DaCoTA

Data Collection Transfer and Analysis

ERSO, Naturalistic Driving

Prologue Workshop
Other European and overseas ND experiences

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DaCoTA WP6

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Contents

Niels Bos

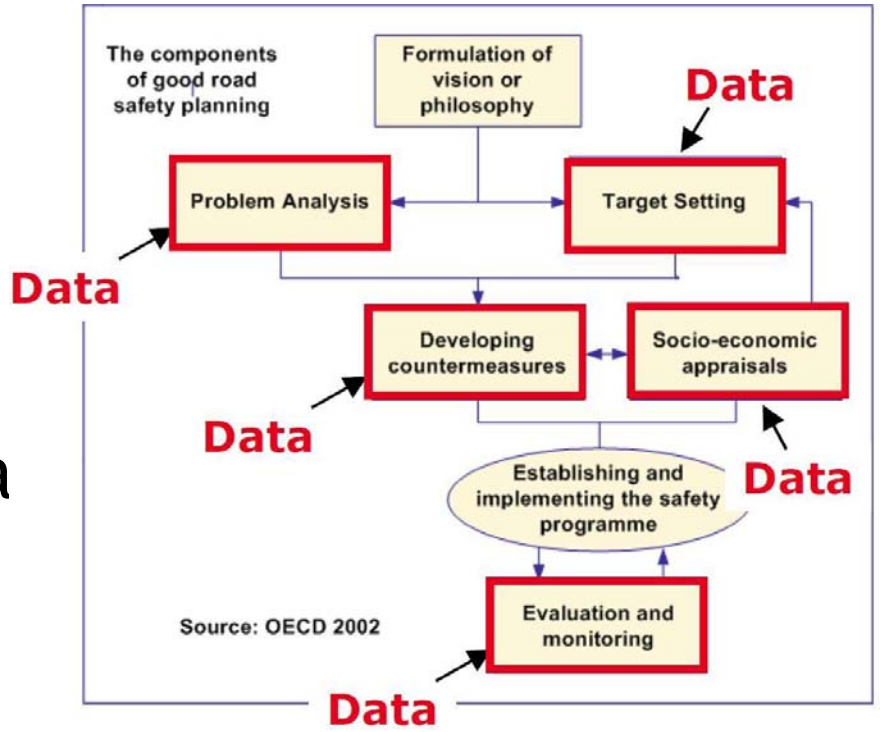
- SWOV Institute for Road Safety Research, the Netherlands; since 2001,
- DaCoTA, leader of WP6

- ERSO, the European Road Safety Observatory
- What is DaCoTA?
- WP6 - Naturalistic Driving – Monitoring

The road safety management process

An effective process includes:

- Vision
- Problem analysis
- Target setting
- Countermeasures
- Socio-economic appra
- Implementation
- Evaluation



A knowledge driven process

The European Road Safety Observatory

ERSO – www.erso.eu

- Coordinate road accident data collection and analysis
- Evidence base for policy development and review
- Central to new EU Road Safety Strategy

Product of SafetyNet 2004 – 2008

Continued in DaCoTA 2010 – 2012

DaCoTA?

