Definition of user needs and "hot topics"

Deliverable 2.1

Deliverable Definition of user needs and "hot topics"

Deliverable Number 2.1

Grant agreement No 633485 - SafetyCube - H2020-MG-2014-2015/ H2020-MG-2014_TwoStages

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Project Start date: 01/05/2015

Duration: 36 months

Organisation name of lead contractor for this deliverable:
SAFER, SE.

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Due date of deliverable:	31/08/2015	Submission date:	31/08/2015

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Executive summary

Safety CaUsation, Benefits and Efficiency (SafetyCube) is a European Commission supported Horizon 2020 project with the objective of developing an innovative road safety Decision Support System (DSS) that will enable policy-makers and stakeholders to select and implement the most appropriate strategies, measures and cost-effective approaches to reduce casualties of all road user types and all severities.

This report describes the kick-off workshop used to start a dialogue between the project and key stakeholders for road safety in Europe. The workshop both introduced the audience to the SafetyCube project as well as solicited input from the stakeholders that will form the structure and priorities of a DSS. A total of 30 delegates attended the event.

The workshop consisted of a brain storming activity and break out groups. The brainstorming was used to identify the "hot topics" of road safety that should be processed in a DSS. The "hot topics" suggested by the group were subsequently sorted into different groups with similar themes like "Human", "Vehicle", and "Infrastructure". The group "Human" had the greatest number of issues where young and elderly road users and the use of phones seem to be prioritized. The second most represented category was "Vulnerable road users". There is an interest for the sharing of road environment between bicyclist, e-bikes, elderly and other traffic both in shared space 30 km/h –zones, crossings, and roundabouts. In the category "Infrastructure", speed limits on highways in different countries and dynamic speed limits are important topics as well as road lighting, self-explaining roads, and forgiving roads. In the "Vehicle" category topics regarding semi-automated and automated driving are the highest prioritized.

The break out section was used to discuss three questions that are central to SafetyCube and the development of a DSS. The questions and the feedback from the delegate were as follows:

Q1: How to speed up the progress of reaching European road safety targets?
Most answers to Question 1 regard influencing policy makers. To make progress in reaching any formal road safety targets, road safety should be promoted on all levels and policy makers must be able to identify the savings in health effects, environment effects and injuries when countermeasures are implemented.

Q2: What information is needed when making decisions?
The most prioritized information needed to make decisions is data from different organisational levels (European, National, and Local). Measures should be described in simple terms and information on side effects and the effect of combined measures are desirable. It is also important to have information of the effectiveness and cost benefit of each measure.

Q3: How should the decision support system be presented to make it useful – also over time?
A DSS must be easy to use for all types of users (researchers, proficient users and non-experts) with risk- and cost benefits for the top 10 recommended measures per country. The DSS should be completely transparent in terms of how the background information is used. The DSS should allow looking at combinations of measures. The output from the DSS should help to convince decision makers.

The results of the workshop provide a useful framework for developing a DSS and identifying project focus topics. As this was a kick-off activity, there were no technical results from the project to present to the stakeholders. The current input gathered at the workshop will be used to begin developing the project activities but additional interaction with the stakeholders is needed as results develop. Input from the stakeholders suggest the project must:

1. Develop a strategy for each work package to interact with the appropriate stakeholder group
2. Continue discussing the first workshop topics with stakeholders that were not present on June 17, 2015
3. Continue analysing the hot topics identified during the workshop, and those collected in subsequent meetings, to create the right focus for the project.

Acknowledgements

SafetyCube would like to thank Graziella Jost for her inspiring presentation held on the workshop and included in this report.
Also all WP2 members have been contributing in one way or another to the results of this report:
Vesna Marinko, AVP
Véronique Verhoeven, BRSI
Wouter Van den Berghe, BRSI
Concetta Durso, ERF
Pete Thomas, LOUGH
George Yannis, NTUA
Alexandra Laiou, NTUA
Robert Thomson, SAFER
Li Hagström, SAFER
Ingrid Skogsmo, SAFER
Maura Houtenbos, SWOV

1   Introduction

This introduction will describe the project SafetyCube and its aims. It also intends to give an overview of the purpose of this deliverable.

1.1   SAFETYCUBE

Safety CaUsation, Benefits and Efficiency (SafetyCube) is a European Commission supported Horizon 2020 project with the objective of developing an innovative road safety Decision Support System (DSS) that will enable policy-makers and stakeholders to select and implement the most appropriate strategies, measures and cost-effective approaches to reduce casualties of all road user types and all severities.

SafetyCube aims to:

1. develop new analysis methods for (a) Priority setting, (b) Evaluating the effectiveness of measures (c) Monitoring serious injuries and assessing their socio-economic costs (d) Cost-benefit analysis taking account of human and material costs
2. apply these methods to safety data to identify the key accident causation mechanisms, risk factors and the most cost-effective measures for fatally and seriously injured casualties
3. develop an operational framework to ensure the project facilities can be accessed and updated beyond the completion of SafetyCube
4. enhance the European Road Safety Observatory and work with road safety stakeholders to ensure the results of the project can be implemented as widely as possible

The core of the project is a comprehensive analysis of accident risks and the effectiveness and cost-benefit of safety measures focusing on road users, infrastructure, vehicles and injuries framed within a systems approach with road safety stakeholders at the national level, EU and beyond having involvement at all stages.

1.1.1   Work Package 2

Work Package 2 is focused on dissemination and implementation of SafetyCube results. It also has the goal to create an efficient network of stakeholders whose consultation will help identifying user needs for the European road safety Decision Support System as well as "hot topics" to be used as demonstrators within the project. Throughout the project, the stakeholders will provide data, knowledge, and experiences to assist in identifying road accident risk factors in addition to directing the project's research priorities.

