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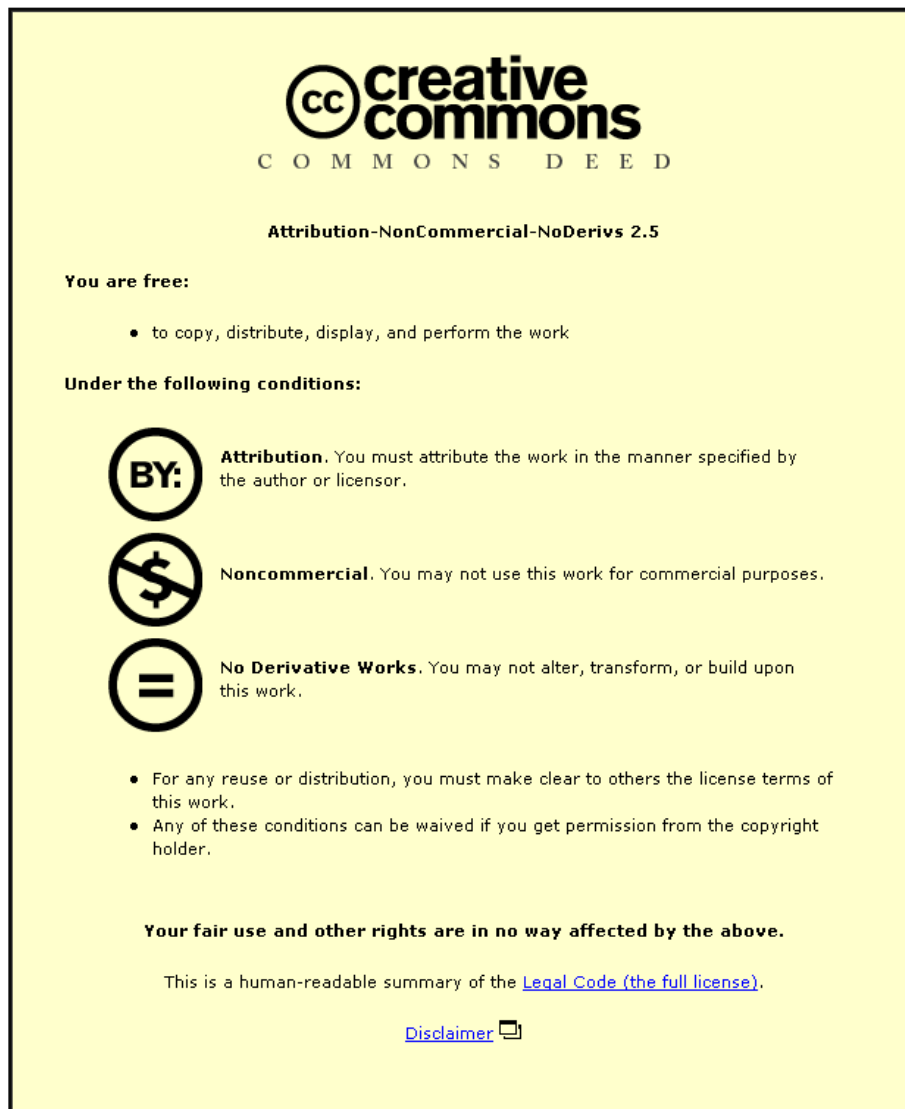
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Recommendations for establishing Pan European Transparent and Independent Road Accident Investigations

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Abstract

A set of recommendations for pan-European transparent and independent road accident investigations has been developed by the SafetyNet project. The aim of these recommendations is to pave the way for future EU scale accident investigation activities by setting out the necessary steps for establishing safety oriented road accident investigations in Member States. This can be seen as the start of the process for establishing road accident investigations throughout Europe which operate according to a common methodology.

The recommendations propose a European Safety Oriented Road Accident Investigation Programme which sets out the procedures that need to be put in place to investigate a sample of every day road accidents. They address four sets of issues; institutional addressing the characteristics of the programme; operational describing the conditions under which data is collected; data storage and protection; and reports, countermeasures and the dissemination of data.

