United Nations ECE/TRANS/WP.1/159

Economic and Social Council

Distr.: General
3 October 2017

Original: English

Economic Commission for Europe

Inland Transport Committee

Global Forum for Road Traffic Safety

Seventy-fifth session
Geneva, 19-22 September 2017

Report of the Global Forum for Road Traffic Safety on its seventy- fifth session

Contents

I. Attendance

1. The Global Forum for Road Traffic Safety (WP.1) held its seventy-fifth session in Geneva from 19 to 22 September 2017, chaired by Ms. L. Iorio (Italy). Representatives of the following ECE member States participated: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Romania, Russian Federation, Slovakia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland and United States of America.

2. The representatives of non-ECE member States also participated: Algeria, Brazil, Democratic Republic of Congo, India, Japan, Jordan, Lebanon, Morocco, the State of Palestine, Tunisia and Viet Nam

3. The following non-governmental organizations were also represented: EuroMed Transport project, European Transport Council, Federation of Alliance Internationale de Tourism, Fédération Internationale de l'Automobile (FIA), Federation of International Motorcycling (FIM), Road Traffic Education (IRTE), Institute of International Motorcycle Manufacturers Association (IMMA), International Organization of Motor Vehicle Manufacturers (OICA), International Organization for Standardization (ISO), and Laser. Europe.

4. The representatives from the following universities also participated: National Technical Institute University of Athens, University of Birmingham, University of Leeds and University of South Carolina.

II. Adoption of the Agenda (agenda item 1)

5. The Global Forum for Road Traffic Safety (WP.1) adopted the session's agenda (ECE/TRANS/WP.1/158). WP.1 welcomed the participation of delegations from Algeria, Brazil, Democratic Republic of Congo, India, Jordan, Lebanon, Morocco, the State of Palestine, Tunisia and Viet Nam in this session.

III. Activities of interest to the Working Party (agenda item 2)

6. To commemorate its seventy-fifth session, the Secretary-General's Special Envoy for Road Safety and the UNECE Deputy Executive Secretary addressed WP.1. Both emphasized the urgency of expediting road safety efforts in light of Sustainable Development Goal 3.6 to halve the number of global deaths and injuries from road traffic accidents by 2020.

7. The high level opening was followed by presentations by three guest speakers: Mr. T. Nguyen, Director-General of Vietnam Ministry of Transport who spoke about Vietnam recent actions to address and stabilize the number of its road safety fatalities and injuries as well as the country's motives for and benefits from acceding to the 1968 Conventions on Road Traffic and on Road Signs and Signals; Professor N. Merat of the University of Leeds (Great Britain and Northern Ireland) who focused on the importance of taking human factors knowledge into account when developing new technology, and of the dangers of driver distraction from modern communication devices; and Professor B. W. Smith of the University of South Carolina (United States of America) who provided an overview of the current legal frameworks for road rules around the world from the viewpoint of the mass emergence of highly automated vehicles.

8. WP.1 expressed its appreciation to the Secretary-General's Special Envoy for Road Safety for his continued commitment to road safety and his specific efforts to support

United Nations road safety legal instruments. The Global Forum thanked all three distinguished guest speakers for their contribution to the seventy-fifth session.

IV. Convention on Road Traffic (1968) (agenda item 3)

A. Consistency between the Convention on Road Traffic (1968) and Vehicle Technical Regulations

9. At the September 2016 session, WP.1 considered (up to paragraph 25.2) ECE/TRANS/WP.1/2015/2/Rev.3 submitted by France, Italy and Laser Europe. At the current session, WP.1 continued to consider amendment proposals not discussed previously on the basis of ECE/TRANS/WP.1/2017/1. While reviewing ECE/TRANS/WP.1/2017/1, WP.1 noted translation and formatting inconsistencies. As a result, it requested the secretariat in cooperation with the proponents of the document to review it and to submit a corrected version of the consolidated document as ECE/TRANS/WP.1/2017/1/Rev.1 at the next session.

B. Driving permits

10. The secretariat informed WP.1 that the French and Russian versions of the International Driving Permits (IDPs) Brochure based on ECE/TRANS/WP.1/2014/8/Rev.2 will be soon available on the WP.1 website. With funding support from the United Nations Secretary-General's Special Envoy for Road Safety, the Arabic, Chinese and Spanish versions will be translated over the coming months to have brochures in all six official United Nations languages.

11. The secretariat delivered a presentation summarizing the recent discussions of an IDP informal group of experts (Belgium, Canada, France, Luxembourg, Russian Federation, Great Britain and Northern Ireland, Fédération Internationale de l'Automobile and International Organization for Standardization) on IDPs. The presentation included a list of six options related to possible future driving permit changes. Feedback from WP.1 was sought, and FIA and ISO offered – by making presentations - further clarifications on the issue. Many delegations provided their initial preferences or reflections on the options (i.e. options 1, 2 and 6).

12. WP.1 invited the IDP informal group of experts, and other interested parties, supported by the secretariat, to prepare a document for the next session, with background and information on options 1, 2 and 6 as well as a preliminary set of principles to accommodate the international driving permits issued by contracting parties to the 1949 Convention on Road Traffic. Such a document will facilitate discussions on this matter at the next session.

13. FIA also provided an update on its pilot project with the United Arab Emirates to introduce security features into international driving permits issued there. A letter from the United Arab Emirates indicating its desire for the continuation of the pilot was tabled.

C. Automated driving

14. The secretariat made a presentation (based on Informal document No.1) which described its understanding of the scope and application of the 1968 Convention on Road Traffic, i.e. the Convention applies to all driving situations except situations where the vehicle is moved by vehicle systems without any role of the driver (fully automated

vehicles). In the secretariat's opinion, a situation in which the vehicle is operated by the driver from the outside of the vehicle is also out of the scope of the Convention.

15. The secretariat also noted that WP.1 agreed at the last session on the principles in the context of paragraph 6 of Article 8 of the 1968 Convention. In this context, it noted that several WP.1 members had suggested that these principles be included in an amendment proposal to be tabled at this session (paragraph 21, ECE/TRANS/WP.1/157).

16. In its presentation, the secretariat suggested that WP.1 may consider clarifying driver's activities in situations when the vehicle is moved by vehicle systems; apply a holistic approach to a driver operating a vehicle from the outside of the vehicle; and consider elements for inclusion in a possible future ancillary instrument dedicated to fully automated vehicles.

Following the presentation, a discussion ensued.