1.2   PURPOSE OF THIS DELIVERABLE

The purpose of this report is to define user needs for the planned Decision Support System and "hot topics" to be used as demonstrators in the project. A kick-off workshop was planned for the second month of the SafetyCube project to quickly engage stakeholders and identify key research topics addressing road safety.

The first goal of the workshop was to identify the requirements for a Decision Support System (DSS) based on the needs of the intended end users. The second goal was to identify current and/or high priority issues that should be addressed in a DSS. These "hot topics" could be specific risk factors, safety effects, and cost-benefit analyses to be examined within the project. This consultation will ensure that the SafetyCube project is correctly oriented to address relevant road safety issues as well as establish examples for testing the DSS once completed.

This deliverable is an input to the technical work packages (WP3-Wp8) of the project and is not a definitive analysis of the workshop results. The information gathered from the stakeholders must be reviewed separately in each work package to orient their specific activities.

2 Workshop implementation

This chapter describes the structure of the first SafetyCube workshop that gathered key stakeholders for the project. The day was planned to both give the stakeholders information on the project and also collect information on user needs and "hot topics" to be used in the project.

The workshop took place on June 17th 2015 in Brussels. The stakeholders invited to the workshop were selected to cover a wide range of interests and knowledge. The SafetyCube project had already identified a core group of stakeholders from government, industry, research, and consumer organizations covering the three road safety pillars: vehicle, infrastructure, road user. This core group, plus additional stakeholders in the stakeholder network, were contacted and the final participant list can be found in Appendix A. There were 30 participants from the original 33 registered delegates.

To give the stakeholders a good introduction to the project, the workshop started with some background and presentations intended to promote discussion. The agenda can be found in Appendix B. First an overview of the SafetyCube project was presented by Pete Thomas (Appendix C). During the day, three presentations on the theme of current experience from practitioners and policy makers took place. The Handbook of Road Safety Measures [Elvik, Høye, Vaa, &, Sørensen, 2009) was presented by Rune Elvik from TØI (Appendix D). Then Graziella Jost presented the ETSC road safety performance index that is a policy tool helping EU member states improve road safety (Appendix E). Graziella Jost also shared their experience when guiding decision makers. The third presentation was by Jac Wismans from SAFER presenting a global overview of the fatalities in road accidents (Appendix F)**Fel! Hittar inte referenskälla.**.

To achieve the goal of identifying user needs for the DSS and "hot topics", two activities were undertaken: two breakout sessions and a "hot topic" collection. The breakout sessions were designed with the purpose of collecting ideas and priorities regarding the planned DSS from the stakeholders are described in chapter 0. The collection of "hot topics" was an ongoing activity during the day and is described in Chapter 4.

3 User needs

This chapter describes the breakout session format and results. Group selection, seed questions, and stakeholder comments are provided.

To find out the user needs of the stakeholders the participants were divided into three groups to best utilize the participant backgrounds during two breakout sessions. Group 1 and 2 was composed of external stakeholders while Group 3 included SafetyCube partners. Each group was moderated by personnel from the SafetyCube partners and supported by a record keeper. The first two groups were separated from SafetyCube researchers to promote freer discussion of the topics. The SafetyCube group (3) was able to focus more on internal project priorities and allow interactions between the different work packages. The group composition can be seen in Table 1.

Table 1 Group composition during breakout sessions.

Group 1	Group 2	Group 3
Moderator: Jac Wismans SAFER	Moderator: Pete Thomas Loughborough	Moderator: Ingrid Skogsmo SAFER
Notes: Li Hagström SAFER	Notes: Maura Houtenbos SWOV	Notes: Concetta Durso ERF
Koen Peeters BRSI	Peter Saleh AIT Austrian Institute of Technology GmbH	Rune Elvik Institute of Transport Economics
Ceri Woolsgrove European Cyclists' Federation	Jeannot Mersch FEVR - European Federation of Road Traffic Victims	George Yannis National Technical University of Athens
Veronique Feypell OECD	John Doyle DFT	Sylvain Lassarre IFSTTAR
Pascal Lammar Afdeling BMV - Dept MOW - Vlaamse overheid	Werner De Dobbeleer VSV - Flemish Foundation for Traffic Knowledge	Ingeborg Hesjevoll Institute of Transport Economics (TOI, Norway)
Freddy Gazan SPF Justice		Wendy Weijermars SWOV
Graziella JOST European Transport Safety Council		Eleonora Papadimitriou National Technical University of Athens
		Véronique Verhoeven Belgian Road Safety Institute
		Klaus Machata KFV Austrian Road Safety Board
		Davide Shingo Usami CTL - Sapoienza University
		Michael Jänsch Medizinishe Hochschule Hannover
		Heike Martensen Belgian Road Safety Institute
		Veronique Verhoeven Belgian Road Safety Institute
		Wouter Van den Berghe Belgian Road Safety Institute
		Lesire Philippe LAB

Input for the project was solicited by posing three questions during the breakout session:
Q1: How to speed up the progress of reaching European road safety targets?
The purpose of this question to determine if there are any structural issues in policy development and implementation can be identified.

Q2: What information is needed when making decisions?
This question was posed to determine if there are issues finding all the needed data and, if so, what should be done to source the information.

Q3: How should the decision support system be presented to make it useful – also over time?
It is important to know if the format of a policy document influences the decision maker and, if so, what approaches are most successful.

The notes from each reference group are divided up by question and group and can be found in Appendix G. The results from the entire workshop are generalized and summarized below for each question.

Q1: How to speed up the progress of reaching European road safety targets?
Most answers to Question 1 regard influencing policy makers. To make progress in reaching the road safety targets, road safety should be promoted on all organisational levels. There must be an approach or resource that enables policy makers to predict potential savings from a policy decision. These benefits must be quantified in terms of health improvements, environment effects, and injury reduction.

Q2: What information is needed when making decisions?
The information most needed to make decisions arise from data and qualitative information from different organisational levels (European, National, and Local). Measures should be simply described as well as any side effects. It is also important to have information of the effectiveness and cost benefit of each measure. When different measures are possible to implement in parallel, the effect of combined measures are desirable.

