SafetyCube

Decision Support System

SafetyCube workshop Ljubljana October 14, 2015

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

11/13/2015

SafetyCube primary objective

Road Safety
Decision **S**upport **S**ystem

→ **Risks**

→ **Measures**

Policy-makers & stakeholders

- ❑ strategies
- ❑ measures
- ❑ cost-effective approaches

Reduce casualties
- All road users
- All severities

Decision Support System
The input

Safety CaUsation, Benefits and Efficiency

Decision Support System

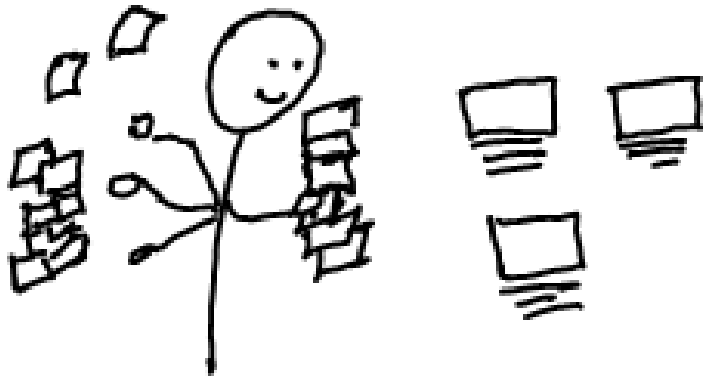
What will we put in …

- *What is related to what?* *-> taxonomy of risks & measures*
- *What has been found?* *-> study results*
- *So, where does that leave us?* *-> summaries of studies*
- *How much does it cost?* *-> accident & measure costs*
- *What should we chose?* *-> prioritising measures*

Taxonomy

- Risk factors & countermeasures
- Systematic categorisation
- Risks linked to all measure that it is addressed by

- Why?
  - *Coverage*
  - *Linking risks & measures*
  - *Gap identification*
  - *Help finding what you look for*



Taxonomy

Header 3: Infrastructure are	Header 4: Road network typ	Header 5: Infrastructure eleme	Header 6: Risk factor	Header 7: Specific risk factor
{From list:	{From list:	**Exposure**	Traffic flow	congestion
Road segments	**Motorways**			presence of contra-flow
Junctions	**Rural roads**			presence of incident / accident
All}	**Urban roads**			presence of queue ahead
	All}		Traffic composition	share of pedestrians
				share of PTW
				share of HGV
		Road safety management	Road safety management	absence of road safety audits
				absence of road safety inspections
				absence of blackspots treatment
				insufficient land use planning
		Road surface	Road surface	inadequate friction
				presence of ice, snow
				presence of oil, leaves, etc.
				poor maintenance
		Road environment	Lighting	absence of lighting
				insufficient lighting
			Weather	rain
				snow
				wind
		Workzones	Workzones	inappropriate workzone length
				inappropriate workzone duration
				insufficient signage
				absence of signage

Taxonomy

Header 3: Infrastructure are	Header 4: Road network typ	Header 5: Infrastructure eleme	Header 6: Measure	Header 7: specific measure
{From list:	{From list:	**Exposure**	Traffic flow	flow diversion
Road segments	**Motorways**			2+1 roads
Junctions	**Rural roads**			full contra flow
All}	**Urban roads**			one-way traffic
	All}		Traffic composition	HGV traffic restrictions
		Road safety management	Road safety management	implementation of road safety audits
				implementation of road safety inspections
				identification of blackspots
				improvement of land use regulations
		Road surface	Road surface	improve friction
				road re-surfacing
		Road environment	Lighting	installation of road lighting
				improvement of existing lightling
		Workzones	Workzones	installation of workzone signage
				improvement of workzone signage
				increase of workzone length
				increase of workzone duration

Study results

- Risk studies & measure evaluations
- Different kind of studies
  - *epidemiological, before – after, in-depth, simulator, …*
- Estimate of measure effect
  - *on different types of accidents, roads, users, …*
  - *different measures of effectiveness*
- Quality
  - *data quality, study design, confounds, …*
- Study summary
  - *Main conclusion concerning measure*