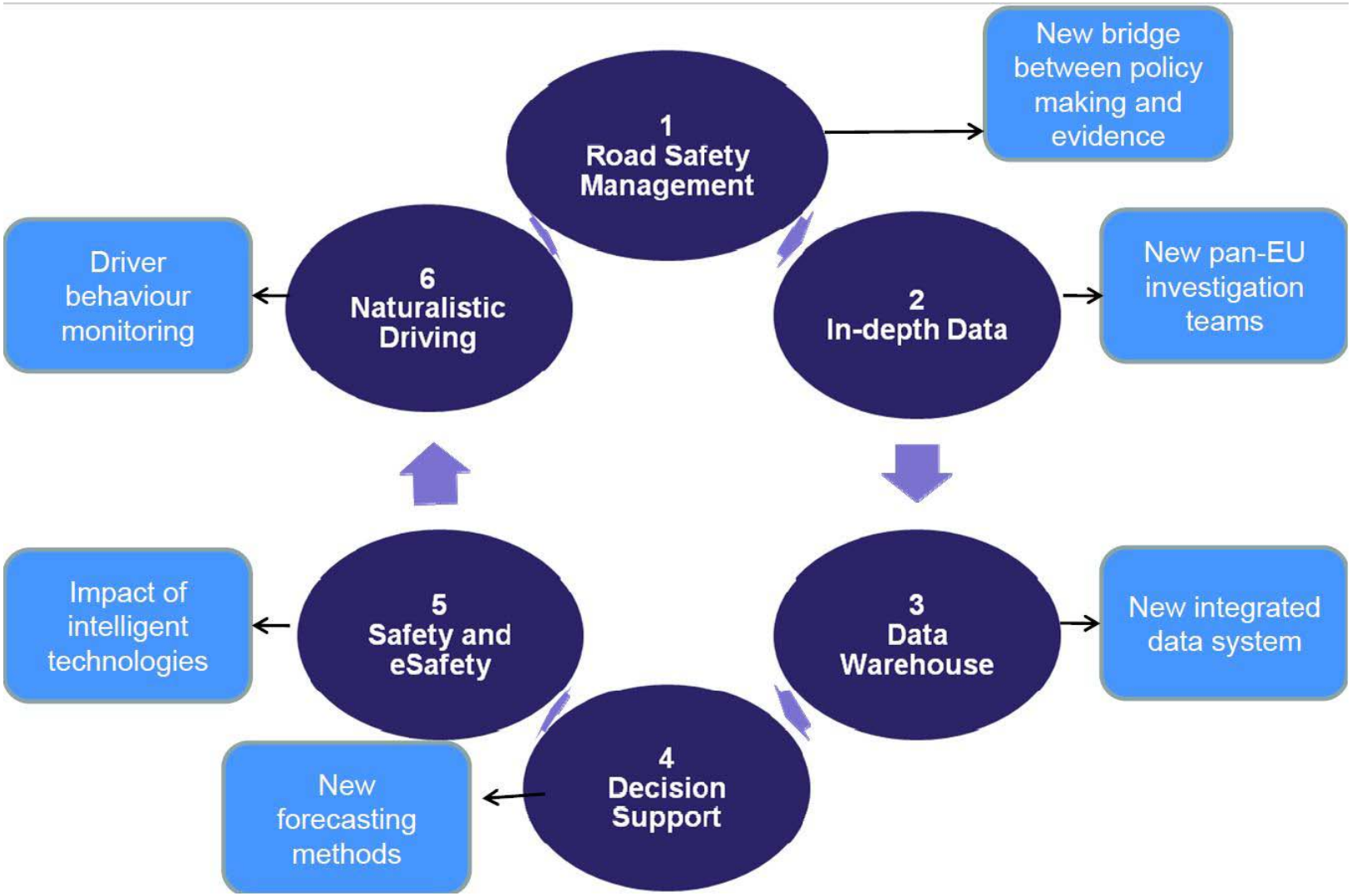
- DaCoTA = Road Safety Data, Collection, Transfer and Analysis
- Add to the strength and wealth of information in the Observatory
  - Enhancing the existing data & indicators
  - Adding new road safety data & information
- www.dacota-project.eu

DaCoTA!