Q3: How should the decision support system be presented to make it useful – also over time?
The wish is a DSS that is easy to use for all types of users (researchers, proficient users and non-experts) with risk- and cost benefits for the top 10 recommended measures per country. The DSS should preferably be completely transparent to how the background information is used. The DSS should allow looking at a combination of measures. The output from the DSS should help to convince decision makers in terms of data quality and format of presentation.

4   Hot topics

This approach for collecting "hot topics" from the stakeholders during the workshop is presented with a short summary of the results.

One goal of the workshop was to identify "hot topics". To start discussions, an introduction, or definition, of a "hot topic" was described as a road safety issue needing attention. All stakeholders were asked to write down their "hot topics" on post-its with the following points in mind:

- What is missing in current policy and research priorities
- What issues needs attention?
- Risk factors? Safety Effects? Cost benefits analyses?
- What safety problems need new sets of evidence?
- Example use cases for validation for DSS?

A total of 53 post-its were collected and grouped based on the themes identified in the "hot topic". Each post-it was recorded and no attempt was made to consolidate similar items. The categories into which the topics were grouped were Infrastructure, Human, Vehicle, Data, Vulnerable Road Users and Overall. All notes can be seen in Appendix H.

The outcome of the hot topics exercise covered a wide range of subjects. The category with the most topics was "Human". Especially young and elderly road users and the use of phones seem to be prioritized. The second category was "Vulnerable Road Users". There is an interest for the sharing of road environment between bicyclist, e-bikes, elderly and other traffic both in shared space 30 km/h –zones, crossings, and roundabouts. In the category "Infrastructure", speed limits on highways in different countries and dynamic speed limits are important topics as well as road lighting, self-explaining roads, and forgiving roads. In the "Vehicle" category topics regarding semi-automated and automated driving are highly prioritized. One other topic to mention is to remember to work to be as close as possible to Vision O.

5 Discussion/Conclusions

The results of the stakeholder workshop indicate a very broad area of interest and it will be a challenge for the project to address all issues for all stakeholders. The "hot topics" discussions will need to be processed more during the project and continued discussions with stakeholders are needed.

The structure of the DSS is starting to become apparent from the comments from both external stakeholders and internal project participants. The DSS should allow a user to identify a road safety issue and be able to find relevant data in terms of accidents and effects from different measures. Cost benefit data is also important as this is central to influencing policy. The DSS will require a flexible linking mechanism so that the different data and information sources can be efficiently retrieved and presented to the user.

If the DSS will influence any policy decisions there is consensus that information on measure efficacy is needed. This is not only a question of cost-benefit information, but even user acceptance and attitudes towards a measure. This qualitative information must also be considered when measures in one region are being reviewed using results from another country or region. This raises the question of transferability of measures between areas.

It is desirable that different levels of user backgrounds should benefit from the DSS. This is not easily identified from the current feedback from external users. This may require different interfaces and requirements for each interface can only be determined with continued interactions with user focus groups and would require planning later in the project when the DSS structure is more developed.

The stakeholders that participated were predominantly from local governments or NGOs that address the road user and road operator aspects. More input from the vehicle industry and the Commission is needed.

6 Application to the project

The results of the workshop provide a useful framework for developing a DSS and identifying project focus topics. As this was a kick-off activity, there were no technical results from the project to present to the stakeholders. As a result, no specific questions relating to the project results could be posed to the audience, nor could the stakeholders provide concrete feedback on the project activities.

The current input gathered at the workshop will be used to begin developing the project activities but additional interaction with the stakeholders is needed as results develop in the project. The first workshop was also at the project level and focused interactions with stakeholders on specific issues are required to ensure all necessary expertise is gathered. From this workshop the project must:

1. Develop a strategy for each work package to interact with the appropriate stakeholder group.
2. Continue discussing the first workshop topics with stakeholders that were not present on June 17, 2015.
3. Continue analysing the hot topics identified during the workshop, and those collected in subsequent meetings, to create the right focus for the project.

References

Elvik, R., Høye, A., Vaa, T., Sørensen, M. (2009). *The Handbook of Road Safety Measures*. Second Edition. Emerald, Bingley, UK.

Appendix A. Participant list

First name	Surname	Organisation
Pascal	Lammar	Afdeling BMV - Dept MOW - Vlaamse overheid
Peter	Saleh	AIT Austrian Institute of Technology GmbH
Wouter	Van den Berghe	Belgian Road Safety Institute
Heike	Martensen	Belgian Road Safety Institute
Veronique	Verhoeven	Belgian Road Safety Institute
Koen	Peeters	Belgian Road Safety Institute
Davide Shingo	Usami	CTL - Sapoienza University
John	Doyle	Department for Transport
Concetta	Durso	ERF
Ceri	Woolsgrove	European Cyclists' Federation
Graziella	JOST	European Transport Safety Council
Jeannot	Mersch	FEVR - European Federation of Road Traffic Victims
Sylvain	Lassarre	IFSTTAR
Rune	Elvik	Institute of Transport Economics
Ingeborg	Hesjevoll	Institute of Transport Economics
Klaus	Machata	KFV Austrian Road Safety Board
Lesire	Philippe	LAB
Pete	Thomas	Loughborough University
Michael	Jänsch	Medizinishe Hochschule Hannover
George	Yannis	National Technical University of Athens
Eleonora	Papadimitriou	National Technical University of Athens
Veronique	Feypell	OECD
Dagmar	Köhler	Polis - European Cities and Regions networking for innovative transport

		solutions
Li	Hagström	SAFER
Jac	Wismans	SAFER
Ingrid	Skogsmo	SAFER
Freddy	Gazan	SPF Justice
Wendy	Weijermars	SWOV
Maura	Houtenbos	SWOV
Werner	De Dobbeleer	VSV - Flemish Foundation for Traffic Knowledge