17. On the issue of the amendment, taking into account Informal document No. 7, WP.1 agreed that no amendment to Article 8 of the 1968 Convention on Road Traffic was necessary at this time. In this context, WP.1 reiterated its principles in the context of paragraph 6 of Article 8 as agreed at the last session (paragraph 19, ECE/TRANS/WP.1/157):

"When the vehicle is driven by vehicle systems that do not require the driver to perform the driving task, the driver can engage in activities other than driving as long as:

Principle 1: these activities do not prevent the driver from responding to demands from the vehicle systems for taking over the driving task, and

Principle 2: these activities are consistent with the prescribed use of the vehicle systems and their defined functions."

18. At the same time, WP.1 agreed that the "other activities" noted in the principles should be better elaborated in particular with reference to the activities which could compromise road safety or endanger road users.19.To this end, WP.1 agreed to begin work on the elaboration of a set of recommendations on the topic.

19. The secretariat provided its comments on WP.1 principles on the relationship between paragraphs 5bis and 6.

20. On the issue of Remote Control Parking (RCP), the Chair of the Informal Group of Experts on Automated Driving (IGEAD) informed about the Group's discussions (Informal document No.5) which considered the conformity of RCP with the 1949 and 1968 Conventions. In contrast, the secretariat pointed out the need to elaborate a holistic approach to all situations when a driver operates the vehicle from the outside (Informal document No.1). In view of the inputs provided and discussion, WP.1 agreed that Remote Control Parking as defined in Vehicle Regulation 79.02 (annexed to the "1958 Vehicle Regulation Agreement") does not compromise road safety in parking manoeuvers. At the same time, WP.1 agreed to immediately begin work to address the issue of a driver operating a vehicle from the outside (other than RCP).

21. On the issue of creating an ancillary legal instrument dedicated to highly automated and/or driverless vehicles which would serve the Contracting Parties to 1949 and 1968 Conventions on Road Traffic, and taking into consideration documents tabled (Informal document Nos.1, 4, 8, 9, 14 and 15), WP.1 considered both the substantive and symbolic value of the instrument and agreed to:

a. Create a document (possibly to be adopted in 2018) containing a set of basic recommendations addressing most pressing issues with regard to the of integration of highly and fully automated vehicles in road traffic; b. Commit to continuing development

of this document by expanding its scope, and c. Initially focus the work on elements such as interactions of fully automated vehicle systems with driving environment and with other road users and interactions of the fully automated vehicle systems with their users.

22. WP.1 also agreed that the new instrument is intended to respect and build on the 1949 and 1968 Conventions on Road Traffic by applying their principles in the context of highly and fully automated vehicles in traffic.

23. WP.1 affirmed that the 1949 and 1968 Conventions apply to all driving situations except in situations where the vehicle is moved by vehicle systems without any role of the driver.

24. Taking into account the urgency of the subject of automated driving, and at the suggestion of the Chair, WP.1 agreed to hold a special session in early December 2017 focusing on automated driving only. During that session, WP.1 should further advance its work with regard to: (i) the structure and initial content of recommendations/guidance document on driver activities in a highly automated vehicle, (ii) elaboration of WP.1 position on the situation when a driver operates the vehicle from the outside the vehicle, and (iii) the structure and initial content of a fully automated vehicles document.

25. The WP.1 Chair provided information on the workshop on "Governance of the Safety of Autonomous Vehicles", co-organized by the National Highway Traffic Safety Administration (NHTSA), UNECE WP.1 and the Institut Francais des Sciences et Technnologies des Transports de l'Amenagement et des Reseaux (IFSTTAR) that took place on 28 and 29 June 2017 in Geneva (Informal document No. 12). WP.1 expressed its appreciation to the host and co-organizers for holding this useful event. It also thanked OICA for providing vehicles so the participants can try "hands-on" automated vehicle systems during the workshop.

26. The Global Forum for Road Traffic Safety and Working Party on Brakes and Running Gear (GRRF) held a joint session to exchange information on the activities of common interest. The event this time was focused on the topics of "secondary activities" and cyber security. There was agreement that these joint sessions are constructive and contribute to a better understanding of the role of the driver in a highly and fully automated vehicles. Both chairs agreed to explore possibilities at ITC session in 2018 for holding additional joint sessions in the future.

D. Loading of vehicles

27. ECE/TRANS/WP.1/2015/5/Rev.2 was not submitted and WP.1 decided to revert to this agenda item at the next session.

V. Convention on Road Signs and Signals (1968) (agenda item 4)

Group of Experts on Road Signs and Signals

28. The Chair of the Group of Experts on Road Signs and Signals provided a detailed update on the Group's progress. As of today, the Group was reviewing the G and H category signs, started discussing amendment proposals related to G and H signs, and had agreed on several recommendations for amendments to improve the provisions of the Convention by using coherent terms.

29. The following outstanding issues are still to be addressed: (a) developing a sign to communicate the need to crash through the gate if a vehicle is trapped between the level

crossing gates; (b) consider the issue of an oblique bar on C category of signs; (c) discuss the need for the obligatory 'zone' inscription on zonal validity signs; and (d) the use of rectangular panels or other solutions to warn road users about temporary road works.

30. The Group expects to evaluate the signs that are not contained in the Convention but are widely used in many Contracting Parties.

31. In light of the remaining workload ahead, the Chair of the Group of Experts requested a one year extension of the mandate so the Group can undertake these tasks.

32. The secretariat updated WP.1 on the progress in developing the e-CoRSS platform by presenting this tool and its capabilities. The secretariat presented pages listing all variants of Convention's A through F signs, detailed sign pages, search functions and explained the edit function.

33. WP.1 welcomed the progress made by the Group in reviewing the 1968 Convention and the 1971 European Agreement, and agreed to extend the mandate of the Group of Experts until December 2018. WP.1 welcomed the progress in developing the e-CoRSS platform.

VI. Consolidated Resolution on Road Traffic (R.E.1) (agenda item 5)

A. A Safe System Approach

34. WP.1 continued to discuss ECE/TRANS/WP.1/2014/6/Rev.1 (erroneously referred to as ECE/TRANS/WP.1/2014/6 in the agenda) which incorporates Sweden's amendment proposals to include a safe system approach into the Consolidated Resolution on Road Traffic (R.E.1). At the current session, WP.1 reviewed the amendment proposals up to the end of Part 2 and will continue at the next session from Part 3.

35. WP.1 also considered the Informal document No. 6 prepared by Spain, Sweden and the United States of America and providing three options for the alternative text of 2.4.1.3 (Role of penalties and other restrictive measures). After discussion, WP.1 requested a new document to be presented at the next session with one option only. The originators of the three options were invited by WP.1 to consolidate their texts where the text of 2.4.1.3 is brief while any additional elements can be used to revise 2.4.2.2 of RE.1.

