

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.



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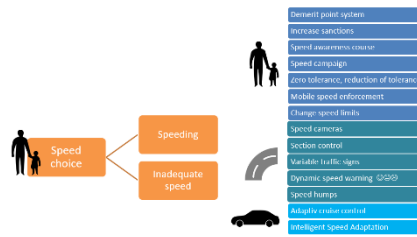
DSS content

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



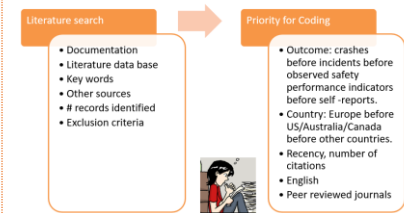
Taxonomy

- 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
- Risk/safety effect mechanisms
- Risk/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 (3-10 pages)

- Literature search strategy and study selection criteria
- Detailed analyses

Database of coded studies

Outcome description	Effect 1	Effect 2	Effect 3	Effect 4
Road safety language: Not group	Exposed	Exposed	Non-exposed	Exposed
Road safety language: Reference group	Non-exposed	Non-exposed	Exposed	Non-exposed
Measure of effect/measure	Percent change	Percent change	Percent change	Percent change
Outcome	0.000	0.000	-0.100	0.100
Standard error of estimate (StdErr) [non-parameterized]				
Confidence level	0.000	0.000	0.000	0.000
Lower limit	0.000	-0.200	-0.400	0.000
Upper limit	0.000	0.000	0.000	0.000
Adjustment variables/Constrains	Publication bias	Publication bias	Publication bias	Publication bias
Conclusion	Significant positive effect and significant positive effect on non-significant positive effect			
Synopses	Significant increase in the percentage decrease of 10% 10% decrease of risk along significant increase of 10%			

Prioritisation – Colour Code

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

Risk factor	Countermeasure
Red Results consistently show an increased risk when exposed to the risk factor concerned.	Green Results consistently show that the countermeasure reduces road safety risk.
Orange There is some indication that exposure to the risk factor increases risk, but results are not consistent.	Light green There is some indication that the countermeasure reduces road safety risk, but results are not consistent.
Grey No conclusion possible because of few studies with inconsistent results, or few studies with weak indicators, or an equal amount of studies with no (or opposite) effect.	
Green Results consistently show that exposure to the presumed risk factor does NOT increase risk.	Red Results consistently show that the countermeasure does NOT reduce road safety risk and may even increase it.

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
- Fully flexible search
 - adjust and customize search according to result
- Fully documented search
 - access background information at any stage (supporting documentation, links, etc.)

Prioritisation

Economic efficiency assessment