Appendix B. Agenda

SafetyCube Stakeholder Workshop
Venue: Gothenburg European Office
Rue du Luxembourg 3
Brussels, June 17th
10 a.m. - 16 p.m

Agenda

9:30-10:00	Registration / "Hot Topics" Bulletin Board
10:00-11:00	Welcome/Workshop Introduction Overview of SafetyCube Project Invited Speakers Theme "Current Experience"
11:00-12:15	Breakout Session 1
12:15-13:15	Lunch / "Hot Topics" Bulletin Board
13:15-14:30	Invited Speaker Theme "Current Experience" Breakout Session 2
14:30-15:00	Refreshment Break
15:00-16:00	Summary from Breakout Groups Analysis of "Hot Topics" Bulletin Board
16:00	Adjourn

Co-funded by the Horizon 2020

Framework Programme of the European Union

Appendix C. SafetyCube project overview – Pete Thomas

SafetyCube Stakeholder Workshop

Brussels, June 17th

Co-funded by the Horizon 2020
Framework Programme of the European Union

SafetyCube – the project

SafetyCube

Safety CaUsation, Benefits and Efficiency

- Road safety
- Quantifying risks
- Estimating benefits of measures
- Combining costs and benefits

SafetyCube concept

- Problem
  - Evidence based road safety policies are becoming more usual and there is much better availability of national data and state of the art knowledge
  - Effective road safety policies need good information about accident risk factors and about measures
- SafetyCube will meet this need by generating new knowledge about accident risk factors and the effectiveness of measures relevant to Europe
- It will structure this information so it can be incorporated in ERSO

Evidence-based policy-making

- Identify and quantify risk factors
- Select potential measures
- Estimate expected costs and benefits
- Implement interventions
- Evaluate safety effects
- Long-term follow up

SafetyCube

Policy-making – challenges of the evidence base

1. How do we identify and quantify the risk factors and problem areas *(eg. Distraction)*?
2. How do we select the most appropriate measures?*(eg speed – enforcement, infrastructure or vehicle measures)*
3. How do we estimate the likely safety benefits and costs?
4. How do we make decisions when there is a lot of conflicting evidence?
5. How do we make decisions when there is little or no evidence?

SafetyCube Objectives

- To develop new analytic methods to
  - identify the most important risk factors for crashes
  - assess the safety effects of measures that address these factors
  - assess serious injuries and socio-economic costs in crashes
  - conduct Cost-Benefit Analyses taking account of human and material costs.
- To apply these methods to available safety data to identify the key accident causation mechanisms, risk factors and the most cost-effective road safety measures for fatally and seriously injured casualties

SafetyCube will

- Improve the evidence base for road safety policy-making
- Develop a new Decision Support System to be accessed when making
- Bring together data about risks, measures and cot-effectiveness within a single comprehensive framework

What is a risk?

- "Risk factor" denotes any factor that contributes to accidents or injuries.
- There are risk factors related to all elements of the road system and the interactions between these elements.
- The importance of a risk factor can be defined as the size of the contribution it makes to accidents or injuries.

What is a measure?

- A measure is any action intended to reduce the numbers of accidents or injuries.
  - *May reduce the risk of a crash*
  - *May reduce the risk of injury*
  - *May reduce exposure to risk*

Federal Highway Authority CMF Clearinghouse

- www.cmfclearinghouse.org
- A central, web-based searchable repository of CMFs (including the ones listed in the HSM) and of additional information and resources related to SPFs and CMFs.
- CMFs are rated according to: study design, sample size, standard error, potential biases and data source.
- A star rating (1-5) is assigned based on the cumulative performance in the five categories.

Challenges in evidence based approaches

- Do we have a comprehensive method to identify risks?
  - *Road, road users and vehicles*
- Do we have a comparable method to evaluate measures?
  - *Road, road users and vehicles*
- How do we estimate the likely casualty reduction of a measure that has not been introduced to the real-world?
- Do we have a comprehensive method to evaluate cost-effectiveness?
- How do we handle the situation where there are many measures of effectiveness but they disagree?

Challenges to access the evidence base

- Much of the evidence on risks and measures is in the research literature – how can it be brought together?
- How can we assess transferability of measures from one country to another?
- How can the available information and data be synthesised?

SafetyCube will meet these challenges

SafetyCube will
- Develop new methods to quantify risks
- Provide new information about the effectiveness of measures by bringing together published information
- Produce a comprehensive method to evaluate the costs and benefits of measures
- Produce new information about seriously injured casualties
- Produce a new Decision Support Tool that will enable easy access to information on risks and measures

Project structure
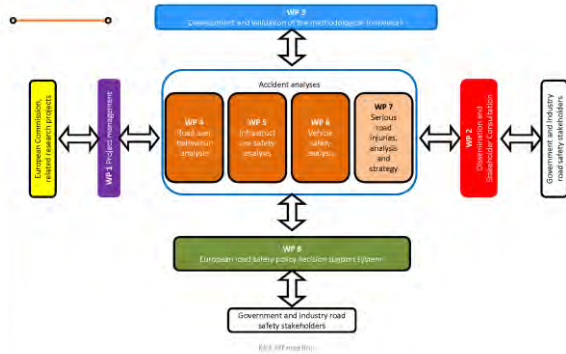
Hot Topics

- An important current question in safety about a risk factor or the effectiveness of a measure.
  - *Distraction*
  - *Automatic Emergency Braking*
  - *Cooperative driving systems*
  - *Helmet use for eBike riders*
- Stay topical for duration of SafetyCube

We need your help

- What is the best way SafetyCube can support evidence based decisions?
- What would you like to see in the Decision Support System?
- What will it look like? How will it operate?
- What are the hot topics we should focus on?