- DaCoTA Challenge:

  Take development of ERSO to the next stage
  - Enrich the information content
  - Combine and structure existing data
  - Collect New in-depth data gathering infrastructure
  - Gather and organise new types of data
  - Link data to policy
- Duration: 30 months January 2010 – June 2012
- Financing: 530 man-months, M€7.3 (75% by EC),
- Consortium of 17 partners, lead by TSRC / Univ Loughborough

DaCoTA Structure



WP6 - Driver Behaviour Monitoring through Naturalistic Driving Observations

We want
- more data
- better data
- more efficient data collection

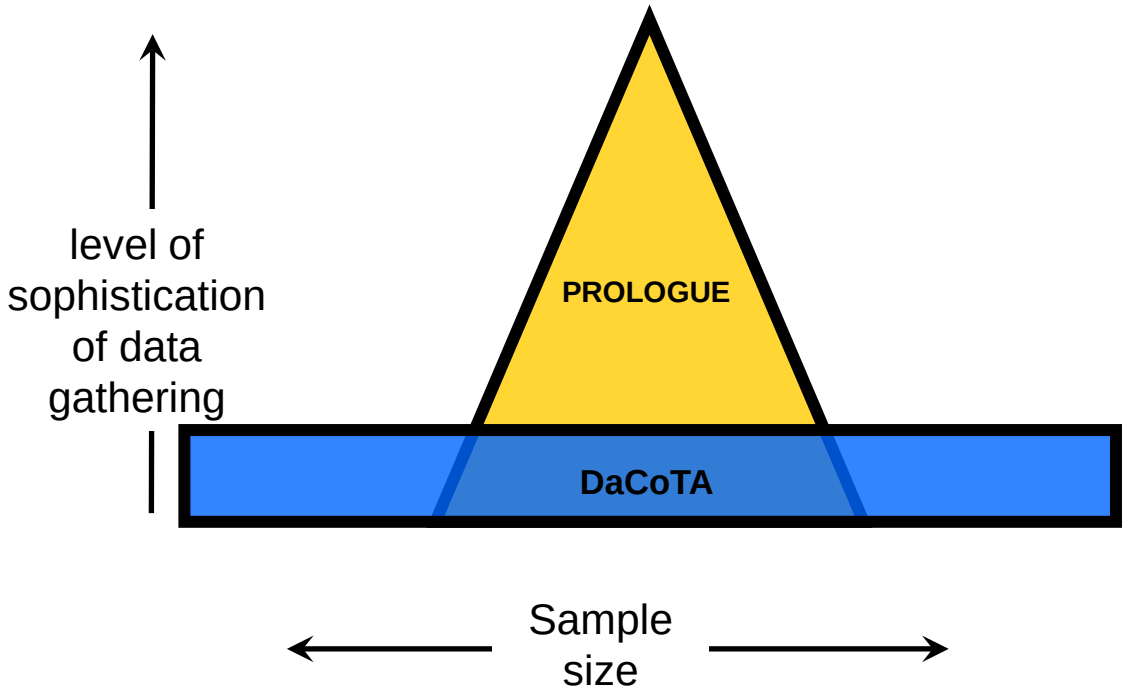
Why
- better comparability
- better analysis

Tasks
1. Definition of Naturalistic Driving observations within ERSO
2. Study Design
3. Small Scale practical study
4. Implementation plan for Large Scale Naturalistic Driving research within ERSO

Timing: task 1 is finished, half way in tasks 2 and 3

Compare Prologue

- MoU with Prologue, to share information and avoid overlap.
- Differences in
  - Objective
  - Sample size
  - Technology
  - Duration



Monitoring versus Research

- Monitoring ("what is happening") intends to describe the prevalence of certain behaviour, such as
  - the percentage of kilometres driven with a BAC level above 0,5‰ or above 1,3 ‰, by day of week and age of driver
  - the percentage of trips in which excessive speeding occurs, by age & gender of driver
- Research ("why is it happening") is intended to determine increased risk of a certain behaviour comparable to Blomberg curve on alcohol