B. Multi-Disciplinary Crash Investigation (MDCI)

36. The secretariat informed the Working Party that it had not been possible to annex ECE/TRANS/WP.1/2013/6/Rev.3 in its entirety to the report of the last session (as per para. 31, ECE/TRANS/WP.1/157) due to procedural limitations. The remainder of ECE/TRANS/WP.1/2013/6/Rev.3 is annexed to the report of this session.

C. Amendment proposals on distracted driving

37. At the last session, WP.1 began to discuss ECE/TRANS/WP.1/2017/2 submitted by France, Italy and the Russian Federation which proposes amendments to section 1.5 (Use of mobile phones) of R.E.1. At the current session, WP.1 continued to discuss ECE/TRANS/WP.1/2017/2 taking into account a more general approach to distraction problem presented by Sweden in Informal document No.11.

38. WP.1 agreed that R.E.1 should offer context information on a general distraction problem before focusing on distraction caused by the use of mobile phones. It requested France, Italy, the Russian Federation and Sweden to table ECE/TRANS/WP.1/2017/2/Rev.1 at the next session that would propose new text on distraction, as specified above, for R.E.1.

D. Amendment proposals on policies for Powered Two Wheelers (PTW)

39. At the last session, WP.1 requested IRTE and the University of Birmingham (Great Britain and Northern Ireland) to work with the secretariat to restructure and format the text of ECE/TRANS/WP.1/2017/3, to fit R.E.1 style. On behalf of all of the parties, the Chair informed that a new stand-alone policy paper was being prepared that would address the situation in South East Asia and other low and middle income countries and offer recommendations for developing countries in improving road safety of vulnerable road users including PTW users. This new policy paper is expected to be submitted at the next session. It will likely make references to R.E.1, with a view to considering the potential incorporation of its text into R.E.1. WP.1. took note of the information provided.

E. Amendment proposals on Vulnerable Road Users (VRU)

40. At the last session, WP.1 welcomed the proposal by IRTE with the support of NHTSA and the WP.1 Chair to organize, as a follow-up to the PTW activities, a workshop to complete the assessment of safety of VRU in South-East Asia and to recommend steps to improve the safety of VRU in the region and beyond. At the current session, the president of IRTE made a presentation which informed WP.1 about preparations for a workshop (to be held from 9-11 November 2017) that is organized in collaboration with WP.1 and with the support of the Government of India, United States of America and FIA Foundation. He outlined the workshop's agenda which will focus on pedestrians, elderly, people with disabilities and the transport of school children and invited WP.1 members to attend and to contribute to the discussions with their South-east Asian counterparts. He also informed WP.1 about a preparatory round table on VRU to be held on 3 October 2017 in Bangkok at the ESCAP premises.

41. WP.1 welcomed the information and appreciated the initiative taken to carry out the analysis of the situation of VRU in South-East Asian countries necessary to develop tailor-made recommendations for improving VRU safety. WP.1 took note that Informal document No. 3 was not submitted.

VII. Group of Experts on Improving Safety at Level Crossings (agenda item 6)

42. At the last session, WP.1 requested the secretariat to explore possibilities for establishing a dedicated working group on improving safety at level crossings in cooperation with other partners such as International Union of Railways (UIC). The secretariat informed WP.1 that it is still awaiting official replies from UIC and the European Rail Agency.

VIII. Revision of the terms of reference and rules of procedure for WP.1 (agenda item 7)

43. At the last session, WP.1 requested the informal group of experts (Austria, Italy and Japan) to prepare a proposal for this session on how to revise WP.1 terms of reference and rules of procedure (ECE/TRANS/WP.1/100/Add.1/Rev.1). WP.1 considered ECE/TRANS/WP.1/100/Add.1/Rev.2 (Rule 1 a-c) and requested that the terms of reference be revised according to the comments provided and tabled at the next session.

IX. Programme of work and biennial evaluation, 2018-2019 (agenda item 8)

44. In accordance with the decision of the Inland Transport Committee (ITC) to review its programme of work every two years, WP.1 is requested to review and adopt its programme of work for 2018–2019 and the relevant parameters allowing for its biennial evaluation (ECE/TRANS/WP.1/2017/5). After discussion and revisions, WP.1 approved its programme of work for 2018-2019 and requested the secretariat submit it to ITC.

X. WP.1 and road safety related to the Sustainable Development Goals (agenda item 9)

45. At the last ITC session, Working Parties were invited to consider preparing contributions to the draft strategy of ITC that will be considered by the Committee in 2018. The WP.1 Chair presented ECE/TRANS/WP.1/2017/6 and some tangible suggestions. After discussion, WP.1 agreed on the following text which will be forwarded to the Inland Transport Committee:

Improving road safety globally:

Promote the United Nations Conventions on Road Traffic and on Road Signs and Signals and Consolidated Resolutions.

- Facilitate capacity-building working plan in coordination with other United Nations Regional Commissions to promote road safety in the frame of transport-related targets as stated in the Agenda 2030.
- Facilitate cross-regional strategic networking so that the subsidiary bodies, such as the Global Forum for Road Traffic Safety, can share effectively at a global level their expertise and experiences in road safety.
- Take into account both the benefits and the challenges associated with advances in automotive technology, facilitate cooperative dialogue among governments, industries, academia and stakeholders in order to promote the new vision of automated and connected mobility aligned with road safety principles and values.
- Take the lead in promoting dedicated policies and work plans on safe and sustainable mobility, in consideration of the United Nations Secretary-General's call to act in respect of transformational policies aiming at societal betterment and sustained economic growth.
- Cooperate with UN Secretary-General's Special Envoy for Road Safety in advocating for road safety.

46. The manager of the European Union-funded EuroMed Transport Support Project reported on the achievements of the project in the field of improving road safety in the countries participating in the project. Delegations from Algeria, Jordan, Lebanon, Morocco, the State of Palestine and Tunisia presented the road safety situation in their countries, actions taken to improve road safety, challenges as well as the needs to address these challenges. WP.1 took note of the presentations. It welcomed the progress made and invited the countries to continue attending WP.1 sessions, and encouraged them to accede to the United Nations road safety conventions, if they have not done it yet.

XI. Other Business (agenda item 10)

47. The UNECE Sustainable Transport Division's Regional Advisor and a consultant on SafeFITs model (Road Safety in Future Inland Transport Systems) presented the model as well as informed WP.1 on the progress in making it publicly available on the UNECE website. WP.1 took note of the information provided.

48. WP.1 expressed its dissatisfaction with the late availability – one week before the session – of the translation of three documents in French and Russian. It regretted that such situations lead to a postponement of substantive discussions as government delegations do not have the time necessary to carry out internal consultations prior to the meeting. WP.1 requested United Nations Office in Geneva (UNOG) Conference Services make documents available in due time for its sessions, i.e. at least 4 weeks before the start of a session and reiterated the importance of having three language versions available as early as possible.