Purpose of today

- To introduce SafetyCube to key stakeholders
- To form a relationship that we would like to last the duration of the project
- To start a dialogue about the project outputs to ensure they are as beneficial to road safety stakeholders as possible

Contact

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- Professor of Road and Vehicle Safety
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- Smart and Safe Mobility Research Cluster
- Loughborough University
- Leicestershire
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- United Kingdom
- Tel: +44 (0)1509 226931

The Handbook of Road Safety Measures

A source of knowledge about the effects of road safety measures

Rune Elvik, Institute of Transport Economics

A brief history of the book

- Published in Norwegian in 1982, 1989, 1997, 2012
- Ongoing revision since 2001 – revised parts of the book published electronically (in Norwegian) at the website of the Institute of Transport Economics
- Has expanded from 73 road safety measures in the first edition to 142 as of mid-2013
- Published in Finnish in 1993
- Published in Russian in 1997 and 2000
- Published in English in 2004 and 2009
- Published in Spanish in 2007 and 2014

Main questions the book answers

- Which road safety measures exist and can be used?
- Which road safety problems do these safety measures help solve?
- What are the effects of road safety measures on accidents or injuries?
- What are the effects of road safety measures on mobility and the environment?
- What are the costs of road safety measures?
- Which road safety measures give the greatest benefits for a given cost?

Three main parts of the book

1. Introduction
2. Road safety measures
3. Vocabulary and index

The introduction

1. Background and guide to readers
   - Objective of the book; its structure; separating science and politics
2. Literature survey and meta-analysis
   - How studies were identified; basics of meta-analysis
3. Factors contributing to road accidents
   - Broad survey of risk factors and their contributions
4. Basic concepts of road safety research
   - Random and systematic variation; behavioural adaptation
5. Assessing the quality of evaluation studies
   - Introduction to study quality assessment
6. The contribution of research to road safety policy making
   - Cost-benefit analysis and other approaches to policy analysis

Main groups of road safety measures

1. Road design and road equipment
2. Road maintenance
3. Traffic control
4. Vehicle design and protective devices
5. Vehicle and garage inspection
6. Driver training and regulation of professional drivers
7. Public education and information
8. Police enforcement and sanctions
9. Post-accident care
10. General-purpose policy instruments

Standard layout for chapters describing road safety measures

- Problem and objective
- Description of the measure
- Effect on accidents
- Effect on mobility
- Effect on the environment
- Costs
- Cost-benefit analysis

Effect on accidents

- This is the key section of each chapter
- In most cases the effect of a road safety measure is stated as the percentage change in the number of accidents or injured road users
- Uncertainty is stated as a 95% confidence interval
- A distinction is made between different versions of a measure and different levels of accident severity
- Most summary estimates of effect are based on meta-analysis
- Emphasis has been put on the methodologically best studies

Example: converting junctions to roundabouts

		Percentage change in the number of accidents	
	Accident severity	Best estimate	95% confidence interval
All roundabouts	All severities	-36	(-43; -29)
All roundabouts	Fatal accidents	-66	(-85; -24)
All roundabouts	Injury accidents	-46	(-51; -40)
All roundabouts	Property damage only accidents	+10	(-10; +35)
Previous yield junctions	All severities	-40	(-47; -31)
Privious signalised junctions	All severities	-14	(-27; +1)
X-junctions	All severities	-34	(-42; -25)
T-junctions	All severities	-8	(-28; +18)
Roundabouts in rural areas	All severities	-69	(-79; -54)
Roundabouts in urban areas	All severities	-25	(-34; -15)

Effects of improved lighting

		Percentage change in number of accidents	
Accident sevrerity	Accident types affected	Best estimate	95% confidence interval
Increasing the level of lighting by up to double the previous lighting level			
Injury accidents	Accidents in darkness	-8	(-20; +6)
Property-damage-only	Accidents in darkness	-1	(-4; +3)
Increasing the level of lighting by up to 2-5 times the previous level of lighting			
Injury accidents	Accidents in darkness	-13	(-17; -9)
Property-damage-only	Accidents in darkness	-9	(-14; -4)
Increasing the level of lighting by 5 times the previous level of lighting or more			
Fatal accidents	Accidents in darkness	-50	(-79; +15)
Injury accidents	Accidents in darkness	-32	(-39; -25)
Property-damage-only	Accidents in darkness	-47	(-62; -25)

Developing the Handbook

- Increasing the level of detail in the presentation of effects on accidents or injuries
- Estimates of effect specified according to accident- or injury severity
- Presenting effects as accident modification functions
- Improving meta-analyses:
  - *Using meta-regression more often*
  - *Testing and adjusting for publication bias*
  - *Testing for moderator effects*
  - *Testing external validity*

Accident modification function (injury accidents) for changes in the level of road lighting

