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In-depth on-the-Spot Road Accident Investigation in Finland

Abstract

In Finland all fatal motor vehicle accidents are studied in-depth on-the-spot by multidisciplinary (police, road and vehicle engineers, physician and behavioural scientist) road accident investigation teams (legislation 2001, work started 1968), which operate in every province. The purpose of the teams is to uncover risk factors that turned an ordinary driving situation into a serious accident and give safety recommendations for improving road safety. The investigation teams do not take a stand on guilt or insurance compensation. When analysing accidents the teams use the concepts of key event, immediate, background and injury risk factors. Compiled investigation folders of each case contain investigation forms from each member, pre-investigation protocol, photographs, sketches etc. About 500 items of information are collected from each accident party. The collected information is also coded into a computer database. Both the database and the investigation folders are widely utilized by researchers and authorities conducting safety work.

Introduction

The general goal of Finnish road accident investigation is to prevent accidents from happening again and reduce serious consequences by learning from accidents. The investigation of road and cross-country traffic accidents produces information and safety recommendations, which are used to improve road safety. In Finland, the work is based on investigations performed by the multidisciplinary investigation teams. The teams are independent and impartial while carrying out their investigations and do not take a stand on guilt or insurance

compensation. The teams use an in-depth on-the-spot case-study investigation method called VALT Method 2003 [1], which forms the basis of this paper. The focus of the investigation is on pre-crash circumstances, but also the crash and post-crash stages are investigated. The investigation teams investigate all fatal road traffic accidents in Finland.

In aviation, an in-depth on-the-spot method for investigating accidents has been used from the beginning of aviation's history. In many countries, these kinds of methods are also in use in road traffic as a part of safety work. Usually the investigations have concentrated on limited areas or certain kinds of accidents for a limited period. In Denmark, multidisciplinary in-depth analyses of road traffic accidents were used to study head-on collisions, left-turn accidents, truck accidents and single vehicle accidents [2, 3]. In Sweden, accident investigation teams studied accidents on a trial basis in the 1970s focusing on the pre-crash phase [4] and investigations were also carried out by the Swedish National Road Administration in 1991-1994 [5]. The Swedish Road Administration carries out investigations also currently [6]. In the FICA-project (Factors Influencing the Causation of Incidences and Accidents) in Sweden, an investigation methodology suitable for investigating active safety systems was developed (DREAM, Driving Reliability and Error Analysis Method) [7]. In the UK, an on-the-spot accident data collection study was carried out to gain a better understanding of the human, vehicle and highway factors on the causes of accidents and injury outcomes [8]. The German In-depth Accident Study (GIDAS) provides in-depth accident and injury data of traffic accidents [9]. In the United States, an in-depth on-scene methodology was used e.g. in the Large Truck Crash Causation Study [10]. In the U.S., extensive data on fatal motor vehicle accidents is collected in the FARS database (The Fatality Analysis Reporting System) [11]. Within the SafetyNet project, the European Commission is developing a methodology for capturing accident causation data using in-depth accident investigations [12].

Background to Finnish road accident investigation

Road accident investigation teams were launched in Finland in 1968 when the Finnish Motor Insurers Centre started them in collaboration with road safety authorities to gain information on accidents.

Around 1970s, there were about 1000 fatalities in road traffic per year, which was more than ever before and ever after. Based on the favourable experiences gained, more teams were established and they covered the whole country by 1976. Nowadays accident investigation is financed with a road safety charge collected in connection with motor liability insurance premiums. The size of the charge is confirmed annually by a decree issued by the Ministry of Social Affairs and Health.

Since 2001, the work of the investigation teams has been based on law. The Act on the Investigation of Road and Cross-country Traffic Accidents (No. 24/2001) and the Council of State decree (No. 740/2001) came into force 1st of October 2001 [13]. Finland is the only country to have such legislation. According to the act, the Road Accident Investigation Delegation appoints the road accident investigation teams, which carry out the investigation of traffic accidents. The Delegation comprises representatives from at least the following authorities: Ministries of Transport and Communications, Interior, Social Affairs and Health, Justice, Education; the Finnish Road Administration; the Vehicle Administration and the Finnish Motor Insurers' Centre. The Finnish Motor Insurers' Centre manages the maintenance of investigations.

