



**DaCoTA**

**DaCoTA**  
**Data Collection Transfer and Analysis**  
**ERSO, Naturalistic Driving**

**Prologue Workshop**  
**Other European and overseas ND experiences**

Vienna, June 22, 2011

Niels Bos SWOV

DaCoTA WP6

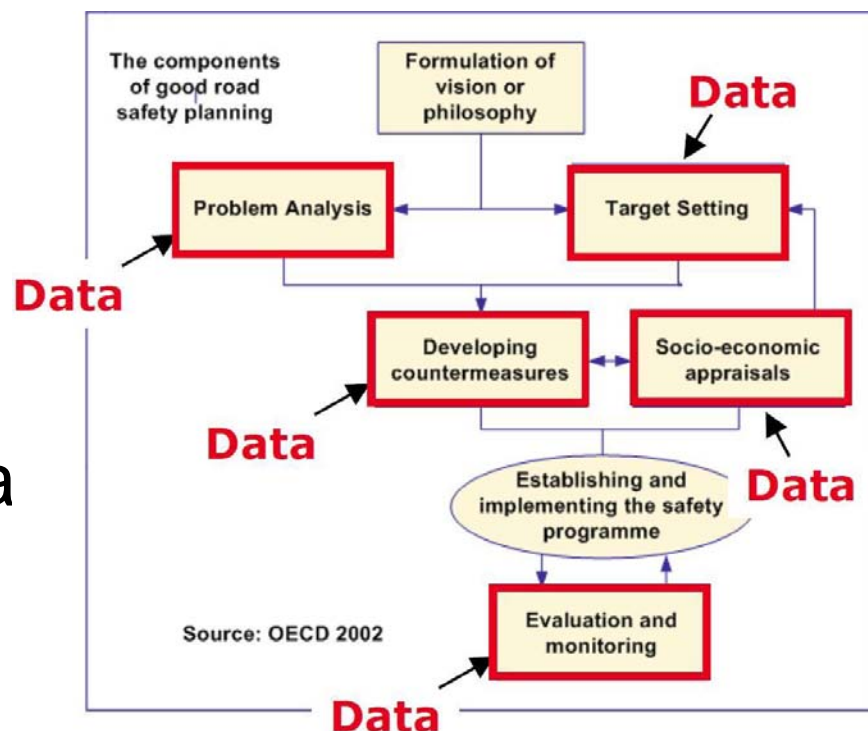
# Contents

## 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

## 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](http://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?

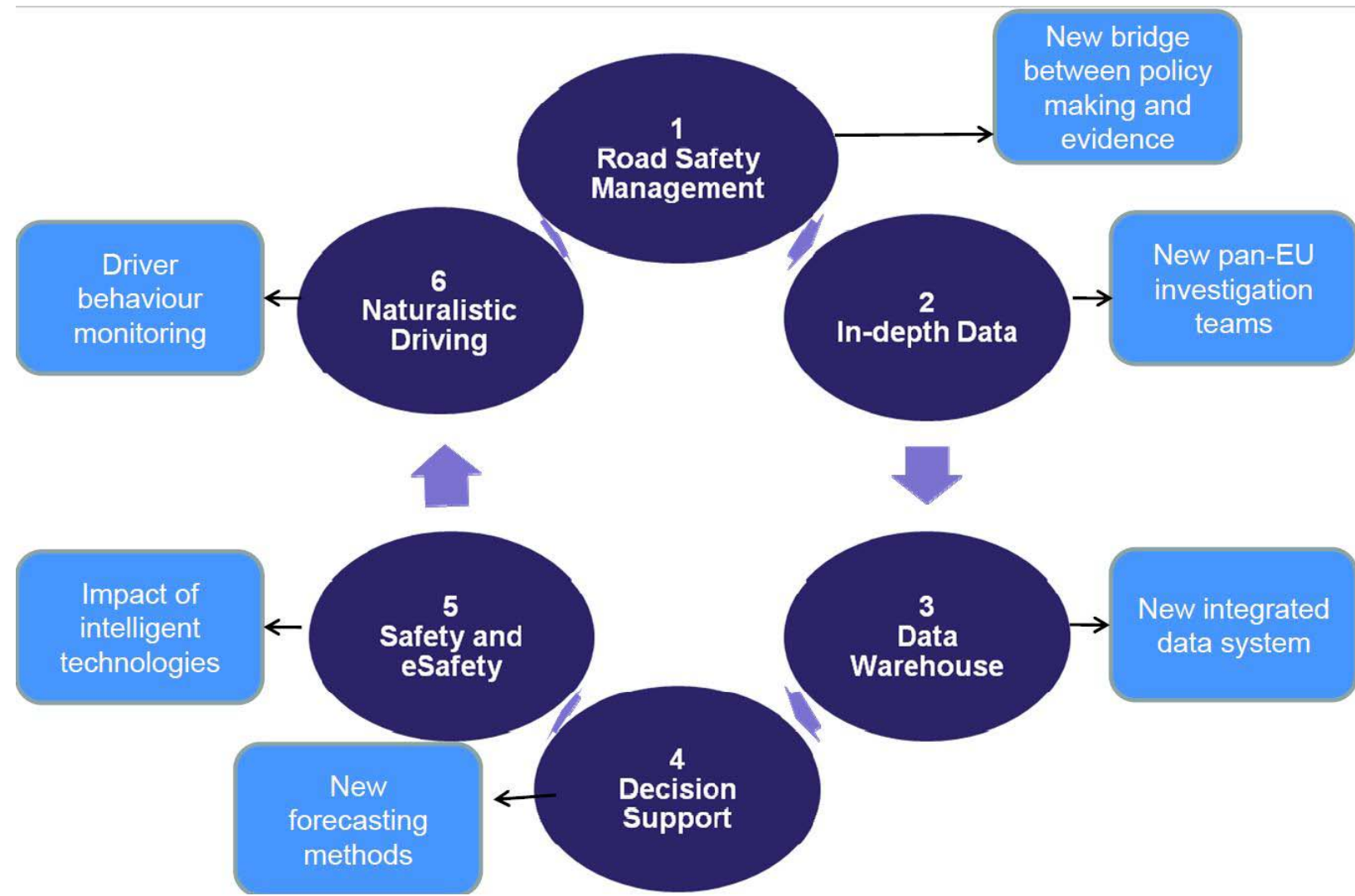
- DaCoTA = Road Safety Data, Collection, Transfer and Analysis
- Add to the strength and wealth of information in the Observatory
  - Enhancing the existing data & indicators
  - Adding new road safety data & information
- [www.dacota-project.eu](http://www.dacota-project.eu)



