storage, retrieval and analysis of data generated by investigations; and

4. **Development of Countermeasures**, dealing with how investigation conclusions should be presented, used and disseminated.

A consultation exercise was then undertaken in order to gather the expert opinion of European road safety stakeholders and to further develop the recommended framework. This highlighted a number of key questions about the Draft Recommendations including:

- Is the proposed level of transparency and independence appropriate for road accident investigations?
- Is one type of investigative activity appropriate for all types of accidents ranging from the most severe or 'major' accidents to the large number of more minor accidents that occur everyday?

The major conclusion was that a 'one size fits all' approach is not appropriate for the investigation of road accidents and therefore multiple sets of recommendations are required. This paper discusses how the four categories of recommendations combine to form a framework where the data gathered during road accident investigations can be used to develop road accident countermeasures which will assist in casualty reduction throughout Europe.

1. INTRODUCTION

The prevention of road accidents and injuries has been a major focus for policy makers for a number of years. In 2001, the European Commission published its white paper, *European Transport Policy for 2010: A time to decide*, detailing policy objectives for transport as a whole. In response to concerns raised about the number of road fatalities in Member State countries the Commission set the ambitious target to reduce the 40,000 road deaths in 2000 (EU15) to half that number by 2010 (EC 2001). The white paper stated that a road safety action programme was to be published that would detail the measures needed to meet this target. This action programme, *Saving 20,000 lives on our roads – a shared responsibility* was published by the European Commission in 2003. It asserted that

> *The collection and analysis of data on accidents and physical injuries is essential to be able to make an objective evaluation of road safety problems, to identify the priority fields of action and to monitor the effects of the measures* (p15)

This need for effective road accident investigations which lead to the development of preventative measures is clear. The European Commission estimates that one in three EU citizens will be injured in a road accident during their lifetime and that the direct cost of road accidents amounts to €46 Billion (EC 2001). There are many different types of road accident investigation practices and procedures in existence across the European Union Member State countries. Such a large number of organisations and authorities responsible for road safety can "*discourage the introduction of coordinated polices*" (EC 2001: p65). Unlike the rail, civil aviation and maritime transport modes, there are no requirements for Member States to set up an independent organisation responsible for road accident investigation. This is

surprising given the disparity in numbers involved. If only fatalities are focused upon then the 105 rail fatalities in the EU25 during 2004 is dwarfed by the 43,472 road fatalities (EC 2006 - see table 1).

Table 1: Fatalities in 2004 for the Road, Rail and Air transport modes

	EU15	EU25
Road	32'637	43'472
Rail	75	105
Air	*	6 (135 in 2005)

*Figure not available
Figures for the Maritime transport mode are not available for EU25/15

Work package 4 of the SafetyNet project is responsible for developing recommendations for transparent and independent road accident investigations. The need for independent road accident investigations has been stressed by both the European Transport Safety Council (ETSC) and the European Commission. ETSC called for the extension of the principles governing independent accident investigation in aviation to other modes, including road transport, and called for the application of independent investigation techniques to representative samples of road accidents (ETSC, 2001). The European Commission identified the need for independent road accident investigations to supplement the national statistics. These independent investigations would investigate major accidents as well as a sample of the more routine accidents that occur everyday (EC 2003).

2. THE SAFETYNET PROJECT

SafetyNet is a large European Commission supported 6th Framework project which commenced in 2004 and is due to be completed in 2008. Its aim is to build a framework for the European Road Safety Observatory as well as to collect new data and to develop new data collection methodologies. The project's consortium is made up of 22 partner organisations from 17 countries. SafetyNet comprises of seven work packages that cover three areas of work namely, 'Macroscopic Data', 'in-depth Data' and 'Data Application'. Three work packages work in the area of 'Macroscopic Data' and aim to develop new harmonised methods for gathering and processing accident information across the EU.