Accident modification functions for speed enforcement

The effects of road lighting are the same in all countries where they have been evaluated
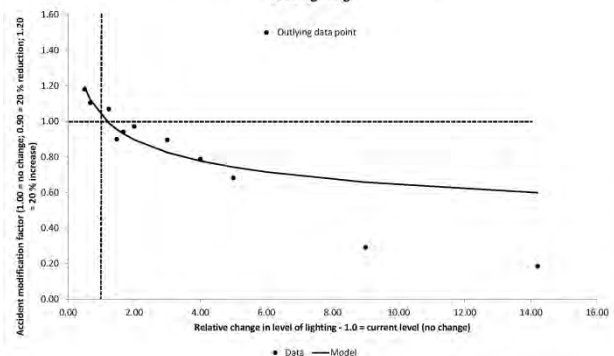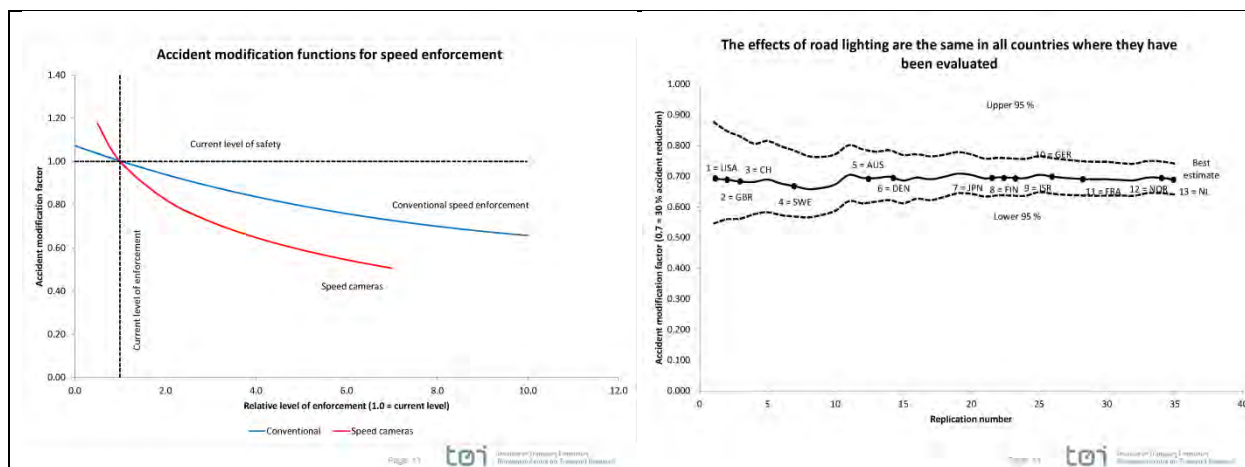
Appendix E. ETSC – Graziella Jost

SafetyCube workshop

Brussels, 17 June 2015
Graziella Jost, ETSC Programme Director

OUR MEMBERS

PROMOTING SCIENCE BASED APPROACH to road safety policy

- Our Members
- Board of Directors, including 4 MEPs
- More than 200 independent experts (no only from Member organisations)

HOW?

- All ETSC positions and publications go as draft to Members and Board of Directors for comments.
- The drafts are prepared by the secretariat with inputs from experts on that particular topic.

The EU actors

OUR WORK

The PIN

- One expert from each of the 32 participating countries, including all EU Member States

- A Steering Group

TRAFIKVERKET · Statens vegvesen · VOLVO · TOYOTA · DVR Deutscher Verkehrssicherheitsrat · Loughborough University · vti · SWOV

The PIN

RANKING EU PROGRESS ON ROAD SAFETY
8th Road Safety Performance Index Report
June 2014

- Annual Report – monitoring progress in reducing deaths and serious injuries

- Launched at the PIN Annual Conference

- 18 June 2015, in Brussels

ETSC European Transport Safety Council

The PIN

- Flashes: Benchmark of country performances' and good practices on specific road safety topics

MAKING WALKING AND CYCLING ON EUROPE'S ROADS SAFER
PIN Flash Report 29
June 2015

RANKING EU PROGRESS ON CAR OCCUPANT SAFETY
PIN Flash Report 27
April 2014

THE IMPACT OF THE EU 2010 TARGET

- **100,000** fewer road deaths since 2001 than if the 2001 numbers had continued
- Steeper progress in 2001-2010 than in previous decades
- Estimated value of deaths prevented **€176 billion**

Period	EU-15		EU-10	
	Reduction	Annual average reduction	Reduction	Annual average reduction
1971-1980	19%	2.4%	n/a	n/a
1981-1990	8%	1.7%	n/a	n/a
1991-2000	22%	4.0%	18%	1.5%
2001-2010	47%	6.2%	38%	4.7%

ETSC (2011), 5th Road Safety PIN Report

SERIOUS INJURY

- 2013: First milestones published in by the European Commission

- 2015: The European Commission promised to present a target for serious injuries, together with a strategy

  ETSC calls for a 35% reduction in serious injuries from 2015 to 2020 and strong measures to achieve the target.

Letter to Juncker

ETSC European Transport Safety Council

10 June 2015, For immediate release

Brussels - More than 40 experts and representatives of road safety organisations and victims groups from across Europe together with 11 MEPs have written to President Juncker urging him to reverse a decision to drop the announcement of a new EU target to cut serious road injuries.

The letter was sent yesterday, ahead of Thursday's meeting of national transport ministers in Luxembourg where the target was set to be announced

...

Twiplomacy

Dear @JunckerEU,

At least **200,000** people suffered life-changing injuries on EU roads in 2014.

Please don't drop plans for an EU-wide target to cut serious road injuries.

E T S C
European Transport Safety Council

?

Letter to all MEPs to save Infra Directive

To All Members of the European Parliament
European Parliament
Rue Wiertz
ASP 14E116
BE-1047 BRUSSELS

E T S C
European Transport Safety Council

Brussels, 27 June 2007

REF: Forthcoming vote Commission Proposal for a Directive on Infrastructure Safety

Dear Members of the European Parliament,

A wide majority of experts and professionals from the European road safety community is urgently calling on the European Parliament to support the Directive on road infrastructure safety management.

We see this Directive as a step in the right direction to reach the European goal of halving the number of deaths on the European roads by 2010, for several reasons:

DIFFICULT !