XII. Date of next session (agenda item 11)

49. The next regular session of WP.1 is scheduled for 20 to 23 March 2018 in Geneva. WP.1 will also hold a special session (with no interpretation) on 6 and 7 December 2017 in Geneva.

XIII. Adoption of the report of the seventy-fifth session (agenda item 12)

50. The Working Party adopted the report of its seventy-fifth session.

Annex

Annex VIII

Multi-Disciplinary Crash Investigation (MDCI) in Sweden

(see Chapter 17, Recommendation 17.6.1 (c))

1. In Sweden MDCI is called In-depth studies (reference to this name will appear in the text) and have been conducted by the Swedish Transport Administration (STA, formerly the Swedish Road Administration), on all fatal road traffic crashes in Sweden since 1997. The main focus of the In-depth studies is to increase insight how to prevent fatalities in the road transport system.

2. All analyses are based upon the possibilities for the designers and professional users of the system to create a safe road transport system. The basic idea is that there must have been a flaw in the system causing the fatality if a fatal injury has occurred. A flaw in the system is deemed as a deviation from a safe road transport system. Such a deviation could

be:

(a) A circumstance where a condition considered a precondition for safety is not fulfilled, e.g. not using a seat belt, hence being thrown out of the vehicle and sustaining fatal injuries. The reason for the specific deviation in the system needs to be handled to increase safety. In this case the deviation not using a seat belt shows a system that allows use without complete safety which indicates that a measure needs to be taken to prevent further similar system failures;

(b) A circumstance where all preconditions for safety are fulfilled in the system, e.g. a belted and sober driver who are keeping the speed limit in a safe car on a safe road, but still sustains fatal injuries. It is then obvious that the system is not as safe as considered and that the preconditions must be revised.

3. Deviations from the preconditions for the safe system design that cause fatalities can be found when analyzing a single crash or multiple crashes of a similar type. The collected data and information may therefore be analysed both on an individual (single crash) and aggregated (multiple crashes of a similar type) level to find these deviations causing fatalities. By implementing recommendations from the In-depth studies the preconditions for what is considered a safe road transport system design is altered and pushed to a higher level of safety.

4. This annex follows the structure presented in the framework for MDCI and consists of six sections, where each section includes:

(a) A general part that shows the basic routines and work conducted regarding in-depth studies in Sweden;

(b) A part with examples that show how MDCI was used in four specific cases:

(i) cases 1 and 2 show how MDCI can be a part of an organization’s quality management system; and

(ii) cases 3 and 4 show how MDCI can be a successful tool for encouraging stakeholders to act.

5. The following cases will be used:

Case 1 – Concrete pillar within the deformation zone of a crash barrier

6. A young woman loses control of her vehicle after overtaking another car on a highway, causing it to skid into the median barrier. As she tries to recover control over the car it skids over the driving lanes into the side barrier. The car crashes into and penetrates the side barrier and hits a concrete pillar behind the barrier. The woman sustained severe injuries and died 2 weeks later.

Case 2 – Barrier failure

7. A vehicle collides with the median barrier, causing the barrier to be pushed down and run over. One of the barrier pillars hooks on to the vehicle´s undercarriage and makes it airborne for a short period of time, during which the roof of the car collides with a lamp post and the driver is thrown out of the car. The driver is subsequently killed due to being crushed between the car and the barrier. Shortly thereafter the car comes to a hold against a section of the median barrier away from the initial collision.

Case 3 – Airbag did not inflate

8. A vehicle run off the road in high speed and moves some 50 meters in the road side area before colliding with a stone wall. In the collision the driver is thrown forward and up towards the roof at the same time as the front end of the vehicle is pushed inwards towards the driver. The driver is killed immediately due to the injuries sustained in the impact.

Case 4 – Stakeholder cooperation

9. A truck-driver turns right in an intersection located in an urban area. The truck driver hits and knocks a bicyclist over. Subsequently, the bicyclist is run over by the truck. Due to repeated crashes between bicyclists and trucks with a similar pattern, the STA invited a number of stakeholders to participate in a joint process to find effective measures.

10. The joint process was divided into three meetings:

(a) Meeting #1 was focused on informing the participating stakeholders on the issue by introducing the facts derived from the In-depth studies.

(b) Meeting #2 was a follow-up meeting on meeting #1. The stakeholders have had a chance to reflect on the stated facts and were encouraged to introduce and discuss possible measures.

(c) Meeting #3. During the final meeting the stakeholders would state their intentions to take measures within their area of responsibility in relation to the information gained during meeting #1 and #2.

11. The method of working is called “OLA” (which is a Swedish abbreviation for Objective findings-Solutions-Intentions) and was introduced in 2006 to invite more stakeholders to take part in the road safety work. The method is based on facts derived from the In-depth studies. Findings by the analysis team are introduced to the stakeholders. They on their part form a team that analyse what measures can be implemented to prevent the chain-of-events leading to the fatal outcomes of the crashes.

I. Access to information sources of crash occurrence

12. The In-depth studies rely on two major information sources to get knowledge of the occurrence of a fatal crash; regional traffic control centres and the police. Regional traffic control centres act in cooperation with the emergency service centre in the same region and

notifies crash investigators by sending a pre-set text message to the crash investigators mobile phone.

13. Not every fatality is determined at the crash site, nor do all fatalities occur at the crash site. For that reason there is a need for a second central information channel (the police) to STA. Information from the police about road traffic fatalities is routinely sent to the STA by fax as soon as possible after the fatality is known. The information is a standard document that is filled in by the police after every road traffic crash (regardless if there are fatal, serious or slight injuries).

14. Both information channels are secured through signed agreements between the police and the STA as well as regional traffic control centres and the STA.

Case 1 – Concrete pillar within the deformation zone of a barrier

15. The first indication came directly from the police a couple of hours after the crash. Through his contacts within the police force the officer was able to contact the STA crash investigator and could report a suspicion that the side barrier had not worked as it was supposed to (as the car had been able to deflect the barrier and to such extent that it crashed into a concrete pillar in close proximity to the barrier). When the female driver died two weeks later the police sent the information about the crash in accordance with the agreement between the STA and the police.

Case 2 – Barrier failure

16. The police sent the information about the crash in accordance with the agreement between the STA and the police.

Case 3 – Airbag did not inflate

17. The police sent the information about the crash in accordance with the agreement between the STA and the police.

Case 4 – Stakeholder cooperation

18. After each crash, the police sent the information about the crash in accordance to the agreement between the STA and the police. Crash investigators quickly identified the crashes between trucks and bicyclists as an issue to address in an OLA-process where it was introduced.

