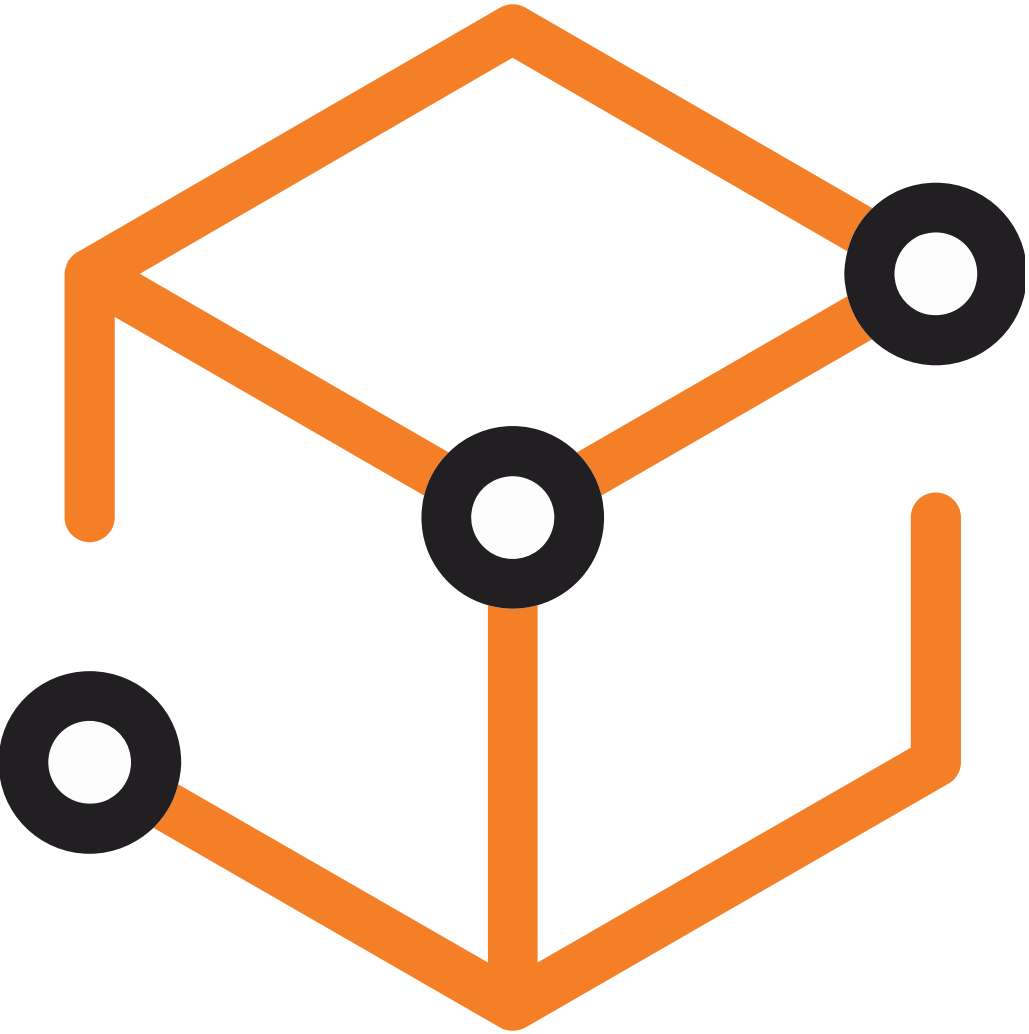
Developing the European Road Safety Decision Support System