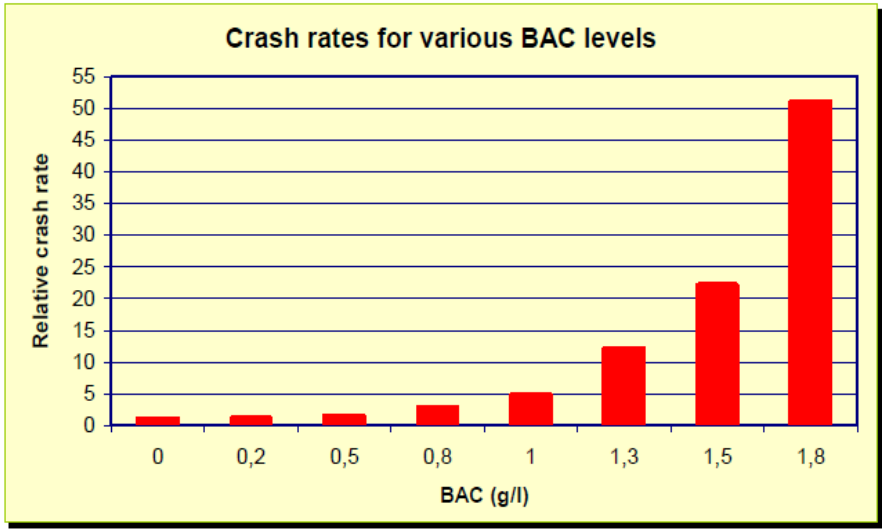


Figure 2. *Crash rates for various BAC levels (Blomberg et al., 2005)*

6.1 Monitor normal driving behaviour

Representative sample of drivers / vehicles
unobtrusive, simultaneous measurement

- Risk exposure data (RED)
  - vehicle type
  - driver type
  - trip variables
  - map match
- Safety Performance Indicators (SPI)
  - speeding, DRL, protective systems, headway, lane behaviour
- Incidences
  - near crashes, critical situations, successful avoidance?

Near Crashes in DaCoTA

- Full video or triggered video is too costly
  - Only triggers from vehicle parameters
  - Certain types go undetected, because no vehicle reaction is present
  - No verification, high level of trigger values can minimise false positives

  → count of events (+ situation and background of vehicle & driver)
- National implementation level: having a set of ND vehicles, equip a subset with additional devices (video) to verify and detect other types of near crashes

Task 6.2 - Study Design

- Small scale design
  - Analysis plan, derive indicators (SPI, RED, NC) from the data by algorithm. Data gathering, cleaning, reduction, storage, retrieval
  - Database development,
  - Ethical issues, Liability, Privacy, Legal
- The Study design will use results of the pilots
  - Sampling and weighting, maintenance of the sample

Task 6.3 Small scale Pilots

- Feasibility of data gathering, practical and technical test of analysis plan
- 2 small scale studies (Austria and Israel)
  - Variables, equipment, ethical issues
  - Each country, 10 car drivers * several months
- Collection of
  - data on speed behaviour, daytime running lights, seatbelt usage, lane keeping, headway
  - data-logbook of drivers' identification, trip duration, length, timing, location, stratify road types and vehicle types
  - certain manoeuvres/parameters to be used as proxy for near crashes

Methods for data-gathering

Data acquisition system

- Austria
  - pdrive system®
  - pdrive light
- Israel
  - Greenbox & Mobileye, using TrackTec
  - Fuel billing info
  - Various car makes and models

Differences and “Added value”

- Unique to DaCoTA / ND
  - Continuity of data gathering
  - Scale, representative and comparable
  - Simultaneous measurement
  - Focus on SPIs and Mobility
  - Risky behaviours occur in normal driving
  - Map-Matching possible
  - Processing of data into useful safety indicators

Summary

- ERSO = data driven knowledge on road safety in EU
- DaCoTA = use and enhance the use of ERSO
- WP6 = feasibility to fill ERSO with indicators derived from Naturalistic Driving: RED, SPI, NC
  - Monitoring ←→ Research
  - Limited set of near crashes by vehicle triggers
  - Large scale, continuous monitoring, prevalence of risky behaviour

DaCoTA

Thank you for your attention

More information on
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