

Minutes of the SafetyCube workshop about road infrastructure safety

February 22nd 2016, European Road Federation, Brussels

12:30 - 17:30 p.m.



List of participants

<u>Name</u>	<u>Organisation</u>
Sandra Ramos	EC - INEA
Maria Teresa Sanz Villegas	EC - DG MOVE
Stephen Stacey	EURORAP
Kallistratos Dionelis	ASECAP
Graziella Jost	ETSC
Dagmar Köhler	POLIS
Gabriel Simcic	FIA
Xavier Cocu	BRRC
Renaud SARRAZIN	BRRC
Ellen De Pauw	Wegen en Verkeer
Niels Janssen	Wegen en Verkeer
Pete Thomas	Loughborough University
George Yannis	NTUA
Eleonora Papadimitriou	NTUA
Konstandinos Diamandouros	ERF
Concetta Durso	ERF
Klaus Machata	KFV
Robert Thomson	Chalmers
Heike Martensen	BRSI
Felix Vandemeulebroek	BRSI

Concetta Durso (ERF) welcomed and introduced the participants.

Overview of the SafetyCube project

A presentation was given by Prof. **Pete Thomas** (Loughborough University), as in Annex.

Question: What road network is in the scope of SafetyCube.

Response: SafetyCube is broad in scope covering rural, urban, motorway, etc.

Question: Not good to cover safety issues broadly when there are different legal frameworks for tunnels, urban, inter-urban. Risk is a tricky word to use when there are statistical definitions and they require different methods.

Response: SafetyCube is using risk in both the statistical and in terms of factors that contribute to safety. SafetyCube is trying to integrate the existing information so we can provide support for different users. The use of the word risk is still necessary to be defined as each road type has different factors that influence risk. SafetyCube will contribute to this

approach and the goal is to identify all important "risk factors" that determine the risk for a road segment.

Question: What is the ultimate goal of the project in terms of decision making?

Response: SafetyCube should not be making the policy decisions but providing a resource for policy making.

SafetyCube approach on infrastructure risk factors and measures

Dr. **Eleonora Papadimitriou** (NTUA) presented the objectives, methods, progress to date and challenges of SafetyCube in particular as regards the road infrastructure, as in Annex. The presentation included the taxonomy of risks, the main methodological guidelines and tools and the number and type of analyses that are in progress or will be carried out in the future.

User needs for the SafetyCube Road Safety Decision Support System

Prof. **George Yannis** (NTUA) moderated the discussion and set a series of questions to the stakeholders.

Questions:

- As people advising decision makers what would you expect from an EU road safety DSS?
- If we suggest you a measure do you trust us. What you need to trust us? Reliability of methodology? Reliability of data? Degree of transferability?
- How many studies? How much detailed information do you need? Background information? Limitations of the studies?
- Do you need the base conditions? Which ones?
- Do you prefer one or more measures?
- What additional information you need beyond cost-benefit?
- What about impacts beyond road safety?
- Should we add expert opinion?
- What road safety problems are on your desk now?

Discussion

Comment 1: Problems arise where the countries do not want to harmonize their practices. In some cases, regional authorities want to have their own regulations (e.g. hot points / open roads management). An example for reporting comes up for workzones or tunnels: there are issues where reporting occurs first to the national level and these results are forwarded to the EU. This results in lost information where aggregated data cannot give useful information that could provide information to resolve the problem. Another concrete example is "ghost" drivers (driving on wrong side of motorway). There is need to get motorway users in all member states to implement countermeasures. There are no major risks on motorways, but there is need for better reporting of data. Future challenges are also relevant, e.g. how to deal with conventional vehicles and smart vehicles in the same traffic.

Comment 2: The main need is a robust system able to provide replicable data; we need a system based on reverse data. SafetyCube should conduct comparative studies but the final decision is in the hands of the user. Transparency in the analysis is needed e.g. access to the studies used (mirror / back up system). The number of solutions or options that are

produced by the DSS is not as important as long as there is some recommendations for the suitability of solutions. The user cannot expect that DSS will provide a definitive solution, but the user should have an idea of the limits of the studies and then use their own judgement ("cooked, but not served meal"). Implementation of the results should be assessed, for example legal or construction restrictions to installing a particular system. It would be good for the user to be able to filter the information to receive the best information for the issue of interest.

SafetyCube team response: The DSS will be an impartial system, aiming to raise the awareness of stakeholders, and provide the material, but not "stimulate" stakeholders' opinions.

Comment 3: The DSS should help policy makers in their decisions. However, it should not be limited to EU policy makers, because then the only network tackled would be motorways. Local aspects should be tackled as well.

Comment 4: Subjective evaluation of the studies is useful (expert advice) about the quality of the study. Stakeholders need to know the local information, traffic and environment dimensions. It is important to provide information separately for crashes and injuries (probability / severity). The interrelation with exposure should be also addressed.

Comment 5: The DSS should not simply provide data, but suggestions, links between solutions and problems, expert opinion for transferability. It should also inform about limitations, implementation difficulties/issues, and possibly a first filtering process for transferability. The different costs of measures across Europe would be useful. The DSS should aim "rather to guide than to dictate".

The system should be designed to allow many entry points. For example, for a specific measure, it should be able to provide not only a meta-analysis of the measure, but also suggestions for other similar measures. It is not so important to have 3, 5, or 15 studies, but have an indication which are the better ones.

Formulas and equations are welcome. If the system tells me this is the effect and it is reliable, I do not need a formula. But if I am looking into a new policy, and I really want to measure the effectiveness for my own case, I will use the formula.

Comment 6: The system should address all the users. Cost benefit information can be very useful for local authorities, but several objectives should be fulfilled; in cities, there are aspects related to sustainability, accessibility, social exclusion, environmental concerns. A more multimodal assessment may be required, with different effects for different users e.g. children cycling should not be excluded. The transferability of studies results between cities will be more challenging compared to other road networks. Therefore, the more detailed the results, the better.