The first focuses on CARE Data. The CARE database is a disaggregated pan-European accident data set which incorporates the national statistics of the EU15 countries. Work Package 1 is responsible for enhancing and exploiting the CARE database by including new Member States, disseminating CARE data and developing the specification of a set of recommended data fields for potential future adoption in Member States. Work package 2 explores ways of harmonising risk exposure data, such as road length and driver population, collected in individual member states. Work package 3 is devising a set of Safety Performance Indicators, for example to measure the use of protective systems such as seat belts and helmets.

Work packages 6 and 7 involve 'data application'. Work package 6 has the task of developing a European Road Safety Information System by assembling a wide range of information and data relating to traffic accidents and making this available on one website, alongside the results of SafetyNet. (See www.ERSO.eu). Work package 7 develops and applies statistical techniques to the data collected by both the macroscopic and in-depth data work packages.

Work packages 4 and 5 fall into the in-depth data area. Traditionally, in-depth data refers to the collection of highly detailed data about accidents by performing in-depth accident investigations – those performed by individuals trained in the skills of accident investigation. Work package 4, as previously stated, has the task of developing pan European recommendations for transparent and independent road accident investigation. Work package 5 involves the development of two databases. The first collates fatal accident data from existing sources including police accident investigation reports, court and insurance files. The second is an accident causation database using data collected by accident investigation teams in the six partner countries.

3. THE FOCUS OF WORK PACKAGE 4

There are many different types of road accident investigations carried out by a wide range of organisations and for a variety of purposes. Probably the most salient of these is the investigation of accidents by police and other experts for insurance or judiciary purposes and 'safety oriented' investigations. Safety oriented investigations aim to identify the causes, surrounding circumstances and resulting consequences of road accidents without seeking to assign blame or identify the guilty party. The EC white paper reports the growing concern in Europe and the US that investigations focusing on liability for judiciary or insurance purposes do not meet the need for independent technical investigations (EC 2001). The focus of SafetyNet work package 4 is therefore producing recommendations for in-depth safety oriented road accident investigations that are conducted in a transparent and independent way. These terms, especially, in-depth have been used in a variety of different ways and have a number of different definitions. An important task of work package 4 has been to define and clarify the terms used.

3.1 Definition of terms

An in-depth safety oriented road accident investigation is conducted by investigators with specialised knowledge in accident investigation and/or other fields of knowledge relevant to the investigation. It aims to identify one or more of the following:

- the circumstances of the accident
- the causes of the accident and injuries
- the consequences of the accident in terms of injuries and injury outcomes
- contributory factors to the accident or its consequences

In-depth safety oriented accident investigations do not contribute to any judicial enquiry or take a stand on responsibilities. They aim to produce recommendations for countermeasures in order to prevent future occurrences. For all but the most serious road accidents, recommendations are likely to be based on a number of investigations which generate data that are stored in a database.

The terms ‘independence’ and ‘transparency’ were explored in the first two SafetyNet work package 4 reports *Deliverable D4.1 Bibliographical Analysis* (SafetyNet 2005) and *Deliverable D4.2 Database Transparency* (SafetyNet 2006a) respectively. These documents set out the basis for the work package 4 definitions of independence and transparency. The concept of independence draws heavily on the criteria for independence adopted by the civil aviation and rail investigation bodies. An investigative organisation must be independent in terms of its structure, finances and functioning. Structural independence is gained when an investigation body is separate from regulatory bodies, including the judiciary, and when the body and its investigators are granted a legal status.

Financial independence is secured when the body has autonomy over its own budget; investigations are not related to external financing, and when the body is separate to and not financially dependent upon commercial organisations (e.g. vehicle industry). The third aspect, functional independence, occurs when legislation governs the categories of accidents to be investigated but the body has the autonomy over the decision to investigate and the focus and scope of the investigation. The body should also have the legal right to fully access all evidence and witnesses and be able to publish reports without further scrutiny.

Investigating organisations must be transparent in their practices, so that the public can trust them and the results of their investigations. Transparency is important in assessing the quality of investigations and the resulting data. It can be defined as the full, accurate, and timely disclosure of information. For accident investigations this means making available information on what the body does and how it does it as well as on the results of the investigations, which allows quality to be assessed. This includes the conditions under which investigations are carried out and the ways in which data is managed.