Accidents to be investigated

The teams investigate accidents that have been defined in advance annually according to the action plan confirmed by the Ministry of Transport and Communications. The teams in Finland investigate all fatal road traffic accidents (about 350 a year) which include pedestrian and cyclist accidents. In addition, special projects are also carried out, e.g. heavy vehicle accidents, snowmobile accidents and powered two-wheeler accidents leading to injuries. In total, the teams investigate approximately 400 accidents a year.

Investigation Teams and Investigations in Practice

The investigation work is based on a detailed investigation method (VALT Method 2003 [1]), which describes how the investigation is to be carried out. Both the information collection and the analysis of the origin of accident and consequences are described in the method. The method contains

investigation forms of the team members and other instructions etc. The investigation method has been designed primarily for investigating accidents that have led to fatalities. It can also be used as a basis for investigation of other accidents; then additional forms and instructions are often employed. The method has been revised several times to take into account the demands of the present traffic safety work. The latest revision came into force in 2003.

Investigation teams

The investigation method has been designed for multidisciplinary expert teams. At the moment, there are 20 teams throughout the country with about 270 members. Basic members of the teams are a police officer (usually the chairperson of the team), a vehicle specialist, a road safety specialist, a physician and a behavioural scientist (usually a psychologist). Other experts may also be included in the investigation when needed (e.g. a railway or tram specialist, a bus body specialist, and special advisors who represent specialist areas in vehicle safety, commercial traffic, or traffic medicine). The team members work on a voluntary basis and get compensation for their work. While carrying out their investigation work, the teams are independent bodies so that the neutrality and impartiality of the investigation are ensured. The members, when performing the investigations, are governed by the provisions applied to civil servants' liability under criminal law and they are bound by duty of secrecy.

Investigation team called out when an accident has happened

The emergency centre or the local police officer will notify the investigation team about the accident. Usually the police member of the team acts as a contact person whom the alarm is notified and who then calls out the other members.

The method works effectively when the team arrives at the scene soon after the accident. Any delay in investigation reduces the quality of the information available. Usually the following members visit the accident scene on the spot: police member, road specialist and vehicle specialist. Investigation may also be carried out later if the call is delayed for some reason, for example a later fatality after an accident. The work of the teams is not tied to certain working hours, so also night time and weekend accidents are investigated.

Operation at the scene of the accident and team members' tasks

The investigation team begins investigation at the accident scene. The quick arrival at the scene ensures that, for example, the braking and skidding marks can be found clearly and that the road and weather conditions can be documented and photographed reliably. The investigation at the scene of the accident is conducted in cooperation with the police conducting preliminary investigation as part of the same case, to the extent deemed appropriate for the investigation of the road accident. The factual information may be clarified together with the police and rescue staff, e.g. point of impact, directions of travel of those involved, the marks found and the general characteristics of the incident. The police also help to secure the investigation conditions at the accident scene. However, further accident analysis and interviews done by the investigation team are carried out apart from police preliminary investigation and apart from any other investigation that may be carried out under different authorities. The police member of the investigation team does not take part in the preliminary investigation performed by the police authorities.

The police member of the team usually acts as the chairperson, leads the work, interviews participants, organises photography and sketch drawing, orders pre-investigation protocols, autopsy statements and other necessary documents from the local police and other authorities. He/she collects the information on previous accidents and traffic offences of the parties involved.

The vehicle specialist member examines and photographs the vehicles (technical condition and damage) and the use of safety equipment. The vehicle specialist collects information e.g. from the following areas: general information about the party (make, model, last inspection, engine etc.); external inspection (headlights, doors, suspension of wheels etc.); interior inspection (windscreen, control equipment, pedals, mirrors, seats, safety equipment etc.); tyres (make, model, pressure, studs etc.); crash and damage to the vehicle; information relating to the impact(s). The vehicle specialist has also additional investigation forms concerning bicycles, mopeds, motorcycles, buses and snowmobiles.