Decision makers

- Are busy
- Have to prioritise between measures
- Have authority on one part of the road safety problem (« silo »)
- New road safety measures = new expenses in their budget (don't see it as a saving)

18 June:
9th PIN report

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    @etsc_eu
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E T S C
European Transport Safety Council

Appendix F. Global overview of the fatalities in road accidents – Jac Wismans
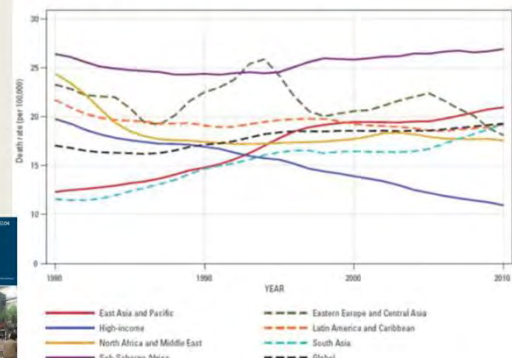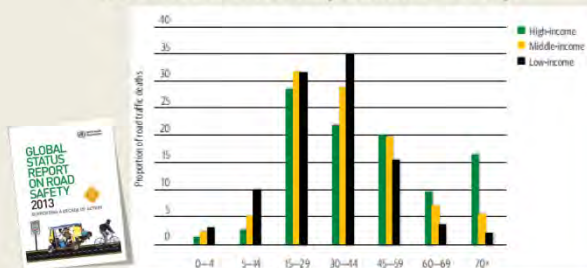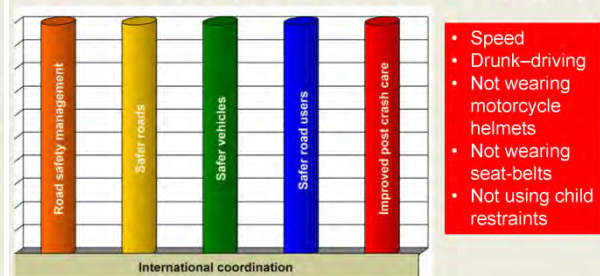
Appendix G. Breakout sessions results

Q1: How to speed up the progress of reaching European road safety targets?
Group 1
- More exposure data is needed, particularly for pedestrian and cyclists. Separate new vehicles like E-bikes.
- There is data available, use already available and don't wait too long for new data.
- Make use of all the data available (hospital etc..) and not only official police data
- Bring in health positive and negative health effects of transport particular for cycling and pedestrians.
- Have a Mr or Mrs. Road Safety in the Commission (and other organizations) that is responsible, linked to a road safety agency.
    - Need a spokesman to articulate priorities
    - Need to match priorities to problems
- Promote road safety on all levels
- Interoperability of technologies (example automated driving).
- Accident data from car and environment should be freely available for analysis
- Keep focus on safe system approach, vision zero. Define targets on the basics on that.

Group 2
- Need to integrate national and in-depth data, cost benefit information is critical.
- The money saved by a measure may not benefit all parties in an obvious way and incentives are needed to involve parties that are not directly benefitting financially
- Money saved is not always "in pocket" but large savings like "160 B€" can promote measures as win-win
    - Local governments tend to bear costs while central government have savings
- Documentation of a measures effectiveness is important
    - A road observatory is in place and being used more
- Use integrated approach and take competing actions together for example cycling mobility and safety done in parallel
- Incomplete data slows progress
    - Lack of cycling exposure data
    - Incomplete data for many crashes except fatalities
- Data gaps are evident for new technologies, incident data, fleet size, enforcement, etc.
- Privacy issues restrict data collection and use
- There can be a long wait time to collect data after a measure has been implemented

Group 3
- All levels are interested in the Road Safety issue: higher level is more political, lower levels are more technical.
- Road Safety is linked with economic, environmental policies; the aging population affect also road safety, it's important to take all this into account. Economic recession had an impact on the results of road safety lately.
- Decision makers need to be informed that once recession will be over accidents will rise again, and it's important to anticipate.
- When there is a decline in accident statistics it is quite dangerous because politicians may claim success and think they don't need to do anymore. By doing nothing the accidents will increase again, and again RS will catch the attention, it's a circle and the real key is to find a way to break this circle.
- Create a demand for RS could break this circle.

- Formulating targets is a useful mechanism to speed up road safety.
- The objective of target is to mobilise the authorities who take decisions
- A target is a management tool, if targets are not properly set if you meet them or if you are too far away from them. At EU level in 2000 when the target of fatalities was selected there was a lot of research in preparation of setting this target. On the implementation level in each country, the target should be mainly political. Target should be set through a combination of bottom-up and top-down approaches.
- Local and regional level (municipalities and regions) should set technical targets. Scientific community provides tools (like benchmarking) and local authorities have to take into account the results issued by these tools and act consequently; EU is not obliged to act (with regulations for example) but they could just show the good results achieved by some countries.
- Targets on management by objective level, and local analysis to detect specific problem in different countries in specific situation, we have to pay attention to the tool we provide.
- You need to create incentives to improve RS, Euro NCAP system is successful and this because consumers are informed. Road system pricing is a key in the road safety improvements.
- Insurance companies (some of them) have pay-as-you-drive systems (=example of incentive).
- Incentive at political level when countries compare to another, we can provide the comparison so political level cannot hide.
- There is a competitive side between countries ("we are better than the neighbor")
- Are Eastern European countries an issue? They improved a lot but when there are fluctuations in their Ministries there is not a linear policy. It's important to know who takes decisions.
- In east countries is necessary to have different targets: in Swiss to reach immigrants they make campaigns in their languages.
- In the EP there are a lot of committees discussing about RS - in order to be influential you need to know who takes decisions.
- Use press & media to influence policy makers. Show to the press that there are evidences on the problems of the RS so policy makers cannot ignore RS, it's important to have media on our side.
- Examples of items that could contribute to reducing causalities if taken into account:
- Encourage (regulate?) VRU behaviour (e.g. helmet use)
- Treat demographic change as a new challenge
- Adjust infrastructure and new technologies to elderly
- Unconnected people are at risk because they can't be informed and made aware about risks in their environment / connected people can be informed and directed but may be distracted
- A lot of focus is put on cars and highways; we should focus also on VRUs and what kind of info is needed to "regulate" these road users? The problem with VRUs is that we have not so much data; we would need to collect data.
- Commercial vehicles, fleets should be incorporated in the system? Maybe some measures should be included (as they drive a lot, distraction could be a hot topic).