within the *SafetyCube* project



The SafetyCube project

SafetyCube project

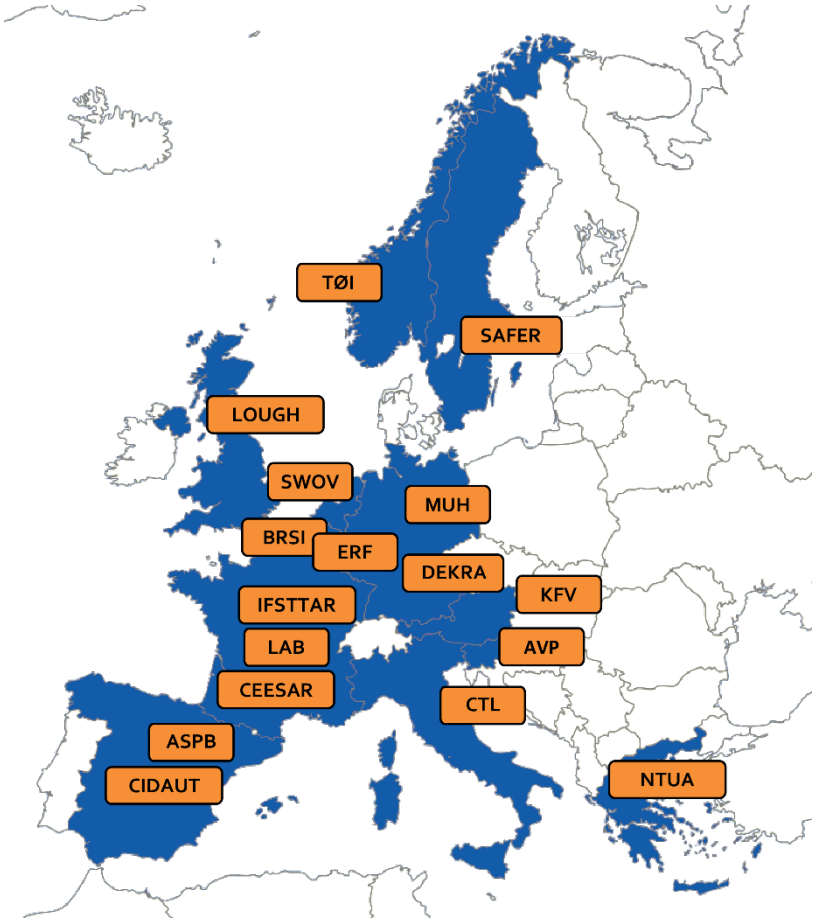
Funded by the European Commission under the Horizon 2020 research framework programme

Coordinator: Pete Thomas, Loughborough University

Start: May 2015

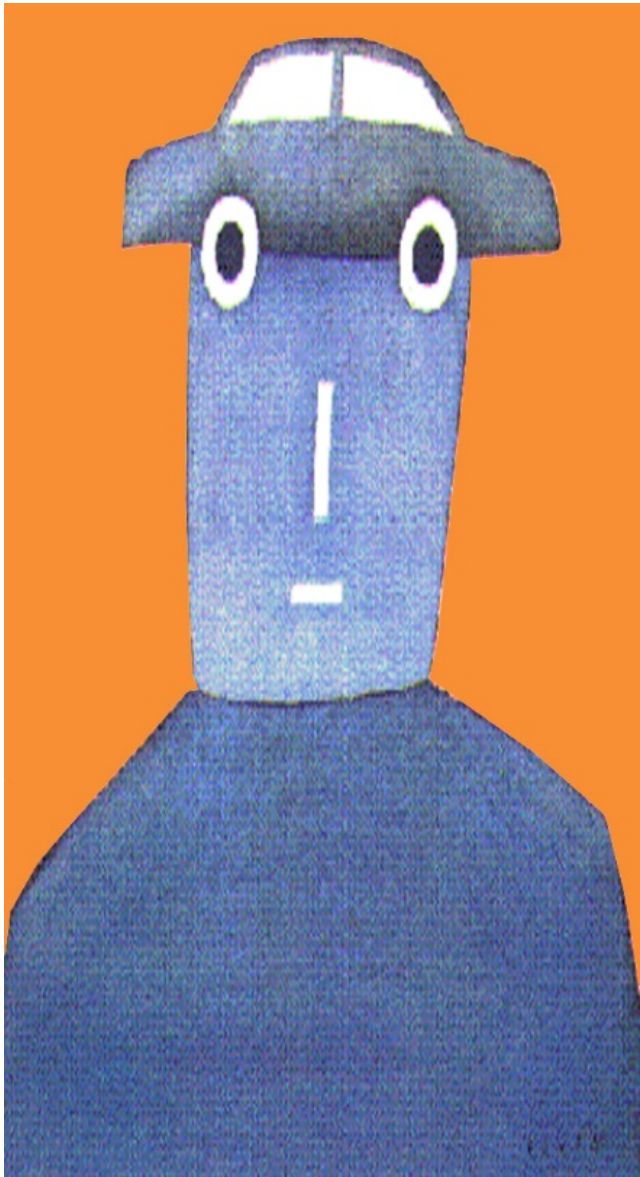
Finish: April 2018

17 partners from 12 EU countries



SafetyCube concept and vision

- 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, to be integrated in a European Road Safety Decision Support System (DSS)



Challenges of the evidence based approach

- 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?

Accessing 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?
- How can it be made accessible to stakeholders?