The road specialist member examines and photographs the road and weather conditions,

traffic environment etc. The road specialist prepares a sketch of the scene based on measurements regarding the onset of braking, sliding and impact marks, vehicles involved, rest positions and locations of loose objects and debris. The investigation forms of the road specialist cover the following areas, for example: scene of the accident and characteristics of the road (functional class of the road/roads, road layout, radius of the curve, number of lanes, separation of the lanes, surface etc.); visibility (was the visibility sufficient for the speed used or the speed limit, factors that restricted the visibility etc.); guidance of traffic (traffic signs, speed limit etc.); condition of roads (state of roads, friction etc.); maintenance (winter maintenance class; damage on the road etc.); weather and brightness; traffic volume; pedestrian and cyclist accident information.

Physician member mainly examines documents. He/she clarifies the fatal and other injuries and looks for the origin of injuries. The physician also obtains historical information about the health of the accident parties involved and evaluates the effect of these on the origin of the accident. Both the AIS-98 (Abbreviated Injury Scale) and the ISS (Injury Severity Score) are used in coding the injuries. ICD-10 (International Statistical Classification of Diseases and Related Health Problems) is used in determining the cause of death as well as effects contributing to death. About one third of the physicians of the teams are medicolegal experts.

The behavioural scientist member of the team, according to the division of labour the team has agreed on, interviews participants and gathers information about the health of the road users. Based on information collected also by other team members, he/she evaluates the behaviour of the participants in relation to the traffic environment, the vehicle and other road users and the motivational factors relating to the accident. The behavioural scientist functions as an expert in research questions within the team.

Interviews

Conducting the interviews as soon as possible after the accident, although preliminary and partial, is important from the point of view of the reliability of the information. As most of the accidents investigated have led to fatalities, the drivers or occupants cannot be interviewed in many cases. Then the possible information on the background of

the parties involved are gathered from relatives, friends etc. Information on the actual accident is collected from eye-witnesses and other parties. Taking part in the interviews is voluntary. In practice, the parties or relatives rarely say no to the interviews. The interviews, performed usually by the police or the behavioural scientist member, cover e.g. the following areas:

- General information on the parties involved (marital status, profession, current work assignment etc.).
- Information related to the location and situation of the accident (actions before the accident, focus of attention, speed, when the danger was noticed, how the collision partner reacted etc.).
- Use of safety devices and lights (also investigated by other means).
- Driving event and vehicle (the purpose and length of the trip, total driving time, breaks during the trip, haste, passengers and their influence, familiarity of the accident location, keeper of the vehicle, basis for the use of the vehicle, route decision etc.).
- Driving control and readiness to act (sleep, use of spectacles or sunglasses, permanent illness, medication, alcohol and drug use at the time of the accident [also obtained from breath test or blood test], time of last meal, problems in life, emotional stage etc.).
- Factors which explain the driving conditions or life style (educational background, alcohol and drug use etc.).
- Driving skill, training background and attitude to traffic (grade of driving license and its validity, total and current annual mileage, total mileage driving the accident vehicle, quality of driving experience, avoidance of certain circumstances, previous traffic accidents and offences over a five year period [also obtained from police registers], activities and hobbies related to driving and traffic, own and others' description of the party in relation to traffic etc.).

Investigation forms

Each team member collects detailed information (as described above) using standardised investigation forms. The investigation forms are tools of systematic data acquisition; the reliability of the investigation depends totally on the quality of

the forms, usually ticking the appropriate alternative fills in the form. Totally, there are approximately 500 items to be collected from each party. Part of the collected items come from scene investigation, part from different registers and part from interviews. Additional forms for rare accidents and special projects are also available. In addition, any other relevant information which is not collected on the forms but relates to the origin of the accident and consequences is written down and taken into consideration in the investigation. All sections in the forms are filled in regardless of whether the item in question has an effect on the origin of the accident or its consequences. This secures the baseline comparison data for further research.

The members of the investigation team have the right to obtain information from different registers. Information can be obtained from the police registers (previous offences and accidents) and the road traffic registers (Traffic Data System), which is maintained by the Finnish Vehicle Administration. In addition to these, the team has access to any information on the health of the persons involved that may be of importance for identifying the causes of the accident (also from the private health care) and to any other information needed for the conduct of investigations.

The investigation forms can also be filled electronically, but in practice, the on-the-spot method requires paper and pencil. A system for electronic transmission of data contained on the forms is under construction. The information collected on the investigation forms is coded into a database at the Finnish Motor Insurers' Centre after the investigation is completed.