INTRODUCTION

The prevention of road accidents and casualties has been the focus of both National and European policy makers for several years. The European Commission has identified a need for independent road traffic accident investigations that are focused on the causes of accidents rather than apportioning blame. These investigations should generate data that can be used to identify areas of priority and develop accident countermeasures. The data that is generated by in-depth safety oriented investigations should be more detailed than that which is produced for national statistics. Investigations should be conducted on a national level following a European methodology.

SafetyNet is a large European Commission supported 6th Framework project which commenced in 2004 and is due to be completed in October 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'. As part of its work in the area of 'In-depth Data' SafetyNet has developed a set of recommendations for independent and transparent safety oriented road accident investigation.

The aim of these recommendations is to set out the requirements for establishing a European Safety Oriented Road Accident Investigation Programme. The recommendations specifically address the safety oriented investigation of a statistical sample of accidents, which aims ultimately to feed evidence based policy making. This can be seen as the start of the process for establishing safety oriented road accident investigations in all Member States which operate according to a common methodology. Setting out the exact characteristics of this common methodology, in terms of the specific data to be collected however, was beyond the scope of the SafetyNet project.

As the recommendations represent the culmination of four years of work this paper will firstly explain the issues and considerations that were important in their development before briefly discussing how the recommendations were devised and finally describing the recommendations in their current form.

ROAD SAFETY IN EUROPE

In 2001, the European Commission published its white paper, *European Transport Policy for 2010: A time to decide*, detailing policy objectives for the transport sector as a whole. In response to concerns raised about the number of road fatalities in EU Member States the Commission set the ambitious target to reduce the 40,000 road deaths in 2000 (EU15) to half that number by 2010 [1]. Reducing the number of road accident fatalities to 20,000 would also mean substantial overall enhancement of road safety across Europe.

The white paper stated that a road safety action programme was to be published that would detail the measures needed to meet its road death reduction 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. [2]

Currently, across Europe, various types of investigations are conducted on road accidents by the police, insurance companies, researchers and other accident investigators. This produces a range of data including macroscopic data giving a general overview of the accidents that is included in Member States' national statistics, and highly detailed data on the roadway, vehicles and/or injuries that results from in-depth investigations.

Road accident investigation practices have been examined by the Road Strategy for Accidents in Transport working group (ROSAT). ROSAT was part of a group of 12 experts set up by the European Commission in 2004 to assist in defining strategy for transport accident investigations. The ROSAT report and recommendations for road accident investigation was published in 2006 [3]. The ROSAT group identified four levels of accident investigation; the collection of statistical data for national and European databases; collection of intermediate level data by the police and insurance companies for reports and black spot analysis; in-depth investigations by multidisciplinary teams collecting large numbers of variables to identify safety countermeasures; and special investigations into a small number of out of the ordinary accidents with the aim of preventing future occurrence.

The ROSAT group concluded that all these levels of investigation are important in making up a national investigation system, but that in-depth multidisciplinary investigations are required in addition to the collection of statistical data and intermediate level data in order to fully learn from road accidents. The collection of statistical data and data by the police and insurance companies is widespread across Europe, however in-depth investigations by multidisciplinary teams is less so. Therefore the focus of the SafetyNet recommendations is on in-depth 'safety oriented' road accident investigations, which aim primarily to develop road accident countermeasures.

THE DEVELOPMENT OF RECOMMENDATIONS

As previously stated, SafetyNet was tasked with developing a set of recommendations for transparent and independent road accident investigation. The starting point was examining the characteristics which made air, rail and maritime accident investigation boards 'independent' and comparing them with existing road accident investigation activities. This process allowed 'independence' in terms of accident investigation, to be defined. The concept of independence as defined by SafetyNet relates to the organisation responsible for investigating and the investigators themselves [4]. 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 ideally when the body and its investigators are granted a legal status.