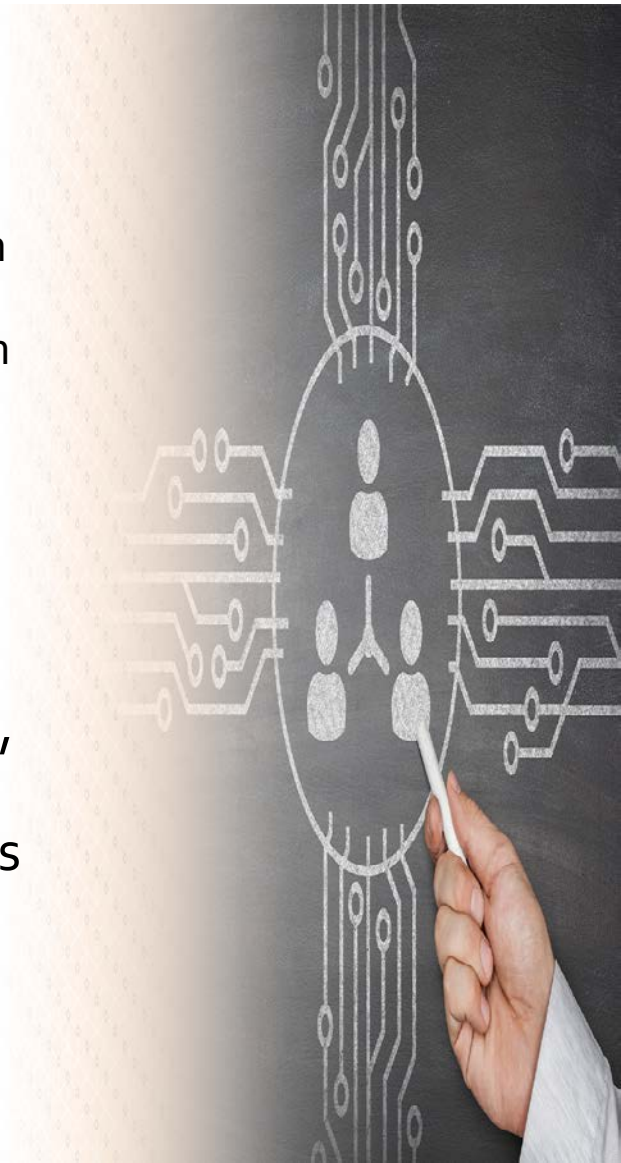
SafetyCube objectives

- The in-depth understanding of **accident causation and risk factors, and the effectiveness of measures**.
- Exploit a large amount of existing accident data (macroscopic and in-depth) and knowledge (existing studies) in order:
  - *to identify risk factors and measures,*
  - *to analyse the effects of risk factors and measures on road safety outcomes.*
  - *To summarise the effects of risk factors and measures and rank them on the basis of their effects.*

SafetyCube methodology

- **Methodologies and guidelines** developed in SafetyCube.
  1. Creating **taxonomies** of risk factors
  2. Exhaustive literature review and rigorous study selection criteria
  3. Use of a template for **coding studies,** to be introduced in the DSS back-end database
  4. Studies analysed for carrying out meta-analyses to estimate the effects of risk factors / measures.
  5. Drafting Synopses **summarising results** of risk factors / measures.

- **Systems approach**: links between infrastructure, user and vehicle risks
- **Hot topics** & additional risk factors and measures
- Assessment of the **quality of the data / study methods**



