SafetyCube: Building a Decision Support System on Risks and Measures

The EU research project SafetyCube (Safety CaUsation, Benefits and Efficiency) has been developing an innovative road safety Decision Support System (DSS) collecting the available evidence on a broad range of road risks and possible countermeasures. The structure underlying the DSS consists of:
1. a taxonomy identifying risk factors and measures and linking them to each other,
2. a repository of studies,
3. synopses summarizing the effects estimated in the literature for each risk factor and measure,
4. an economic efficiency evaluation tool (E3-calculator).

The DSS is implemented in a modern web-based tool with a highly ergonomic interface, allowing users to get a quick overview or go deeper into the results of single studies according to their own needs.

DSS content
- road accident risk factors
- accident scenarios
- road safety measures and their effectiveness
- cost-benefit analysis of measures
- analytic background
documentation

Taxonomy
- Taxonomies at three level, both for risks and measures
- 4 categories: road user, infrastructure and measures
- System Approach: links between risks and measures

Repository creation
- Literature search in key databases
- Evaluation and coding of studies
- Drafting synopses with synthesis of findings
- Integration in searchable data-base

Synopses
139 syntheses on risk factors/measures
- Summary (2 pages)
  - Effect of risk factor/measure and ranking
  - Risks/safety effect mechanisms
  - Risks/safety effects size, transferability of effects
- Scientific overview (4-5 pages)
  - Comparative analysis of available studies
  - Analysis results: meta-analysis, vote-count analysis, qualitative analysis
- Supporting document (3-5 pages)
  - Literature search strategy and study selection criteria
  - Detailed analyses

Prioritisation – Colour Code
For each risk factor and measures studied, a colour code was assigned to indicate the overall conclusion about the effect.

Database of coded studies

DSS search engine
- Fully linked search
  - search a road safety problem alone or through the measures
  - search a measure alone or through the road safety problems
  - search for risks and measures related to specific road user groups or crash types (accident categories)
- Fully detailed search
  - search by any parameter in each data table in the database
- Flexible search
  - adjust and customize search according to result
- Fully documented search
  - access background information at any stage (supporting documentation, links, etc.)

Authors
Heike Martensen; Kajet Dierpendael; Wouter Van den Bergh; Elenora Papadimitriou; George Yanis; Ingrid Van Schagen; Willy Weijermars, Wim Wijnen; Ashleigh Filtness; Pete Thomson; Klaus Machata; Elenora Papadimitriou; Susanne Kaiser, S. Thierry Hummels; Rob Thomson

Browse the DSS
https://www.roadsafety-dss.eu