19. The STA and the crash investigator then acted as an information source when the stakeholders were assembled.

II. Access to data sources and collection of data and information

20. The crash investigator routinely collects data from:

(a) The police: As a first step an initial report is sent with information about the crash site and the vehicle(s) involved in the crash are located. At a later stage the police investigation is sent to the STA. Data is transferred between the police and the STA through an agreement between the two authorities. STA crash investigators also keep in contact with the police through the entire investigation;

(b) The National Board of Forensic Medicine: For legal reasons, an autopsy is generally performed on each person killed in a road traffic crash. In the vast majority of cases, a forensic toxicology test is performed for the same reason. The autopsy and forensic

toxicology test is included in the police investigation. The STA has also established direct contact to allow a direct exchange of information between the two authorities;

(c) The crash site: The crash investigator collects data on the crash site after the rescue operation is finished. Normally the investigator collects crash site data within 5 days of the crash. During the examination of the crash site the investigator collects data about parameters that are regarded as important to the crash investigation. However a set certain of parameters must always be collected;

(d) The Swedish Transport Agency: This authority has overall responsibility for registers of vehicles and driving licenses in Sweden. The crash investigators has direct access to and can collect data and information directly from a database kept by the agency;

(e) The vehicle: The crash investigator collects data about the vehicle. During an examination of a vehicle the investigator collects data that is considered important to the crash investigation. However a set certain of parameters must always be collected;

(f) The Swedish Transport Administration: Information needed about roads is supplied through personal contacts and databases within the organization. The contacts may also be involved in the analysis team at a later stage;

(g) The rescue service: The rescue service has access to primary information about the rescue operation and photos of the crash site. Mainly, the investigator collects this data through direct contacts with the rescue service.

21. Other data sources are possible to use depending on relevance and if cooperation in the specific case is possible. Examples of such data sources are:

(a) The manufacturer of the specific vehicle involved in the crash;

(b) The road authority (if not the STA) in the form of a municipality or privately owned road open for public traffic.

Case 1 – Concrete pillar within the deformation zone of a barrier

22. The crash investigator used all mentioned data sources. However, some data sources were more crucial to the case.

23. Information from the police arrived first which made it possible to locate and examine the vehicle. Due to the fact that the crash site was a part of a high-density highway, the crash site was restored before the crash investigator had time to examine it. The crash investigator visited the crash site at a later stage of the investigation and received important data and information from the police and the rescue service as well as persons employed by the STA to reconstruct the crash site. Information collected from the National Board of Forensic Medicine gave an important insight how the young woman had sustained the injuries that caused the fatality. In addition to the standard data collected, the crash investigator collected data and information specifically about the side barrier and road side area.

Case 2 – Barrier failure

24. The crash investigator used all mentioned data sources. However, some data sources were more crucial to the case.

25. Information from the police arrived first which made it possible to locate and examine the vehicle. While examining the vehicle, the crash investigator found that the median barrier had attached to the undercarriage of the car. Due to the fact that the crash site is a part of a highway, the crash investigator had difficulties to access the location of the crash and contacted the persons employed by the STA to reconstruct the crash site to

gain the data and information needed about the crash site. At this time the crash investigator learns about the median barrier and acknowledges that it could have been a factor. Subsequently, the crash investigator contacted experts on barriers within the STA to gain further knowledge about the specific type of barrier used. The crash investigator also contacted road maintenance personnel of the STA for further information about the ground conditions.

Case 3 – Airbag did not inflate

26. The crash investigator used all mentioned data sources. However, some data sources were more crucial to the case.

27. Information from the police arrived first which made it possible to locate and examine the crash site and the vehicle. During the examination of the crash site the crash investigator learned through additional contacts with the police that the police had strong indications that the fatality was the result of a suicide. The crash investigator continued to collect data and information and examined the crash site carefully. When the crash investigator examined the vehicle he found that the airbags did not inflate during the crash. Through vehicle experts in the STA the crash investigator was able to contact the vehicle manufacturer. This lead to a joint examination with vehicle manufacturer, which enabled the crash investigator to gain further information and knowledge about the crash.

28. The autopsy later show that the airbags most likely could not have prevented the fatality in this case.

Case 4 – Stakeholder cooperation

29. In each of the fatalities caused by the specific crash type the crash investigators used all the data sources. However, some data sources were more crucial to the cases.

30. In the cases of crashes between right-turning trucks and bicyclists, police data and information were particularly important as the truck normally did not have any traces of the crash when the crash investigator is able to examine it. The witness reports taken by the police were also important to the crash investigator. The crash site and the vehicles were then examined. The autopsy normally confirmed the suspicion that the bicyclist had been run over.

31. Data and information from the crash investigation then served as the data source used for the stakeholders' cooperation group.

III. Legal aspects

32. In Sweden, it is possible for authorities to share data and information through the principle of public access. The principle entitles the general public to access official documents. Documents that are received or sent out by the Government Offices and other government agencies, e.g. letters, decisions and inquiries, usually constitute official documents .The principle also grants officials and others working in central government, municipalities, agencies, etc. to have freedom of communication. This means that, with some exceptions, that the STA is enabled to cooperate with important stakeholders, as the police, the rescue service, etc. However, the communication must be done in accordance with the laws on confidentiality.

33. To be able to receive data and information about use of drugs and alcohol or other information that could be of harm to a person's integrity, the STA also has been ensured further confidentiality through a paragraph in the law on confidentiality.

IV. Investigation method

34. The In-depth studies are a part of a safe system approach and use the principles of Vision Zero as a foundation for the investigation method. As mentioned in the introduction the purpose of the investigations to find flaws in the transport system causing the fatalities. Flaws are compared with a model for safe road traffic, which is defined by the principles in Vision Zero. The model describes, from a system perspective, the way a number of factors interact in order to achieve safe road traffic. The starting point of the model and the prerequisite for a safe journey is the psychological and physical conditions and limitations of the human being. The main limiting factor is human ability to withstand external violence, which can be considered given and constant. The passive safety, or injury mitigation capability of the system, is determined by the safety standard of the vehicles and the roads/streets added together. The total injury mitigation capacity of these components determines the safe speed of the system. If a higher speed is desired, the safety performance of vehicles, roads/streets and/or road user must be increased. Deficiencies in the system design must be compensated by a lower speed.