Technical reconstruction

The calculation of the driving and impact speeds of those involved creates a framework for the definition of the factors which have affected the origin of the accident and its consequences. It is appropriate to calculate or roughly estimate the speeds of those involved at intervals of one second. The accident is reconstructed on the basis of information recorded at the accident scene including the rest positions of the vehicles and persons involved in the accident as well as marks on the road surface and damage to the vehicles. At its simplest, a reconstruction is a sketch in which the speeds and distances from the crash location of the parties involved at their different stages (in

seconds) in the accident are illustrated. When appropriate, more detailed reconstructions using dedicated simulation programs can be made.

Cooperation between members and quality of investigations

An important stage in the evaluation of the adequacy, significance and reliability of information is the combining of the pieces of information with each other and with the entire accident event. The team members cooperate with each other during the investigation by changing information and making conclusions. For example, the use of safety equipment is considered together with the vehicle specialist, the physician and the police member. During years of cooperation, the teams have developed their own working patterns and ways of delivering information to other members of the same team. Many of the members have participated in the work for many years, even decades.

In general, all pieces of information must be consistent with each other. If this is not the case, other alternatives to the sequence of events are considered and the reliability of the individual pieces of information is evaluated again. Based on re-evaluation the team tries to find a mutual understanding of the factors related to the accident. If however a team is not able to explain some factors, which are related to the event or if the event may be a consequence of several alternative key events or immediate risk factors (the concepts are explained later in the text) then the reliability of the investigation will increase if the team reports that it had been unable to explain a certain issue. Therefore, it is better to state that there are alternative possibilities for events than to choose an alternative for which there is no reliable basis. In practice, these kinds of cases are rare.

The revision of the investigation method together with continuous training of the investigation teams adds to the reliability of the investigation. It is also important to define unambiguously the concepts used and make sure that the instruments used are appropriate. One way to develop the methodology is to take part in international research projects (e.g. EU-projects Pendant and SafetyNet) and use the knowledge and experience acquired from such projects.

Analysis of the Origin of Accident and Consequences

In addition to the collection of information on accidents, the investigation method (VALT Method 2003 [1]) contains the method for analysing the origin and consequences of the accident. The analysis is based on information collected by the team members and the same members carry out the analysis as a part of the investigation.

In the analysis of the origin of an accident, several questions can be asked, depending on what the goal of the investigation is. The goal in Finnish road accident investigation is to prevent accidents from happening altogether and to prevent serious consequences. The following questions and relating concepts are used to help to clarify the origin of the accident and its consequences:

- What happened? Description of the accident and key event.
- Why did it happen? Immediate and background risk factors.
- Why were there serious consequences? Injury risk factors.
- How could similar incidents be prevented? Preventative possibilities and safety recommendations.
- How could consequences be prevented in a similar case? Protection of occupants and other persons involved (pedestrians, bicyclists).

According to this investigation method, the origin of the accident is described using the following terms: key event, immediate risk factors and background risk factors (Figure 1). The origin of injuries is explained with risk factors which contributed to the serious consequences (injury risk factors). Preventative possibilities and safety recommendations are analysed in connection with each risk factor. The key event, risk factors and safety recommendations are coded into the database.

The investigation teams decide which of the parties of the accident had the most crucial effect on the origin of the event and which is then called the A-party, possible collision partner is called the B-party, the next one the C-party and so on. The question is particularly about the origin of event, and not about the seriousness of the consequences. In addition, the involvement is not