Q2: What information is needed when making decisions?
Group 1
- Link (interaction) between measures (like speed and lighting) and side effects. What are the highest priorities in Europe.
- Modelling tools available to assess the combined affects over time.
- Cost benefit. How much does a measure cost and how much return. Uniform way to assess costs.
- Simplified communication method. Good communication plan, make the message/measures as simple as possible.
- Data on both National and European level and if possible also regional level
- Cost effects for measures for different kind of road types (small old village, big new road etc.).
- Effect on different modes (safer for cars but less safe for bikes), side effects.

Group 2
- It is important to be able to present results from comparable regions to convince stakeholders to make decisions
  - If possible, there should be information on the transferability of results between regions
- Severe injury data needs to be presented in a format/style appropriate for the stakeholder
- Need to investigate user acceptance and attitudes related to measures
- Need to find ways to evaluate combined measures as many measures are rolled out together
  - Some measures that "feel good" may not be objectively evaluated, need better evidence for policies
- The acceptance and attitudes of users to different measures are needed to allow comparison of different alternatives

Group 3
- Different info at high level (EU level, nation level) and at local level (municipality)
- Info needed are: cost-effectiveness data, in order to assess certain measures. Policy makers need scientist opinions.
- Type of info needed: quantitative & qualitative
- We should give answers to hot topics at least.
- Is there a procedure to respond to different questions? not really
- The info used depends on the context and on the target audience
- For studies where there is no clear data we can define what data is missing in order to be conclusive
- There should be cost-benefit analysis based on good enough data- if the data is not good enough we don't provide.
- It's important to avoid misinformation: if we don't have correct data, we should say that the research is inconclusive.
- There are issues with poor studies and there will be issues with no studies at all. As we are the experts we should be able to judge the studies and go further than only present the studies available
- Accessibility of studies, what do we do with copyright? Theoretically a reference is fair enough; maybe we could add a summary in order to be more user-friendly.
- Include national studies ("grey literature") in the system.
- Clearing house has a feature which highlights the more searched topic, we should have it as well
- In order to be successful, the system should be updated all the time, it's a question of resources.

Q3: How should the decision support system be presented to make it useful – also over time?
Group 1
- Handbook is a good start but allow to look to measures in combination (example lighting and speed)
- Support priority setting evidence based
- Easy to use. Mix WHO HEAT tool and handbook. Available to everyone for free.
- Time information on accidents over the years including mode of transport, vehicle technologies etc...
- Different languages? Scale able to other part of the world.
- The data behind has to be fully transparent to the users. The background information used. Reliable data.

Group 2
- Cater to different types of users
  - different levels of detail
  - different outputs: customisable factsheets
- Interactive functionality (poll, survey, forum)
- Transparency of the process and information
- Top 10 of recommended measures per country

- Encourage monitoring & evaluation (particularly at the local level)
- Output helps to convince decision makers

Group 3
- The decision support should be: a knowledge based tool that everyone could understand; a tool where you can search following 2 criteria: risk factor and measures; it must be clear and simple also for people who are not experts; this tool should be used also by communication people (in order to respond to false communication)
- A system for use at 3 levels: researchers, proficient users and not experts.
- there should be a cost-benefit analysis when data are good enough otherwise we don't
- there are issues with poor studies and there will be issues with no studies at all, we should give answers to hot topics at least
- Avoiding abuse or misuse is impossible; there will always be non-optimal use of the system.
- the condition for implementation is very important.
- the info used depends on the context and on the target audience
- Include national studies (grey literature) in the system
- Clearing house has a feature which highlights the more searched topic, we should have it as well
- for SafetyCube we need to make choices as it's impossible tackle all the issues, there will be an in depth analysis of some issues and a more general analysis on others
- The condition for implementation is very important, transferability is a big issue, (for example explain that this measure works in southern countries and not in northern ones because of the weather.

Infrastructure	Human	Vehicle	Data	Overall	VRU
Speed limit at highways - how to justify the differences between countries (with similar traffic)	Fitness to drive (from fatigue to health issues)	Technologies in the "driverless car" field	Missing incident/near miss data	Influence of new information technologies e.g. real time information on police controls, peer to peer networks (uber, waze, ...)	Growing share of elderly road users, especially as vulnerable road users - how to make traffic conditions safer for this group?
Self explaining and forgiving roads	Make links with road safety and health	Influence of semi-automated and automated driving on driving skills and road safety in general	To reach road safety targets it maybe needs sensitive data - issue of privacy, data protection	Implementation	How to get a better view on pedestrian and cyclist accidents (underreporting issue)
More enforcement by police or cameras	Respect of existing rules for all road user categories - benefit compared to duplication of new policies	Vehicle technology: active and passive safety		Vision 0, as close as possible	Influence of pedelecs & speed pedelecs in road safety interaction with other road users
NOT prioritize: winter maintenance	Elderly car drivers: accident rates, increasing mobility	Advanced driver support system, vehicle automation		Payd	VRU's vs. Automation
Road lighting	Sleepiness: how to measure? What is the effect?	Active transport has benefits as well		Demerit point system	"Dooring" (at cyclists) - how serious? How to solve?
Urban road safety	Involve health sector	Heavy goods vehicles priotity		Campaigns - cost effective?	PTW safety
Dynamic speed limits	Agression at the wheel				Bicycle helmet
Most effective road markings	Consider post crash (care)				Single bicycle crashes
	Serious injuries, strategy/target				Use of phone on bicycle
	Use of phone while driving/walking				VRU in emerging countries
	Serious injuries				E-bikes and bicycle highways
	Effect of (new) and different types of drugs				Bicycles: infratructure at crossroads and roundabouts
	Young drivers: under the influence of drugs				Shared space 30-zones, are there risk for VRUs?
	Elderly road users				Motorcyclist's safety
	Young drivers: restrictions vs. Mobility				30km/h (20kph) where VRU share the road
	Safety Education (children)				