V. Composition of an analysis team

35. The guidelines for the In-depth studies conducted by the STA state which competences that should be included in the analysis team. Competences could be retrieved both internally (within the STA) and externally (other stakeholders). Experts that always are included in the analysis team, due to the aim of the In-depth studies, are:

(a) An crash investigator. In most cases the investigator/investigators who conducted the investigation;

(b) A road safety expert. The expert represents specific knowledge of road safety issues;

(c) A road designer, or a similar expert with general knowledge of a technical aspects as well as its safety features and safety performance;

(e) A vehicle engineer, or a similar expert with general knowledge technical aspects as well as its active and passive safety features;

(f) A behavioural scientist, or a similar expert with good knowledge about human factors;

(g) A physician, or a similar expert with a good knowledge about human physical conditions to sustain collision forces as well as how drugs, age, illnesses, etc. affect a person´s precondition to act safely within the system boundaries;

36. Other competences may be included if needed, e.g. the police, the rescue service, pathologists, road maintenance, road regulations, etc. General competences involved in a pre-investigation analysis could also be included in the analysis team.

Case 1 – Concrete pillar within the deformation zone of a barrier

37. In addition to the expertise always included in the analysis team, an expert within the road maintenance area and a person within the unit that plans investments in the road infrastructure were included in the analysis team.

Case 2 – Barrier failure

38. In addition to the expertise always included in the analysis team, an expert within the road maintenance area was included in the analysis team.

Case 3 – Airbag did not inflate

39. In addition to the expertise always included in the analysis team, no other expertise was used. (The vehicle manufacturer's expert involved in the vehicle examination was invited but was not able to take part.)

Case 4 – Stakeholder cooperation

40. An analysis have been made following every crash investigation between a truck and a bicyclist. In addition to the expertise always included in the analysis team, expertise of some of the involved vehicle manufacturers have been used.

41. The stakeholder cooperation group have among others included; vehicle manufacturers, representatives of municipalities, the police and trucking organizations.

VI. Reconstruction and analysis of the crash and its consequences

42. All conclusions made by the analysis team must be derived from facts. The objective of the analysis team is to:

(a) Reconstruct the most probable chain of events in the pre-crash, crash and post-crash phase of the crash;

(b) Conclude which factors contributed to the fatal injury. If possible also conclude which factors contributed the crash occurrence;

(c) Suggest possible measures to "break the chain of events".

Case 1 – Concrete pillar within the deformation zone of a barrier

43. In this description only the part of the reconstruction relevant for the findings and conclusions is included:

(a) After the initial collision the car crosses all three driving lanes (all in the same direction as the crash occurred on a highway). The car drifts into the side barrier almost head on. Behind the barrier, within the deformation zone of the specific type of barrier, a bridge pillar made of concrete is located. It is concluded that the deformation zone between the side barrier and the concrete pillar is too small which causes the car to crash head on with the pillar;

(b) The combination of the crash between the car and the side barrier at a large angle and the concrete pillar being located in the deformation zone causes the fatal injury. It is also concluded that a similar chain of events is possible even if the collision angle with the side barrier is smaller;

(c) Possible measures are presented in "Formulation of findings and recommendations".

Case 2 – Barrier failure

44. In this description only the part of the reconstruction relevant for the findings and conclusions is included.

(a) As the car crashes with the median barrier, it is pushed backwards and down because the soil is too soft to keep the barrier pillars in place. As the barrier is pushed down one of the pillars is pulled up out of the ground and connects to the undercarriage of the car. The barrier is torn from the next couple of pillars. After travelling a couple of meters with

the pillar and barrier connected to the undercarriage the car is thrown into rotation when the barrier finally holds to the pillars. At this time the driver is thrown halfway outside of the car;

(b) When the car again crashes with the median barrier the driver is caught between them and crushed. The driver is subsequently drawn completely out of the car. It is determined that the driver had not been wearing a seat belt;

(c) Possible measures are presented in "Formulation of findings and recommendations".

Case 3 – Airbag did not inflate

45. In this description only the part of the reconstruction relevant for the findings and conclusions is included.

- The vehicle has drifted off the road in a narrow angle. Thereafter it has travelled at a high speed about 50 meters in the road side area. When crashing with a stone wall the front of the vehicle is raised and the driver, who is not wearing a seat belt is thrown towards the compartment ceiling. The high speed of the vehicle allows almost the whole front end to be pushed into the compartment. After that the car is thrown back onto the road. When the deceased is retrieved from the wreck, the police finds a suicide note.
- The driver is killed immediately by the severe injuries sustained when the front end of the car is pushed into the compartment.
- The collision and subsequently the injuries are due to a suicide. However an important finding is discovered and is presented in "Formulation of findings and recommendations".

Case 4 – Stakeholder cooperation

46. In this description only the part of the reconstruction relevant for the findings and conclusions is included.

47. The chain of events described in case 4 is a general description of repeated events found in numerous crashes involving trucks and bicyclists. In the analysis of every crash, the analysis team concluded these specific events to be important factor which contributed to the fatality and crash occurrence. The general description formed the basis for further analysis made by the stakeholders.

- All fatally injured bicyclists had been close to the right hand side or just in front of the truck-driver compartment at a signalized intersection in an urban area. In all cases the driver is also unaware of the position of the bicyclist. As the light turns green both road users start their motion. The truck-driver has the intention to turn right and the bicyclist has the intention to ride their bike straight through the intersection. As the truck driver begins to turn right, the truck collides with the bicyclist and knocks the bicyclist over. The truck-driver is unaware of the collision and continues to turn the vehicle. The bicyclist, now lying on the ground, is run over by the truck.
- The fatal injury is sustained when the bicyclist is run over.
- Possible measures are presented in "Findings and recommendations following the analysis".

VII. Formulation of findings and recommendations

48. The In-depth studies aim to increase safety by addressing all parts of the transport system. Findings and recommendations may therefore be directed to all stakeholders involved in designing and operating the transport system. Within the STA, a recommendation is provided to the part of the organization that can make the adjustment needed to increase safety.

Case 1 – Concrete pillar within the deformation zone of a barrier

49. When analyzing the crash the analysis team concluded that the concrete pillar is standing within the deformation zone of the barrier. The road maintenance competence informed the analysis team that the barrier had been moved closer to the pillar to ensure more roadside surface. The analysis team was also informed that barriers had been moved in the same way along a long stretch of the highway in the region due to a specific roadside project.

50. The analysis team recommended that the highways in the region where the project had been carried out should be investigated, and subsequently, if more non-yielding objects were found a list of how and when they should be taken care of should be established.

Case 2 – Barrier failure

51. When examining the car, the STA investigator discovered that the barrier had stuck to the undercarriage of the car. To follow up the finding the STA investigator contacted the entrepreneur who was responsible for the maintenance the specific road and its installations. It was discovered that the pillars holding the median barrier were standing in soil too soft to hold the pillars when the car collided with the barrier. This caused the pillar to bend down which in turn caused the barrier to bend down as well. The analysis team concluded that if the pillars would have been installed correctly the pillars would have kept the pillars in place and the barrier would have been likely to withstand the collision. Subsequently the barrier would have worked as intended and stopped the chain of events.