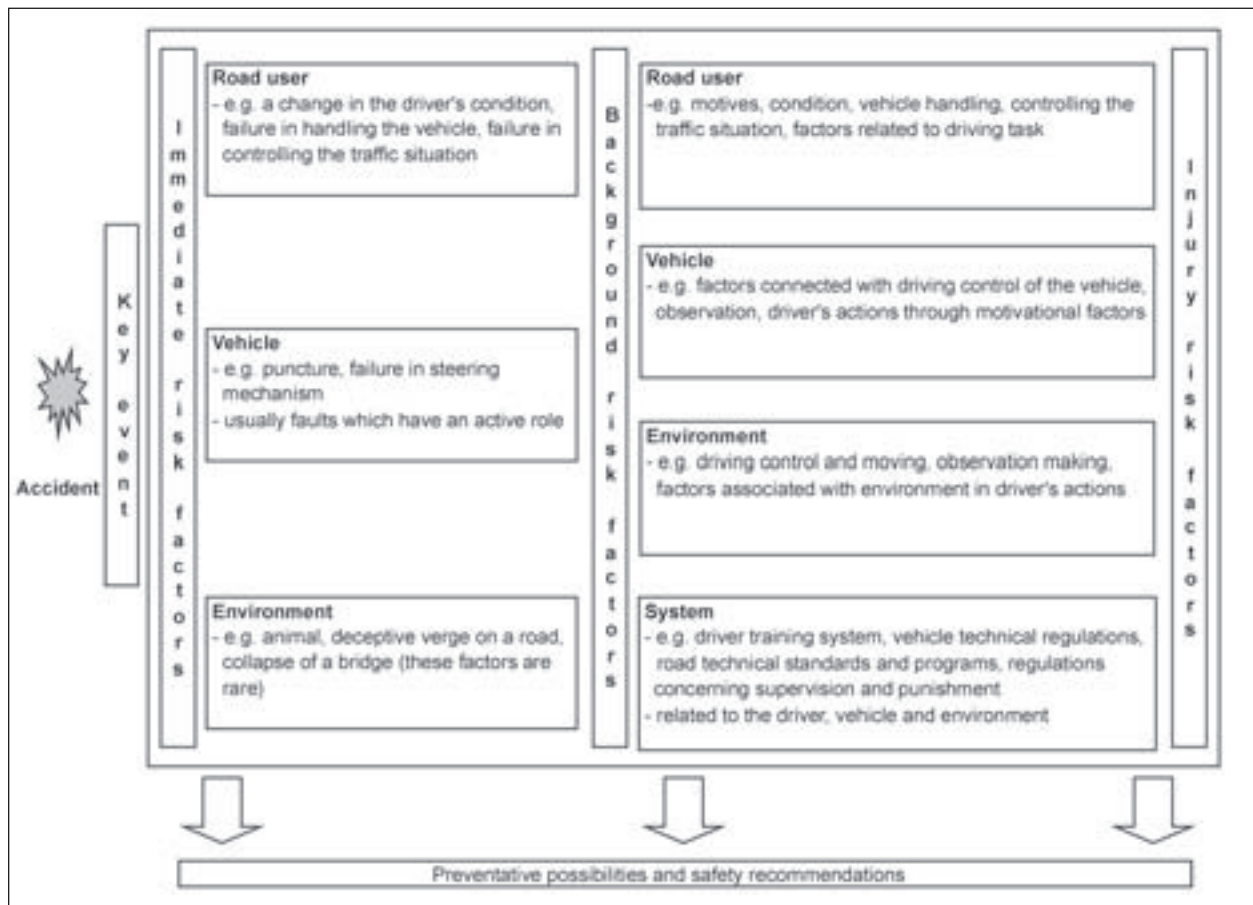


Figure 1: Risk accumulation model in investigation team investigations (adapted from the VALT method 2003)

determined based on the traffic offences (guilt) but factors which contributed to the origin of the accident.

Key event

A key event is an event that takes place immediately before the accident, either a change or a deviation in the normal flow of traffic which leads to an accident. A description of the key event always includes a description of the situation and environment, in other words, what took place and where. The idea is to distinguish in the analysis an accident event from the factors which explain its origin. In this way it is a simplified description of an event which made the crash possible. Examples of key events are: a vehicle drifting left in front of an approaching bus on a straight road; driving to a crossing line when a vehicle approaches from the right; drifting across the road to the right on a left-turn corner. In previous versions of the method, the key event included explanations of the causes of the accident which in this revised method are called immediate and background risk factors.

Risk factors

Risk factors are divided into two categories: those which contributed to I) the origin of the accident (immediate risk factors and background risk factors) and II) serious consequences (factors which have contributed to the consequences, injury risk factors). Each member examines the risk factors related to their own expert area. The members are also encouraged to look for risk factors beyond their own expert area. The description of risk factors must be in as much detail as possible so that all information collected may be retained for later research. Risk factors can hardly be described in too much detail.

I) Risk factors which contributed to the origin of the accident

The key event is explained by risk factors. The risk factors in turn are conditions or influential factors that regulate what kind of events are possible or probable.