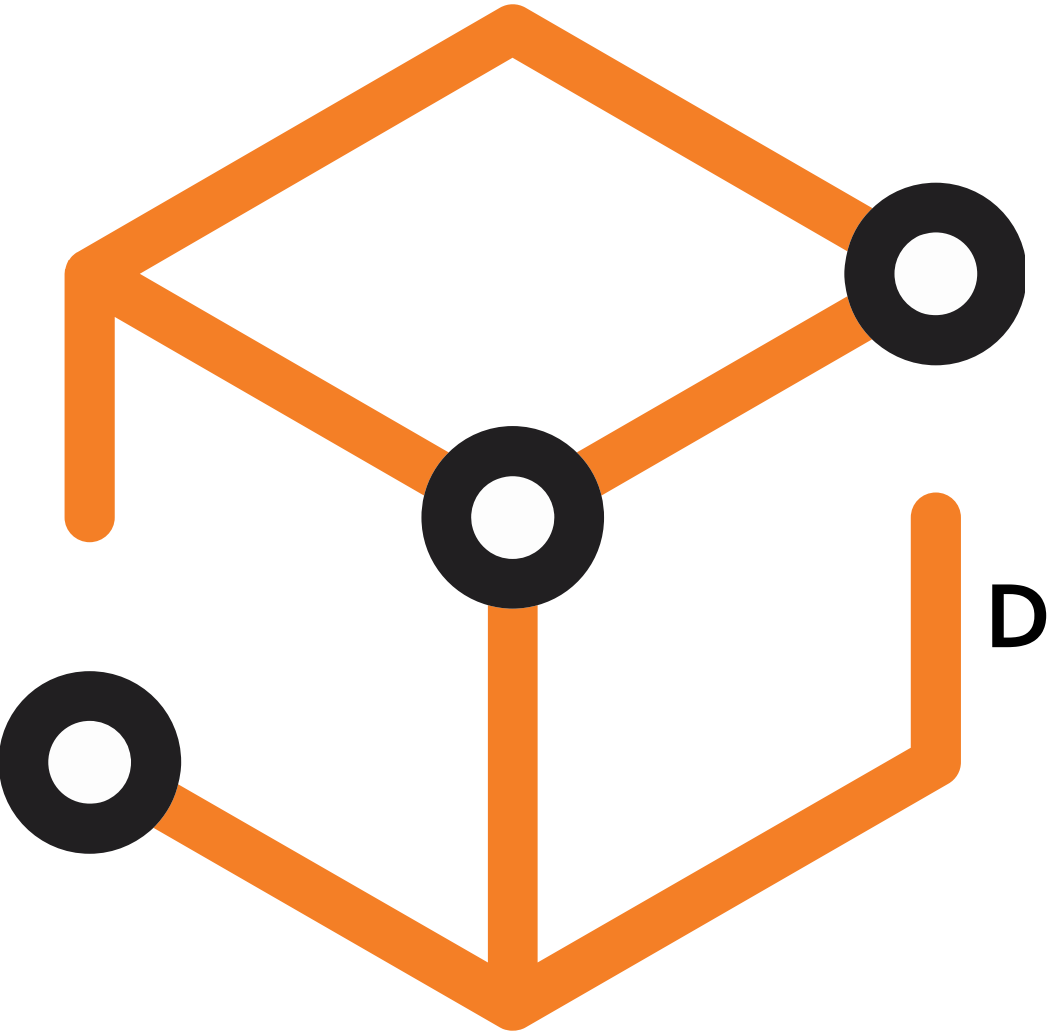
SafetyCube will meet these challenges

SafetyCube will:

- 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 System** that will enable easy access to information on risks and measures

What have we already achieved?

- Mid-point of SafetyCube
- Consulted many different stakeholders
- Already reviewed and summarised hundreds of studies on crash risks
- Developed an outline of the SafetyCube DSS and its functionality
- Progressed well with work on serious injuries
- Preparing for the second half of the project
- Preparing for final project conference 22-23 March 2018 Vienna



Development of the DSS

SafetyCube DSS Objectives

The SafetyCube DSS objective
is to provide the European and Global road safety community
a user friendly, web-based, interactive Decision Support Too
to properly substantiate their road safety decisions
for the actions, measures, programmes, policies and strategies
to be implemented at local, regional, national, European and international level.

The main contents of the SafetyCube DSS concern:

- road accident risk factors and problems
- road safety measures
- best estimate of casualty reduction effectiveness
- cost-benefit evaluation
- all related analytic background