52. The analysis team recommended the STA to form a strategy on how to ensure that barriers are set up in ground conditions that can support the pillars.

Case 3 – Airbag did not inflate

53. When examining the vehicle the investigator found that none of the frontal airbags had deployed. Even though the crash investigator has information that the fatality was caused by a suicidal act the STA investigator decided to investigate the airbags to ensure that there was no deviation from the required functionality. For that reason the investigator contacted the vehicle manufacturer. In the joint examination the STA investigator and the vehicle manufacturer found that the brutal impact force also disconnected the airbag system. Their findings worked as an input to the vehicle manufacturer to improve their airbag systems. The information was also important knowledge gained for the vehicle experts of the STA.

54. No recommendations were submitted by the analysis team to the vehicle manufacturer.

Case 4 – Stakeholder cooperation

55. The analysis team found that in each case the truck-driver had been unaware of the bicyclist standing on the right hand side of the truck. The analysis team concluded that this is a crucial factor to handle to prevent the fatal injuries and therefore recommended that

measures to ensure the visibility of the bicyclists should be implemented to prevent the initial collision.

VIII. Implementation of findings and recommendations

56. Depending on the stakeholder, the knowledge of the implementation of a recommendation varies. In general the follow up is made:

- through contacts between the STA and the stakeholder. The STA has no possibilities to force any stakeholder to act. The aim is instead to encourage stakeholders to make changes that increase safety,
- through contacts between the Crash Investigation unit and the part of the STA with a possibility to make changes that increase safety.

57. For this reason the In-depth studies can be seen as a part of safety management system which the STA uses to improve safety within their organization. The OLA-cooperation method, which was described above and which case 4 is based on, is also a method for the implementation of findings and recommendations.

Case 1 – Concrete pillar within the deformation zone of a barrier

58. The investigation to seek out more non-yielding objects behind barriers was carried out by the STA. The investigation showed a number of objects that could jeopardize safety if a similar chain-of-events would take place in the location of the discovered object. A list of how and when the issues should be taken care of was therefore established. The STA has been working with objects on the list, systematically minimizing the injury risks through a similar chain-of-events. In most cases the STA has changed the type of barrier in the vicinity of a non-yielding object.

Case 2 – Barrier failure

59. The STA was updating its strategy for barriers at the time of the crash. The findings and recommendations from the analysis group were implemented into the new strategy for barriers. The findings also initiated a research project on the subject of ground conditions to ensure that the barrier pillars work as expected.

Case 3 – Airbag did not inflate

60. The finding served as an input to the vehicle manufacturer to improve their safety systems. The information is also valuable insight gained for the vehicle experts of the STA and spread through their work.

Case 4 – Stakeholder cooperation

61. During the stakeholder cooperation meetings the idea of “bicycle boxes” was brought up. The principle is that the stop line for motor vehicles at a signalized intersection is drawn further back from the intersection. This creates a box for bicyclists to reside in during the time when given a red light. The box gives the truck-driver increased visibility over the bicyclists at the intersection as well as relocating the bicyclists from the dangerous area on the right hand side of the truck. This idea is subsequently systematically implemented in the urban area of Stockholm.

62. The findings also have served as an input to the truck manufacturer to improve their safety systems. Active research includes radar systems (that e.g. cover the right hand side) and other measures to reduce the risk of being run over.

Annex VIII BIS

Multi-Disciplinary Crash Investigation (MDCI) in Finland

(see Chapter 17, Recommendation 17.6.1 (c))

I. Road accident investigation

1. Road accident investigation teams carry out the investigation of all fatal road and cross-country accidents in Finland (since 1970). Accidents resulting in serious injuries or only in material damages are also investigated. Other than fatal accidents are usually studied with a limitation based on time or region or, for example, to clarify a particular issue.

2. Investigation is regulated by legislation on the investigation of road and cross country traffic accidents (24/2001). The investigation is steered and supervised by the Road Accident Investigation Delegation set up by the Ministry of Transport and Communications. The Road Accident Investigation Delegation comprises representatives of e.g. the Ministry of Transport and Communications, Ministry of the Interior, Ministry of Justice, Ministry of Education, Ministry of Social Affairs and Health, Finnish Road Administration, Vehicle Administration, National Authority for Medicolegal Affairs, Accident Investigation Board Finland, Central Association of Motor Traffic, Finnish Transport Workers' Union and Liikenneturva, the Central Organisation for Traffic Safety in Finland. The Finnish Motor Insurers' Centre takes care of the maintenance of road accident investigation, the use of the investigation results and the information service.

3. In Finland the Safety Investigation Authority (former Accident Investigation Board) www.turvallisuustutkinta.fi/en/ investigates all major accidents regardless of their nature. If Safety Investigation Authority decides on the commencement of investigation, the investigation under act 24/2001 shall discontinue. Nevertheless, the information on the investigation shall also be available to the investigation scheme operating under act 24/2001.

II. The road accident investigation teams

4. Investigation of road and cross-country accidents is performed by the road accident investigation teams (20 in all). A road accident investigation team shall comprise a Chair, a Vice Chair and a sufficient number of members who shall represent expertise sufficient from the standpoint of accident investigation. The team members are:

- a police member, Chair;
- a vehicle specialist member;
- a road specialist member;
- a physician member;
- a psychologist member;
- other experts, for example railway expert, depending on the accident in which special expertise is needed.

5. While carrying out their investigation work, the road accident investigation teams shall be independent bodies to ensure neutrality and impartiality of the investigation. The investigation teams do not take a stand on issues of liability or compensation.

III. Investigation method: VALT METHOD 2003 (revised)

6. Considering the VALT METHOD 2003 the important points are analysis of the origin of the accident and production of countermeasures (Risk Accumulation Model, VALT). The latest VALT METHOD was composed in Turku University under guidance of professor Esko Keskinen.

A. The origin of the accident

7. The starting point for this accident investigation method is analysis of risk factors that had an immediate effect and those in the background. The examination of risk factors is extended to touch upon how serious consequences also materialize. In this way the risk factors are divided into those which affected the origin of accident and those that had affected to serious consequences.

B. Production of countermeasures and proposals for safety improvement

8. The foundation for the creation of safety proposals is the concept that, firstly, all those types of factor that could have possibly prevented the crash, and secondly, those factors that could have prevented death or lessened injuries are sought.