4. THE DRAFT RECOMMENDATIONS

SafetyNet work package 4 aims to develop best practice recommendations for conducting transparent and independent safety oriented in-depth road accident investigations, which collect information about road accidents and use this information to devise countermeasures. The framework for this can be thought of as constituting four component parts:

1) Institution: The characteristics of the organisation or ‘body’ in terms of the structure and functioning that is responsible for road safety investigations.
2) Operations: how the body conducts investigations

3) Data: How data resulting from accident investigations is stored, retrieved and analysed.
4) Countermeasure development, including reporting and dissemination: How investigation conclusions should be presented, used to develop countermeasures and disseminated.

It is therefore the task of SafetyNet work package 4 to devise recommendations that address institutional, operational, data and reports, countermeasures and the dissemination of data issues. A first draft of these recommendations was completed in November 2006 (SafetyNet, 2006b). The Draft represented a culmination of knowledge gained from reviewing the current procedures for investigating road accidents in commercial companies, police forces, existing road accident investigation organisations and the independent rail, civil aviation and maritime accident investigation bodies. The Draft Recommendations is a working document and therefore subject to changes.

The rationale behind the development of these Draft recommendations was to enable Member States to achieve as much as it is possible, the best practice for investigating road accidents by building on existing procedures and expertise. In order for road accident investigations to result in improved safety, mechanisms should exist to share resulting data with stakeholders, who are in a position to implement changes and improve legislation. At this stage in the project, the existence of a dedicated independent Road Accident Investigation Body was thought to be the best way of achieving this, as advocated by ETSC:

> *As indicated at the Third Accident Investigation Conference organised by the European Transport Safety Council (ETSC) 'a permanent independent organisation not only guarantees independence of investigation; it also ensures that its recommendations are followed up by action'.* (EC 2003:46)

Therefore the Draft recommendations refer to a 'body' that is responsible for conducting transparent and independence of road accident investigations.

4.1 Institutional Recommendations

The institutional recommendations aimed to ensure the structural, financial and functional independence of both the investigative body and the investigators themselves. This body should be independent in terms of its structure, finances and functioning as defined by SafetyNet (2005) and carry out its investigations with as much openness and transparency as possible. It should have control over its budget and should not rely on external funding to carry out investigations. National and international priorities should inform the investigation process but not determine it and the body should retain its autonomy over what is investigated.

Independent investigations should be carried out by one or more multidisciplinary teams with specialised knowledge in a number of relevant

areas. This would allow a broad range of issues to be addressed including vehicle condition, the road layout and the behaviour and health (mental and physical) of the involved road users. The team(s) should have access to additional external expertise if the investigation demands it. Experienced and trained interviewers should be on call to assist in the conducting of interviews and the taking of witness statements.

4.2 Operational Recommendations

The operational recommendations dealt with how investigations are initiated and conducted, their aims and legal rights. They stated that the body responsible for road accident investigation should be notified of accidents at the same time as the emergency services or as soon as reasonably possible. Alerting members of the investigation team should take place according to the procedure and order agreed on between the emergency services and the investigation team. Procedures should be put in writing and standard information about the accident should be communicated to the team so that an assessment about whether to investigate can be made as soon as possible. Accident scene investigations should take place as soon as possible following the accident so that information such as traces on the road and weather conditions can be obtained. Investigations should be safety focused and aim to establish the immediate and underlying causes of the accident and injuries. Investigations should be separate from the judicial enquiry.

In order to conduct transparent investigations and to establish consistency in data collection, accident investigation procedures should be published in a manual which is publicly available. Data should be collected according to the published manual and allow investigators to gain a complete picture of what occurred, why it occurred, the consequences and ways in which the accident and injuries could have been prevented. In order to achieve this, Member States need to define the legal status of investigators to enable them, in cooperation with the police, to access the accident scene; vehicles – including on board data recorders; roadside insulations; records of such insulations and road maintenance; results of medical examinations and post-mortems. Investigators should also be given the right to question witnesses.