Immediate risk factors are direct, active factors which have had an effect in the situation. Usually

only one immediate risk factors can be defined for a party. The immediate risk factors can be found from three different areas:

1. Road user (a change in the driver's condition, [e.g. seizure, intentional action, falling asleep, etc.]; failure in handling the vehicle [e.g. steering mistake, braking mistake etc.]; failure in controlling the traffic situation, [e.g. wrong assessment, observational error, mistake in interpretation etc.]).
2. Vehicle (usually faults which actively have an effect on the steering of the vehicle or preventing its control, braking etc. These include puncture and failure in steering mechanism, for example).
3. Environment (include e.g. an animal running on the road, a deceptive verge on a road and a collapse of a bridge. These risk factors are rare).

Background risk factors in turn explain the origin of an immediate risk factor or key event. There can be, and usually is, several background risk factors behind an accident and for each party involved.

The question asked after finding a risk factor is why the risk in question may have materialised or may have been in existence. This procedure is repeated with the risk factors found. This way an attempt is made to progress at least to the depth of a few risk factors even though in reality it is natural that the chains of this kind never end. However, the objective is to also get to the level of the more general traffic system, and even community factors. The idea is that the problems of traffic safety are not only problems of traffic, let alone problems of the parties involved.

The risk factors interact with each other. The probability of the accident may increase particularly from the effect of a combination of several risk factors. Because it is difficult to get information about the interactions of risks, they are as a rule defined and their effect is estimated one by one. The investigation team presents in its risk investigation the combination of the most important risk factors that have had an effect in an accident, in which the interactivity of risk factors emerges.

The background risks, by their existence or omission, contribute to the origin of the accident; they are pre-conditions for the accident but do not necessarily lead to an accident. The risk factors in

the background can be found from four different areas:

1. Road user (factors connected with road user's motives, condition [e.g. alcohol, tiredness, stress, showing off]; vehicle handling [e.g. incorrect methods for handling the vehicle]; controlling the traffic situation [e.g. choice of speed, inexperience in controlling a traffic situation]; factors related to the driving task [e.g. haste, nature of driving task, planning the drive, effect of companion on the trip]).
2. Vehicle (factors connected with the driving control of the vehicle [e.g. tyre pressures, loading, wind sensitivity]; observation [e.g. shades, passengers, lights, reflectors]; driver's actions through motivational factors [e.g. capacity of the car and its properties]).
3. Environment (factors connected with driving control and moving [e.g. potholes, driving ruts and slippery road]; making observations [e.g. poor visibility, darkness, rain]; factors associated with the environment in driver's actions by steering, doing tricks or possibly acting in a way that in turn increases the risk [e.g. poor visual guidance, a deviating bend on an otherwise straight section of the road, a speed limit that is too high for the visibility needed]).
4. System (risk factors at the system level assessed in an investigation include the following examples and typically have an effect behind the background factors and they are related to the driver, vehicle and environment [e.g. driver training system; the system for monitoring the driver's ability; vehicle technical regulations; regulations concerning vehicle inspection and their implementation; road technical standards and programs; programs related to road maintenance; regulations concerning supervision and punishment; regulations and operating principles applied to public transport; responsibilities of transport carriers; local politics]).

II) Risk factors which contributed to the consequences (injury risk factors)

Factors which caused the damage and injuries, or permitted them, are considered risk factors which are related to the seriousness of the consequences of the accident (injury risk factors). In that case, the point of view will not be in the origin of the accident event but in factors which are related to the vehicle

and the traffic environment and which increase the seriousness of the consequences of the accident. Examples of these vehicle related risk factors could be of large difference in size, weak bodywork, aggressiveness of the collision partner, loading and vehicle structures that penetrate the vehicle. Corresponding factors in the environment are, for example, inflexible collision obstacles (rocks, trees, posts, cuttings) and missing railings. The investigation teams also analyse risk factors connected with the use of safety equipment related to the injuries.

Preventative possibilities and safety recommendations

Producing safety recommendations is an important part of the investigation method. When investigation teams draft their recommendations they seek to find ways of preventing both the crash and serious consequences (death and injuries). The starting point for the proposals for safety recommendations is an attempt to find the preventative possibilities in each immediate and background risk factor. An example: a vehicle moving to the opposite lane in front of an oncoming vehicle because the driver fell asleep. The preventative possibility would then be for example, that the movement to the opposite lane should be prevented, and as a safety recommendation, central railings to separate the opposite directions and devices which examine the drivers alertness could be suggested. Ideas for safety recommendations can also be found further away, e.g. according to falling asleep it could be suggested that more focus should be put on driving time regulations in commercial traffic.