Financial independence is secured when the body has a stable budget and autonomy over its use. 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.

There are however some important differences between road accident investigation and that of the other modes [5]. The rail, air and maritime transport modes are dominated by public service and commercial vehicles whereas the road network is used much more frequently for and by private transport. Subsequently, the responsibilities for safety lie with a more diverse range of individuals. There are also much larger numbers of road traffic accidents than there are in the other transport modes, as illustrated by Table 2.

Table 1 Fatalities in 2004 for the Road, Rail and Air transport modes [6]

	EU15 (population: 387,600,000)	EU25 (population : 461,700,000)
Road	32.637	43.472
Rail	75	105
Air	^a	6 (135 in 2005)

Population information source: http://europa.eu/abc/european_countries/eu_members/index_en.htm

^a Figure not available

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

These differences lead to a difference in perception with regards to the need for independent accident investigations. In most countries, the rail, air and maritime transport modes have independent bodies responsible for the investigation of accidents, however very few countries have an independent body responsible for road accident investigation. This does not mean that the investigation of road accidents has been viewed as unimportant. There are a great many different organisations in existence that conduct road accident investigations. Many of these however, would not be regarded as independent in the same way that the rail, air and maritime boards are independent.

By exploring the differences between the road and other transport modes which are likely to explain the differences in the perceived need for independence in investigation activities, SafetyNet highlighted the fact that the quality of road accident investigation data is a more important issue than the status of the investigating entity [5]. Good quality data is essential in producing effective countermeasures and therefore reducing the number of casualties. It is the transparency of the investigation process and of the subsequent data that allows a quality assessment to be made.

SafetyNet has devised the following definition of transparency. Transparency applies to the investigation activities and results. It can be defined as the full, accurate, and timely disclosure of information. For accident investigations this means making available information on what the organisation does and how it does it as well as on the results of the investigations. This includes the conditions under which investigations are carried out and the ways in which data is managed.

Based on the early work of SafetyNet a set of Draft Recommendations was developed [7]. This early work included a review of the practices and procedures for the investigation of road accidents employed by commercial companies, police forces and existing independent accident boards; and the gathering of opinion from safety stakeholders.

A larger stakeholder consultation was then undertaken in order to assess whether the Draft Recommendations were appropriate and necessary. 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 and were invited to give their opinions by participating in discussion sessions and filling in a questionnaire [8]. The feedback provided by these experts allowed the recommendations to be refined and developed.

RECOMMENDATIONS FOR TRANSPARENT AND INDEPENDENT ROAD ACCIDENT INVESTIGATIONS

The key recommendation of SafetyNet is that a European Safety Oriented Road Accident Investigation Programme (European Programme) should be established to fulfil the need for data to feed evidence based policy making. Safety oriented road accident investigations should be carried out in each Member State according to the methodology set out by the European Programme. Such a programme would set out the key objectives and harmonised methodologies needed to collect data that can be generalised to accidents in Europe. A European level database should be developed to compile the data collected within Member States. The European Programme should set out the variables and values to be collected and entered into the database. The process of accident investigation cannot be viewed as linear. In developing a European Programme consideration should be made of how the data is going to be used to develop safety countermeasures. This should inform the development of a common methodology and database.

Safety oriented road accident investigation can be defined as the acquisition of all relevant information to enable the identification of one or several of the following:

- the cause or causes of the accident
- injuries, injury mechanisms and injury outcomes
- how the accident and injuries could have been prevented

Such an investigation is conducted by one or several investigators with specialised knowledge in accident investigation and other fields of knowledge, relevant for the purposes of the investigation. It aims to prevent future accidents and injuries through the development of countermeasures and does not contribute to any judicial enquiry or take a stand on responsibilities.

The investigation therefore needs to adopt a holistic view of accident analysis. In order to get a holistic picture of an accident the investigation adopts a broader perspective than investigations aimed to gather data for the judiciary system. The SafetyNet recommendations therefore address the issues that seem fundamental for guaranteeing that such a holistic view can be obtained. They aim to set out the conditions under which safety oriented transparent and independent road accident investigations can be efficiently conducted.