Study results

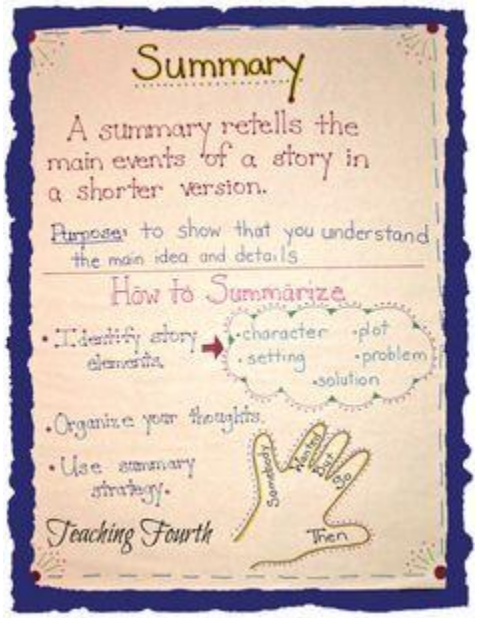
Coder	*Name*	Kevin Diependaele
	Institution	BRSI
	Date (dd/mm/yyyy)	24/09/2015
Reference	*Authors*	Hels T, Bernhoft IM, Lyckegaard AI, Houwing S, Hagenzieker M, Legrand S, Isalbert C, Van der Linden T, Verstraete A
	Title	Risk of injury by driving with alcohol and other drugs
	Year	2012
	Source	DRUID D2.3.5
	URL	http://www.druid-project.eu/Druid/EN/deliverales-list/downloads/Deliverable_2_3_5.pdf
Topic	*Risk factor or Countermeasure?*	***Risk factor***
	WP	WP4
	Taxonomy - Field 1	
	Taxonomy - Field 2	
	Taxonomy - Field 3	
	Abstract	The objective of this deliverable is to assess the *risk* of *driving* with *alcohol*, illicit *drugs* and *medicines* in variou
	Keywords	

Sampling frame	☑ *Countries*	Belgium	Denmark	Finland	Italy	Lithu
	☐ *Administrative Level*	National				
	☐ *Road user profile - Modes*	Car				
	☐ *Road user profile - Type*	Driver				
	☐ *Road user profile - Subgroup*	None				
	☐ *Road user profile - Age min*					
	☐ *Road user profile - Age max*					
	☐ *Road user profile - Gender*	All				
	☐ *Road network profile - Area*	All				
	☐ *Road network profile - Segments*	All				
	☐ *Accident severities*	All				
	☐ *Injury severities*	MAIS 2+				
	Comments					

Study results

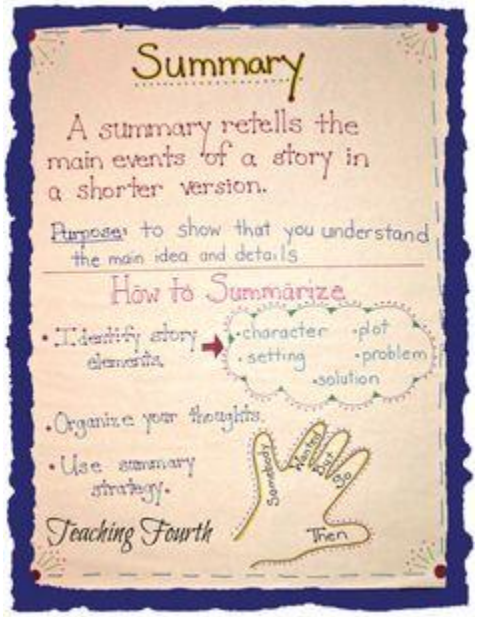
☐ Differences between effects	Effect 1	Effect 2	Effect 3	Effect 4	Effect 5	Effect 6
Countries	Belgium	Belgium	Belgium	Belgium	Belgium	Denmark
EXPOSURE DEFINITION	0.1 <= BAC	0.1 <= BAC < 0.5	0.5 <= BAC < 0.8	0.8 <= BAC < 1.2	1.2 <= BAC	0.1 <= BAC
Driver injury - Cases	MAIS 2+; Fatal	MAIS 2+; Fatal	MAIS 2+; Fatal	MAIS 2+; Fatal	MAIS 2+; Fatal	MAIS 2+; Fatal
Driver injury - Controls	None	None	None	None	None	None
Measure of effect/association	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio
Specifications						
Estimate	8.76	1.03	2.27	13.23	108.68	9.17
Standard error of estimate						
p-value						
Confidence level	95	95	95	95	95	95
Lower limit	6.53	0.49	0.94	5.61	57.5	6.63
Upper limit	11.74	2.15	5.49	31.21	205.43	12.68
Adjustment variables/Covariates	age, gender	age, gender	age, gender	age, gender	age, gender	age, gender
Conclusion	Significant risk factor	Non-significant risk factor	Non-significant risk factor	Significant risk factor	Significant risk factor	Significant risk fac
Comments						

Summaries



- Meta-analysis
  - *Possible for homogeneous studies*
  - *All necessary info in coding template (if study "suitable")*
- Summary by "voting"
  - *How many studies positive result, how many negative…*
- Expert description
  - *What do we know about measure effectiveness, how can we bring together different kinds of results*
- State of knowledge on measure/risk
  - *Research needs*