Preventative possibilities can be examined with the help of reconstruction, for example, by calculating the speed at which those involved should have been travelling in order to be able to stop before the impact or give way taking into account visual obstructions, weather, detection of the pedestrian, etc. This creates opportunities to consider ways of achieving this safer alternative and produce safety recommendations.

Risk factors and safety recommendations are connected with each other. Thus, a safety recommendation (or many safety recommendations) is produced for each risk factor. Likewise, each safety recommendation has to have a risk factor to which it is connected. Safety

recommendations are systematically produced from the same four areas from which the risk factors can be found: road user, vehicle, environment and the system.

Not too much attention should be paid to the feasibility of the proposals, as many of the ideas that would not have been thought possible in the past, such as airbags or "smart tyres", are reality today. The investigation teams produce many versatile ideas whose significance then can be shown in connection with several accidents. Each member of the team produces safety recommendations related to its own expert area and also looks for safety recommendations beyond its own expert area.

Results of Investigation

Investigation report

When all the relevant information is collected and obtained from different sources, the investigation team meets in a final meeting where all the material is available. Based on the process described above, the investigation team combines the results of the investigations and the analysis of the accident and writes an investigation report. The investigation report is usually a consensus report, which is written after discussion and argumentation. The report is written in a standard form. The investigation report is a public document and contains no identification data.

Investigation folder

An investigation folder contains the investigation report, investigation forms completed by all members, sketches, photographs, reconstructions, documents concerning the records of post mortem and pre-investigation protocols of the police. Other relevant documents may also be included. The folder is put together after the investigation is completed and filed with the Finnish Motor Insurers Centre where the information is coded into a computer database. The average duration of an investigation is 6 months. The time depends, among other things, on when the pre-investigation protocols and autopsy statements are completed.

Use of collected data

Both the investigation folders and the accident database are available for researchers and

authorities free of charge for road safety purposes. The data is used for publishing an annual report and four quarterly preliminary reports and a preliminary report of alcohol related accidents. The collected information and results of analyses are used in research, education, training, reporting, statements, policy making and in other traffic safety work in Finland. The findings of the investigation teams and the studies done based on the collected material have influenced Finland's Road Safety Programmes. The data has also been used in journal articles [e.g. 14, 15, 16, 17, 18, 19] and international research projects (e.g. Pendant). The investigation teams can also inform authorities about vehicle and road defects that require immediate actions.

Discussion and Conclusions

The road accident investigation teams form an essential part of Finnish road safety work and the collected, detailed and disaggregated data are widely used when making new proposals to improve road safety. The collected data also give good possibilities to do e.g. follow-up research, as the system has been active for over 30 years. A point worth mentioning is also that the sampling does not create problems when fatal accidents are concerned as all fatal road accidents are investigated and this fact makes the data a convincing source of information.

The investigation method has also been implemented in investigating other than fatal accidents, that is, accidents leading to injuries or damage-only accidents (for example, heavy vehicle accidents, snowmobile accidents, accidents where a new vehicle has been involved). With these kinds of projects, the risk factors, preventative possibilities and safety recommendations according to other than fatal accidents may be revealed.

In-depth on-the-spot road accident investigation is essential, when the goal for investigation is to find out how the accident happened, what the risk factors were, why there were serious consequences and how similar incidents could be prevented from happening again. These kinds of goals mean of course, that the investigation of accidents requires a lot of resources and is time-consuming.

When the teams investigate accidents, although on-the-spot, the investigations are always

retrospective as the accident has already happened. This makes the data collection challenging and some missing information cannot be avoided. The great number of investigated accidents still makes it possible to do research based on the data.

The experiences of the investigation teams, their work and the results of the work give every reason to say that the work has proved that it serves a purpose not only as a source of data on road accidents but also as a detector of defects in traffic systems and as an initiator of measures taken to launch improvements. The collected information and the research done based on it keep the safety authorities abreast of developments, strengthen co-operation and help decision-making concerning road safety issues.

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