Comment 7: Ranking measures will not be necessary, it will influence the decision making. Ranking of studies would be interesting. It will be best to have several options, and certainly good to have information about the quality of the studies.

Comment 8: Cost benefit analysis is more appropriate in other areas; it can be "unfair" in the

context of road safety. However, it may be particularly useful for local authorities who often have to “fight” for road safety budget. The DSS should provide data that may assist local authorities in justifying their investments within the overall public expenditure. Another important point is the possibility of evaluating EU legislation (e.g. eCall).

Comment 9: The question of road safety cultures.

SafetyCube team response: It is very difficult to account for this, and it will be addressed by suggesting the end user about the specificities of the road safety culture in the area.

Comment 10: Do you plan to include national studies or estimates? Are you sure you are going to have that many results? If the system makes a ranking, then the policy maker can not access the all the information that is available.

SafetyCube team response: We do not exclude any study, as long as there is an analysis that can be presented and assessed. It is acknowledged that the same level of detail can not be expected in all cases. The system could be a two-speed system: first present all studies and results, as and then focus on selected studies results. The focus is on a system that is methodologically sound and not based on “happiness of the implementers”.

Comment 11: Are campaigns evaluated, and how this will be done, since their impact is on SPI and not accidents. Also, what if there are no studies on a topic? Does this show a lack of interest on this topic?

SafetyCube team response: We focus on fatality reduction but also effect on SPI / surrogate measures and not only on outcomes, if there are useful findings. If there is a lack of interest on a topic or methodological difficulties, we will indicate that.

Comment 12: If I am interested in lowering speed limits, what would I find?

SafetyCube team response: The user would find (1) A meta-analysis of existing studies, (2) Suggestions for other measures to lower speeds.

Comment 13: For several stakeholders there is the trade-off between mobility and safety (mobility is an asset, when we lower speed we lose mobility).

Comment 14: Politicians often prefer to base their decisions on public acceptance, while decision makers prefer cost benefit. The DSS can assist public acceptance by providing solid arguments.

Comment 15: The importance of ensuring the “life afterwards” of the platform, beyond the end of SafetyCube, by having the main actors (authorities - industry) involved during the project and remain after the project.

During the coffee break, participants were asked to rank 4 “hot topic” areas, and several specific topics within each area, in terms of importance. This was done by directly writing their ranks on posters with the lists of topics.

Hot topics for the SafetyCube Road Safety Decision Support System

Klaus Machata (KFV) moderated a discussion on the “hot topics” and presented the ranking summary results.

The **four areas** are ranked as follows:

1. Urban road safety measures & Self-explaining and forgiving roads
2. Road safety management
3. ITS applications

The top risks/measures for **self-explaining and forgiving roads** were ranked as follows:

1. Removing obstacles
2. Introduce shoulder
3. Alignment (horizontal / vertical)
4. Sight distance
5. Traffic signs
6. Raised crossings / intersections

Priority risks/measures for **urban road safety** identified were as follows (in this case, a detailed ranking was not possible):

- Pedestrians / cyclists
- Upgrade of Crossings
- New crossings
- Junctions / roundabouts treatments for VRU
- Visibility

The top risks/measures for **road safety management** were ranked as follows:

1. Quality of measures implementation
2. Appropriate speed limits
3. Enforcement
4. Availability of cost-effectiveness data
5. Workzones

The top risks/measures for **ITS** were ranked as follows:

1. ISA
2. Dynamic speed warning
3. ADAS and active safety with V2I
4. Implementation of VMS

Synthesis and Concluding Remarks

Dr. **Eleonora Papadimitriou** (NTUA) presented a synthesis of discussion as follows:

General

- The DSS should address all users.
- The DSS should not be limited to EU policy makers, but also to local authorities
- The system should help policy makers make an “informed decision”
- Impartial system, not intended to advocate for specific measures - “to guide, than to dictate”
- It should eventually enhance public acceptance of measures by providing solid arguments
- “cooked, but not served meal”

User Needs for the DSS:

System characteristics

- "Reverse" system: a better reporting system for the data from the past
- Robust data, critical analysis and transparency
- Access to the studies used (mirror / back up system)
- Allowing to access all results, but provide information of the best quality studies and recommendations
- A platform built in the project, to be operational after the project: involvement of actors

Output

- Expert advice to guide on best quality studies
- 3-5 recommended good quality studies per topic, plus more
- Contextual information on studies (local, environmental, etc.), limitations of studies, implementation difficulties
- A meta-analysis of each measure
- A selection of measures that were used for similar problems, rather than a ranking of measures
- A range of solutions to address a road safety problem
- Ranking of measures can be influential and should be avoided
- Ranking of studies can be interesting

Estimates reported

- Decomposition into effects on crash risk, injury risk, exposure
- Cost-benefit (especially for local authorities)
- Methodologically sound vs. "happiness of the implementer"
- Focus on fatality reduction but also effect on SPI / surrogate measures and not only on outcomes
- Should allow to justify road safety budget within public expenditure, although cost-benefit analysis of road safety can be "unfair"
- Indicate if there is a lack of interest on a topic or methodological difficulties (but not exclude such topics)
- Formulas / equations can be useful

Additional issues

- Different networks are regulated by different authorities
- Local networks subsidiarity to be taken into account
- Motorways: No real risk factors to evaluate. A better reporting system for the data from the past, in order to address future risks
- Cities: Sustainability of solutions: take into account environment, social exclusion, accessibility, attractiveness. Transferability of results in cities
- European level: EC Legislation evaluation (e.g. eCall directive?)
- Mobility vs. speed