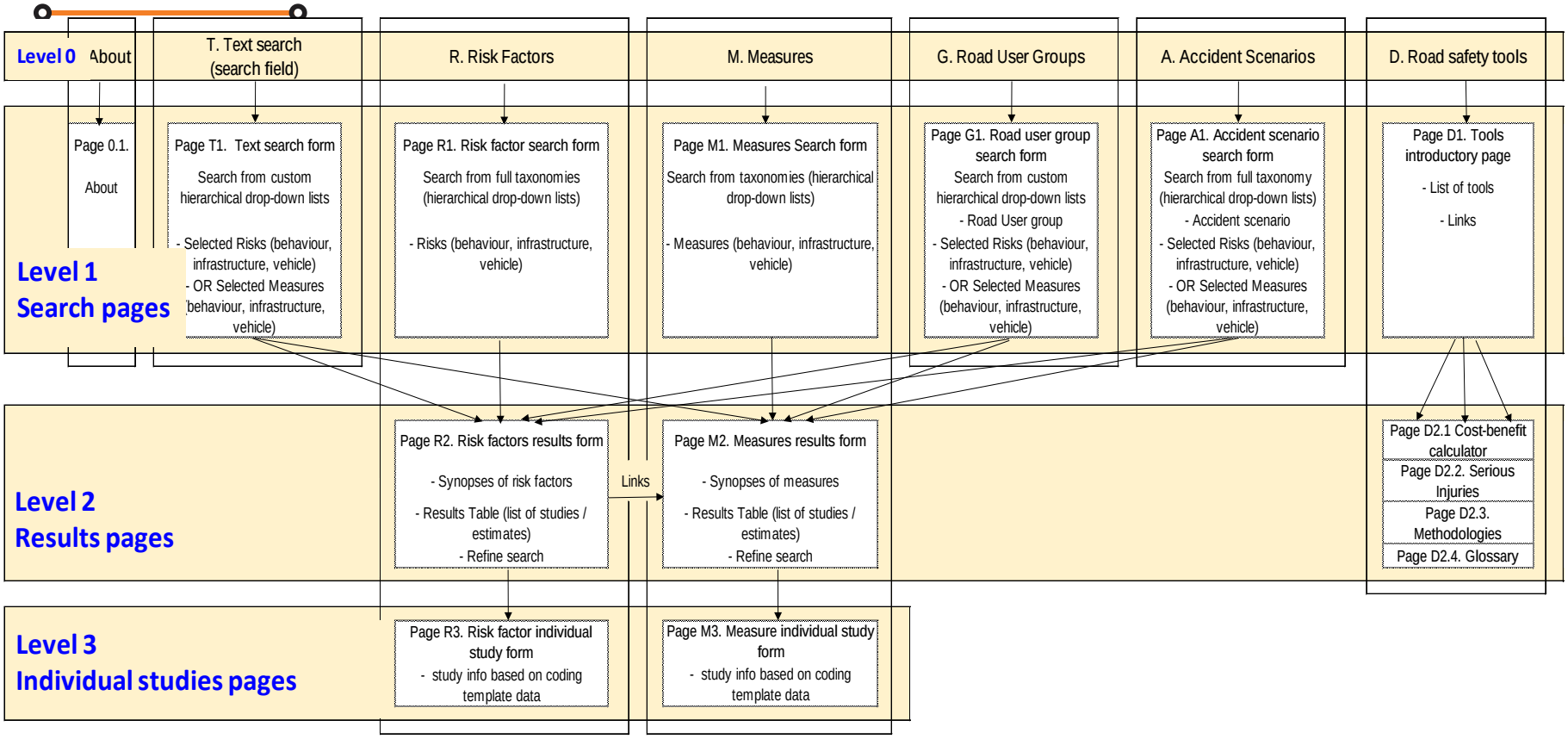
Special focus is given to linking road safety problems with related countermeasures.

Current Road Safety DSS Worldwide

- Crash Modification Factors Clearinghouse (www.cmfclearinghouse.org)
  by NHTSA (USA) - **5.151 CMF** on infrastructure only - on going
- Road Safety Engineering Kit (www.engtoolkit.com.au)
  by Austroads (Australia) - **67 treatments** on infrastructure only
- PRACT Repository (www.pract-repository.eu)
  by CEDR (Europe) - **889 CMF and 273 APM** on infrastructure only – high quality
- iRAP toolkit (toolkit.irap.org/)
  by iRAP - **58 treatments** (43 on infrastructure)
- Safety Performance Factors Clearinghouse (spfclearinghouse.org)
  by Tatum Group LLC, Dr. Andrew Kwasniak (USA) - **few SPF** – subscribers only

Demonstration

SafetyCube DSS Structure



Home Page Main Menu (About - Search - Tools)

Three Levels of Search (Search - Results pages - Individual study pages)

Two Interlinked Search Streams (Risk Factors – Road Safety Measures)

SafetyCube DSS Development
Next steps

- SafetyCube DSS **Development phase**
  - *between September and December 2016*
  - *including all risk factors (~3.500 effects from 600 studies) and several measures*
- SafetyCube DSS **Pilot Operation**
  - *starting summer 2017*
- SafetyCube DSS **Opening**
  - *Starting Autumn 2017*
- Continuous **Enhancement and Update**
  - *Starting on April 2018 (end of SafetyCube project)*

SafetyCube DSS
Delivering a long waited powerful tool

- The SafetyCube DSS is a Road Safety Decision Support Tool :
  - long waited,
  - powerful,
  - full of scientific evidence,
  - user friendly, web-based and interactive

- SafetyCube DSS is the first integrated road safety support system **developed in Europe**

- SafetyCube DSS **offers for the first time** scientific evidence on:
  - risks and not only measures
  - risks and measures not only on infrastructure
  - a very large number of estimates of risks and measures effects
  - links between risks factors and measures

- SafetyCube DSS aims to be **a reference system** for road safety in Europe, constantly improved and enhanced

Contact

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