4.3 Data Recommendations

The data recommendations addressed two major issues – the protection of the data from use in the judiciary system and data storage, including the legal issues of data privacy. Data that are collected by independent road accident investigators should not be used to give evidence about fault or blame, including in a court of law. It should be protected by law so that data never needs to be disclosed to anyone else, including the police or any other enforcing agency.

Data that are collected during an independent road accident investigation should be stored in a structured accident database. This should also allow the storage of witness accounts and include a tool for progress tracking and

management. A Database Manager should be appointed and be responsible for data accuracy and completeness as well as the analysis of the data. This data should be stored securely according to the confidentiality requirements of the Member State. Data that contain information that would lead directly to the identification of persons involved in the accident should not be released to a third party. Information can be made available for research or analysis but this should be restricted to a format which does not permit identification or attribution.

4.4 Reports, Countermeasures and the Dissemination of Data

The Draft Recommendations summarised so far describe a linear process where an independent organisation collects data about accidents and stores this information in a database. However the major outcome of safety oriented road accident investigations ought to be the development of measures that prevent future occurrences. The fourth part of the framework, *reports, countermeasures and the dissemination of data* seeks to address this. The Draft Recommendations propose that the reports from road accident investigations should be public and take two forms – individual accident reports and reports based on aggregate data. Reports should include information about the investigation procedures and the information which was used to draw conclusions and should identify the causes of the accident and resulting injuries. Reports should also include recommendations for countermeasures.

Recommendations resulting from accident investigations should be developed independently of stakeholders although a dialog with these is likely to be necessary to determine what can be achieved. These recommendations should be passed to the relevant stakeholder(s) and there should be a legal obligation for stakeholders to respond to the recommendations and justify their actions within a timeframe. This response should include how any resulting countermeasures will be implemented and monitored.

National recommendations should be discussed at a European level to assess whether they are applicable Europe wide. National data files should also be compiled within a European database for analysis. The results of this analysis should be disseminated to all Member States and the results of national independent investigation activities should be widely disseminated within the European Community. The European Road Safety Observatory could be used to facilitate this.

In summary, the framework for pan-European transparent and independent road accident investigation which the Draft Recommendations propose is an independent body carrying out in-depth safety oriented investigations in a transparent manner, using multidisplinary teams. The body's investigators conduct scene investigations, which have been given an appropriate legal status, according to a published manual. The resulting data is stored in a secure database and is protected from use within the judicial system. Investigation results are made public on a national and European level as individual reports and aggregate data. Recommendations for

countermeasures are devised which are passed to stakeholders for implementation.

5. CONSULTATION

It was recognised however that some issues had not been fully addressed by this framework. The Draft Recommendations suggest a preference for on-scene methodology where investigations are conducted at the scene of the accident before the physical evidence, such as the vehicles involved, has been removed. However investigations that take place later without an immediate scene examination (retrospective methodologies) are successfully used in a number of countries. Also the Draft Recommendations do not clearly address when an individual accident report should be used – it is clearly inappropriate to recommend that if, for example, all 40,000 European fatal road accident are investigated, a report should be published for each of them. In addition the fundamental question of which road accidents should be investigated has not been answered.

In order to fully explore these issues and to assess whether the Draft Recommendations were appropriate and necessary, a consultation exercise was undertaken. This aimed to gather expert opinion from both national and European road safety stakeholders. The main consultation activity was a workshop where stakeholders representing a variety of professional backgrounds heard presentations on the Draft Recommendations. They were invited to give their opinions by participating in discussion sessions and filling in a questionnaire (for the full workshop report see SafetyNet, 2007). Overall the results were positive with the majority of recommendations gaining support from over 65% of the attendees. However a number of issues and questions were raised which must be taken into account when devising a final set of recommendations.

Some related to a particular framework component. For the operational recommendations, workshop attendees suggested that both on-scene and retrospective methodologies rather than just on-scene methods should be employed. Comments also indicated that the issue of whether it is appropriate to use information collected by the judiciary investigation should be considered. For ‘data’ it was ‘data privacy’ issues that caused concern among stakeholders with the suggestion that the appropriateness of storing and sharing data depends on whether the source is public (e.g. skid marks), or private (witness statements). For reports, workshop attendees suggested that summarising data for a number of accidents is the most appropriate reporting style. Very few advocated the use of full reports for every road accident investigation.