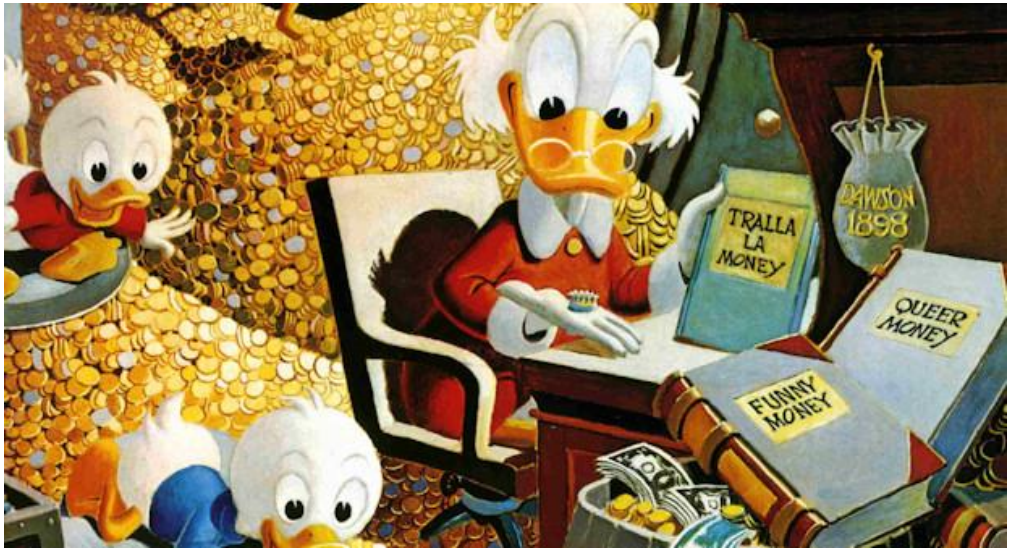
Summaries



- Safety effect / Risk
  - *Accident/victim reduction (increase) per severity type*
  - *If possible*
- Tansferability
  - *Different types of one measure*
  - *Different implementation conditions*

Accident & measure costs

- Costs of accidents
  - *Material costs*
  - *Injury costs*
  - *Immaterial costs*
- Costs of measures
  - *Preparatory costs*
  - *Direct and indirect costs*
  - *Maintenance costs*



Prioritizing measures

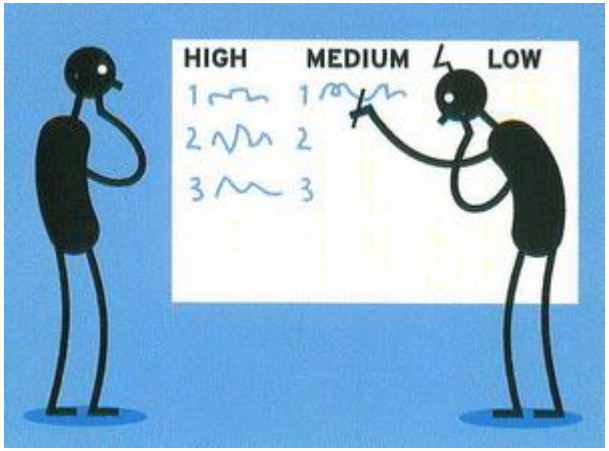
- Criteria

  Cost-effectiveness (how much costs 1 prevented fatality, injury, …?)

  Cost-utility (How much costs 1 live year saved?)

  Cost-benefit (everything is transformed into costs)

- Implementation conditions
  - *Relation to other measures*
  - *Measure effect depends on other factors?*



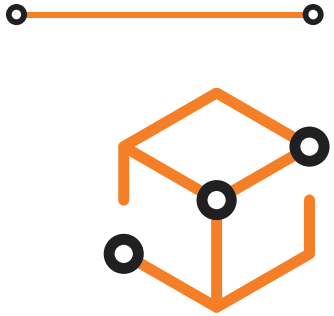
Decision Support System
The output

Safety CaUsation, Benefits and Efficiency

Decision Support System

- Web-based
- Integrate in ERSO
- Responsive to stakeholder needs
- Comprehensive
- Updateable

SafetyCube needs you!



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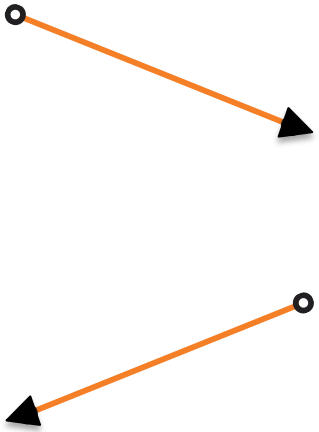
Policy-makers & stakeholders



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Contact

www.SafetyCube-project.eu

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