9. The starting point for the proposals for safety improvement is an attempt to find the inhibiting or preventive possibilities in each immediate risk factor and those in the background which have had an effect. The safety recommendations are in turn formed from the preventative possibilities. The safety recommendations are systematically analyzed in connection with every accident.

Important concepts:

- The key event (what took place);
- Risk factors (why it happened):
- Immediate risk factors;
- Background risk factors.
- Damages and factors which have affected the consequences (why serious consequences);
- Injuries, causes of injuries and safety devices (why serious consequences);
- Possible preventive measures in accidents, improvement proposals and safety recommendations (how to prevent the incident, how to prevent the consequences).

IV. Operation at the scene of the accident and the members cooperation

10. The accident investigation teams receive information about accidents either from the Emergency Response Centre or from the local senior police officer. According to the law

members of the investigation teams are entitled to have access to the place of accident and carry out investigations, inspect the vehicles and obtain information, for example, from official register to establish the reasons for the accident.

11. The investigation team begins the investigation together at the accident scene if this is possible. With police and rescue staff on the scene of accident, the crash place, the directions of travel of those involved, together with other people, the marks found, and the general characteristics of the incident are clarified. After this the investigation team agrees on the investigation sequence, such as, for example, interviews with those involved, the checking of vehicles, the need for special investigations, assistance in moving or lifting, etc. After this the members begin their own investigation at the scene.

12. Having arrived at the site, the investigation team examines and records the points where those involved stopped and the marks that remain. On the basis of the findings the road specialist or possibly another member of the team draws a sketch of the scene, including sequences of the events before the impact, the places and positions of vehicles at the moment of impact and final position. In addition, the location of those involved is marked on the sketch at, for example, one second intervals, before the crash and after it. In the sketch the dimensions are shown with, at least, the path of displacement, together with the braking or skidding tracks and stopping points, and the sketch is made as far as possible to scale. The drawing is attached as an annex to the investigation folder.

13. The member specializing in reconstruction makes the calculated reconstruction of the movement of the vehicles before and after the crash. From this calculation one can obtain the information required about speed before the key event and at the moment of impact, for processing of the incident and for recording on the forms.

Data to collect:

- Information about the driver by interviewing the driver/pedestrian or their relative or eyewitness;
- Examining the vehicle on scene, information from Vehicle Traffic Information System (Finnish Transport Safety Agency);
- Examining the road, weather and environment on scene;
- Autopsy and other forensic medical documentation, medical case summary;
- Records of preliminary police investigation, information of warnings, offences and driving bans;
- Event marks and drawings for reconstructions and crash severity;

14. Accidents are investigated and data is collected using a standardized VALT Method (2003) and standard forms under legislation. Standardization of the method increases the the quality and usability of the information obtained.

V. Objectives

15. The objective is to produce information and safety suggestions to improve road safety through studying road and cross-country traffic accidents. In practice, files are collected in the field investigation and they are available to the traffic safety work as laid down in the data protection legislation.

- In the field investigation, information from accidents is collected on the investigation forms and concerns those parties involved, the events and

circumstances. These form the basis for the event description and analyses, and from them an accident database is created;

- In the reconstruction of the accident, the course of the event and calculations to avoid the incident are examined. Reconstruction gives essential information for analysis and for the computer-based accident records;
- In the analysis of the accident, explanations for the accident, the factors that increased the probability of the accident and suggestions for safety measures are all examined thoroughly;
- On the basis of the process described above, an investigation report is written, an investigation folder is compiled from the documents collected, and filed with the Finnish Motor Insurers' Centre. The investigation report includes, for example, a description of the course of the accident, the factors resulting in the accident, the results of the accidents, and safety improvement proposals made by the investigation team. After completion, the investigation report is a public document. Other documents gathered in connection with the investigation are confidential. The investigation material gathered in connection with the investigation constitutes the accident information register. The data in the accident information register may be handed over without charge to be used in scientific and statistical research and in road safety work by the authorities;
- During the investigation or after, the investigation team makes recommendations for local improvements. The collected information and results of analyses are used in research, training, reporting and in another practical traffic safety work, and for the development of investigation and research-based traffic safety work. Furthermore, information is important part of Finnish national road safety work.

VI. Findings and recommendations implemented

16. According to the law after conclusion of the investigation, a report shall be prepared on the findings. The investigation report shall contain a report on the course of the accident, the factors that led to the accident and the consequences of the accident as well as the Road Accident Investigation Team's recommendations for road safety action.

17. The Road Accident Investigation Teams may submit proposals to authorities for road safety action to be taken on the basis of the recommendations. The Road Accident Investigation Delegation may also decide on the submission of proposals prompted by the investigation.

18. In year 2012 road accident investigation teams submitted over 2,000 recommendations for road safety action. Also during the investigation or after, the investigation team makes recommendations for local improvements. Furthermore, the investigation team makes a service advice to Trafi (Finnish Transport Safety Agency) about defects or malfunction in a vehicle’s structure, equipment or safety equipment that threatens safety and demands immediate interfere with the problem.

19. In a law there is nothing written about implementation. However, FMIC has followed the implementation and negotiated with authorities of implementation of safety proposals.

VII. Accidents investigated

- Year 2012, 400 accidents investigated, of which:

- 255 fatal road accidents, of which:
    - 207 motor vehicle accidents;
    - 28 pedestrian accidents;
    - 20 cyclist accidents;
- 145 other accidents (Accidents resulting in serious injuries or only in material damages or fatal cross-country accidents);
- 5 fatal cross-country accidents;
- 24 motorcycle and moped accidents with injured persons;
- 42 heavy vehicle road accidents with injured occupants or with major property damages;
- 21 all terrain vehicle or snow mobile accidents with injured occupants;
- 43 other accidents resulting in serious injuries or only in material damages.

VIII. The history of road accident investigation

- First accident was investigated 8.3.1968;
- Computer database since 1970;
- Legislation in 2001;
- VALT Method, last revision in 2003;
- Investigation forms in web since 2009.

IX. Financing

20. The operations of road accident investigation are financed with the 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.

X. Regular statistical publications from the accident information register

- VALT Annual Report: A summary report on fatal accidents investigated during the year;
- VALT Preliminary Report: A quarterly preliminary review of fatal accidents;
- VALT Preliminary data on alcohol-related road accidents: A preliminary review of fatal alcohol-related road accidents in the previous year.

XI. International cooperation

21. Cooperation has been done with European MDCI projects such as SafetyNet and Dacota. In SafetyNet project the requirements for conducting and promote the creation of transparent and independent road accident investigations in all Member States according to

a common European investigation methodology
http://erso.swov.nl/safetynet/fixed/WP4/sn_wp4_d4p5_final.pdf were established.