Others comments related to the recommendations as a whole. One of the key questions raised was, *is the proposed level of transparency and independence appropriate for road accident investigations?* The principle guiding the Draft Recommendations was that road accidents should be examined through transparent and independent safety oriented investigations. Most of the institutional Draft Recommendations relating to an investigative

body emphasise the need for independence as they have been heavily influenced by the bodies responsible for investigating accidents for civil aviation and rail accidents. The workshop questionnaire responses, however, revealed that transparency was considered more important than independence by half of respondents with a further 30% believed that transparency and independence are equally important.

This raises questions about the appropriateness of the independent body as proposed in the Draft Recommendations. Workshop attendees thought that the comparison of road accident investigations with those of other modes is problematic due to the differences in their nature – road accidents are often considered to be 'private' whereas rail accident are 'public' – as well as the disparity in numbers involved. It was also not clear how the body would fit into individual countries existing structures and practices. It was also suggested that the importance of transparency and independence differed according to the type of accident. 'Major' or the most severe accidents, were thought by some to require a greater level of independence than the more 'regular' accidents that occur more frequently, but transparency is equally important for both.

This raises a second question: *is one type of investigative activity appropriate for all types of accidents, ranging from the most severe or 'major' accidents to the large number of more minor accidents occurring everyday?* The conclusion of the consultation on the Draft Recommendations is that it is not. The 'traditional' work of a safety oriented independent accident investigation board is to investigate a few accidents per year using on-scene methodologies and to write an individual report for each investigation which includes recommendations for safety improvements. However such a body does not usually produce a database. Organisations which do, generally investigate many accidents using on-scene or retrospective methods and produce reports describing the results of a number of accidents.

6. CONCLUSIONS

In conclusion, it is not appropriate to use a 'one size fits all' approach to road accident investigation, as was attempted in the Draft Recommendations. What is more appropriate is to have a framework for pan-European transparent and independent road accident investigation that distinguishes between the investigation of major accidents and a sample of more routine accidents designed to feed a database. There is a need for each Member State to have an organisation that is responsible for such activities but in some countries it will not be necessary to create a new body. Instead the recommendations for independent and transparent road accident investigations could be implemented by existing safety orientated accident investigation activities. The future task of SafetyNet work package 4 will be to use the Draft Recommendations and the feedback that they have received as a basis from which to develop recommendations that address 'major' accident investigation and the investigation of a sample of routine accidents. It is likely that two sets of recommendations will be necessary in order to create an effective framework which allows the collection of road accident data from

which road accident countermeasures can be generated. Ultimately this will lead to the reduction of casualties on European roads.

7. ACKNOWLEDGEMENTS

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8. BIBLIOGRAPHY

European Commission (2001) *White Paper — European transport policy for 2010: time to decide*, Office for Official Publications of the European Communities, Luxembourg.

European Commission (2003) *Saving 20 000 lives on our roads — A shared responsibility*, Office for Official Publications of the European Communities, Luxembourg.

European Commission (2006) *European Union Energy & Transport in Figures 2006.* [online] EC. Available from: http://ec.europa.eu/dgs/energy_transport/figures/pocketbook/doc/2006/2006_transport_en.pdf

European Transport Safety Council (2001) *Transport accident and incident investigation in European Union*. [online], ETSC, Brussels. Available from http://www.etsc.be/documents/accinv.pdf

SafetyNet (2005) *Deliverable D4.1 Bibliographical Analysis*

SafetyNet (2006a) *Deliverable D4.2 Database Transparency*

SafetyNet (2006b) *Deliverable D4.3 Draft Recommendations for Transparent and Independent Road Accident Investigation—A Working Paper*

SafetyNet (2007) *Deliverable D4.4 Workshop Report*

All of the above SafetyNet reports can be downloaded from: http://www.erso.eu/safetynet/content/wp_4_independent_accident_investigation.htm