# 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



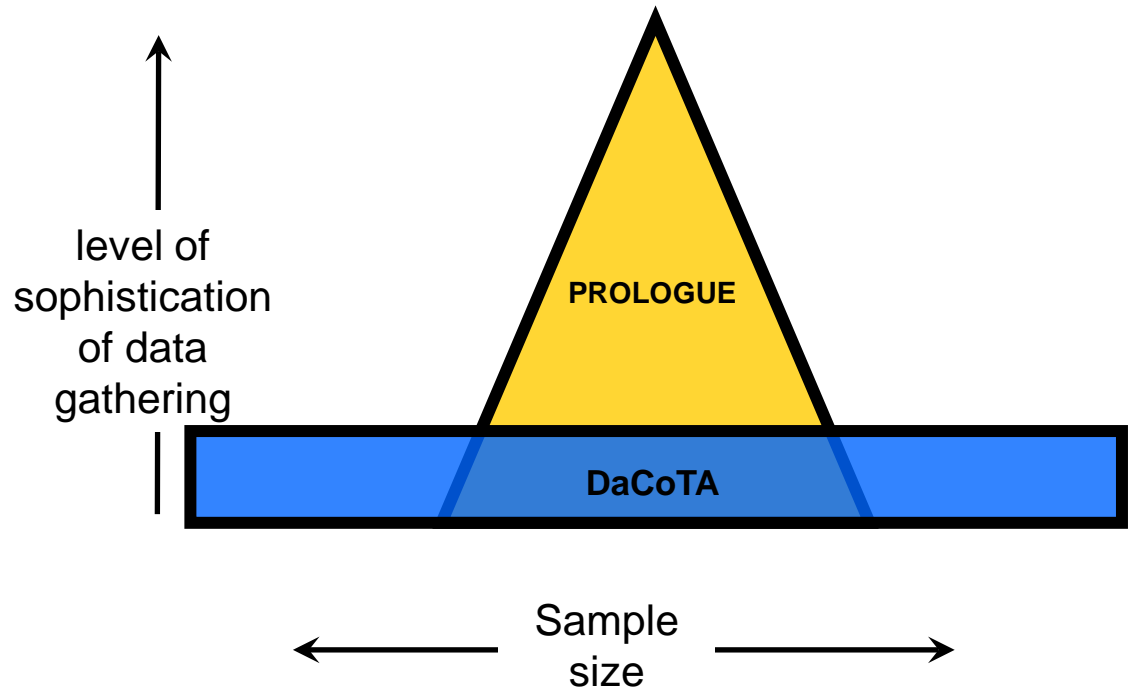
## Tasks

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

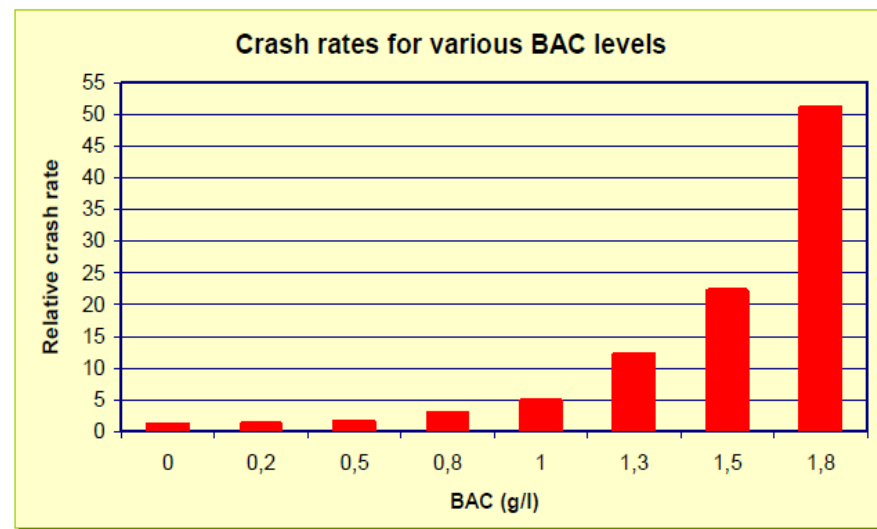


Figure 2. Crash rates for various BAC levels (Blomberg et al., 2005)

## 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  $\leftrightarrow$  Research
  - Limited set of near crashes by vehicle triggers
  - Large scale, continuous monitoring, prevalence of risky behaviour

# Thank you for your attention

## More information on [www.dacota-project.eu](http://www.dacota-project.eu)

<b>Name</b>	<b>Niels Bos</b>
Email	<a href="mailto:Niels.Bos@swov.nl"><u>Niels.Bos@swov.nl</u></a>
Organisation	SWOV
Address	Duindoorn 32, Leidschendam The Netherlands
Tel.	+ 31 70 3173 313