The establishment of a European Programme will necessitate each Member State to set up safety oriented road accident investigations in their country. As part of the SafetyNet project the Department of 'Idraulica Trasporti Strade' (DITS), University of Rome, worked with the local authorities to establish a safety oriented investigation programme in Italy. The short term goal was to contribute to the SafetyNet accident causation database (In-depth Data area), but with the long term aim of continuing the investigations beyond the end of the project. The experience gained in Italy in setting up the investigation programme and the evaluation by DITS of this programme, will be used to illustrate the importance of the recommendations discussed here [9].

The recommendations are divided in four categories and will be described in turn in the following sections:

Institutional

Operational

Data storage and protection

Reports, countermeasures and dissemination

Institutional recommendations

The institutional recommendations primarily address the characteristics of the European Programme and its implementation at the national level, including the status of the investigators and sampling plan.

Investigations should be conducted independently from those with differing purposes (insurance, judicial). It is important to cooperate with safety stakeholders but control should remain with safety oriented investigators to prevent the biasing of results. The European Programme should aim to be transparent so that the general public will trust the resulting safety conclusions and recommendations.

It is unrealistic to suggest that all accidents should be investigated; therefore the European Programme should set out the sampling criteria that each Member State should follow. It is unlikely that all Member States will have the resources to set up teams that operate throughout the whole country. In those cases an operational area should be identified. When choosing the area, consideration should be given to the relationship between the accidents that could potentially be investigated and the national picture. This is because it is necessary to generalise data collected in Member States in order to devise accident countermeasures on a European scale.

There were a number of barriers to be overcome before safety oriented investigations could be established in Italy. Permission from the local authorities had to be gained before investigations could commence and there were organisational problems such as funding and a lack of investigators experienced in road accident investigation. There was also a cultural issue of whether those involved in accidents would be open with investigators or more 'creative' in their comments.

As suggested in the recommendations detailed above, the organisational barriers were overcome by focusing on one region of Italy. The support of the local government authorities in the Marche region of Italy was gained, allowing 13 investigation teams to be established using people with experience of investigating work related accidents.

Good quality data can only be gained through good quality investigations. This requires road accident investigators to have undertaken training to ensure that they gain both specialist knowledge of conducting safety oriented road accident investigations and adequate experience. There is currently no officially recognised standard for safety oriented road accident investigation. It is important that the good practice and expertise of existing investigation organisations is shared between countries to enable countries who do not currently conduct in-depth safety oriented road accident investigations to gain the experience and expertise to do so.

The Italian investigation teams undertook training in road accident investigation. 62% of the investigators found the task of investigating road accidents 'difficult' or 'very difficult', however 94% of investigators considered the quality of their training 'high' or 'very high'. DITS identified several areas where additional training could make investigating easier, for example in identifying in-car safety systems and how to approach people at accident scenes.

Operational recommendations

The operational recommendations relate to the actual investigation process. All accident investigations begin with notification that an accident has occurred. Currently many road accident investigation activities in Europe have local arrangements with the emergency services that are not protected by legislation. The procedures for notification differ according to the methodologies used, but whichever methods are adopted by the European Programme, timely notification is important so that the investigation team can quickly identify accidents that meet their sampling criteria.

To gain a holistic picture of an accident, data should be collected about each of the three components of an accident, 'human', 'vehicle' and 'environment'. There are many different data collection methodologies current employed in Europe and as yet there is little consensus about which are the best methods. However it is possible to identify best practice ways of collecting data which correspond to the three components of an accident:

- visit the accident scene as soon as is reasonably practical (either while vehicles are in their post crash rest position or within a few days of the accident);
- examine the vehicle, either at the scene or in a recovery garage;
- speak to the involved road users and witnesses and to collect injury data from trained medical personal (e.g. hospital data).

It is also important for investigators to have access to the most appropriate equipment to enable them to investigate accidents in the most efficient manner. For example teams which aim to attend the accident scene should have access to a rapid response vehicle.

In Italy, safety oriented investigations were initiated at the scene of the accident, with teams using a rapid response vehicle to reach the scene within 30 minutes of the accident's occurrence. Examination of the scene was usually completed within an hour of the accident taking place and information was gathered from involved road users either at the scene or the hospital or at their home.

The cooperation of involved road users was thought to be generally quite high (75%) and investigators believed people to be most sincere when interviewed at the accident scene. This was thought to be related to the time elapse between accident occurrence and the interview as interviews at hospital or in the home occurred later than interviews at the scene. The cooperation of the police was less high with 50% of investigators reporting police cooperation to be 'very low'. Other emergency services were more willing to cooperate. Around 55% of investigators felt that the other emergency services' cooperation was 'quite high' or 'very high'.

A good quality accident investigation is only possible if the investigators can gain access to the accident scene and all evidence. Ideally the investigators should be granted a legal status which gives them the right to access the information they need. However it is acknowledged that this could be a difficult and lengthy process in some Member States. The problem of access to evidence has been solved within existing safety oriented investigation activities by establishing local agreements between the investigators and the relevant bodies. It is important that the investigation teams establish good relationships with the emergency services – especially the police, again as illustrated in the Italian example.

A further requirement of a safety oriented investigation is that information collected is protected from use within a court of law. Investigators should not be called upon to be witnesses for safety oriented investigations that they have conducted. This applies particularly to information gathered from and about road users and witnesses to the accident. People are less likely to be willing to talk to investigators if they feel that the information which they provide could be used against them.

The safety oriented investigations would not have been possible in Italy without the support of and formal agreement with the police. DITS believe that there is a strong need for a legal status as detailed in the SafetyNet recommendations. They believe that if this was granted to the investigators then cooperation with the police would be greater. In addition, if investigators were protected from the need to give evidence in court then a greater cooperation of involved road users is likely and they would be less likely to be 'creative'.

An important part of establishing the European Programme is the development of a manual which details the investigation procedures and the data to be collected. This is necessary in order to harmonise investigations across Europe – if many countries are contributing to the same database then it is important that they all collect the same data in a similar way. The European manual should also be publically available to increase the transparency of investigations.

Data storage and protection recommendations

That a common European database should be established is the first in the data recommendations. The other recommendations deal with legal aspects of data security and protection. The European database should only contain anonymous data. Information such as names and vehicle registration numbers should not be stored as this would allow the identification of those involved in the accident.

The exact characteristics of a European database and the variables to be included are beyond the scope of the SafetyNet recommendations. However there are examples of European projects where a number of different countries have contributed to a shared database such as PENDANT (www.vsi.tugraz.at/pendant/), and the SafetyNet accident causation and fatal accident databases (www.erso.eu/safetynet/content/safetynet.htm).

Reports, dissemination and the development of countermeasures recommendations

One of the criticisms of in-depth accident investigation is that it is not always clear what to do with the data once it has been collected. As a European Programme has not yet been established, how data is used cannot be addressed in detail. Nevertheless SafetyNet have made some key recommendations. The data collected in a European database should be analysed in such a way that allows the identification of areas for safety improvement. This will allow recommendations for countermeasures to be made. These recommendations could then be considered by the European Commission. The activities of Member States and the conclusions of data analysis should be reported and such reports should be made public.

In conclusion, the recommendations discussed here can be considered ‘finalised’ only in the sense that they represent one of the conclusions of the SafetyNet project. These recommendations should be viewed as the starting point for the establishment of a European Safety Oriented Road Accident Investigation Programme and as working towards a common European accident investigation methodology. The full version of the recommendations are published in *SafetyNet deliverable D4.5 Recommendations for Transparent and Independent Road Accident Investigation* [10] which can be downloaded from the ERSO website (www.erso.eu).

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