SEVENTH FRAMEWORK PROGRAMME

FOT-NeT
NETWORKING FOR FIELD OPERATIONAL TESTS

The SeMiFOT project and other Swedish FOT Activities

First name: Trent
Last name: Victor
SAFER

SAFER
VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

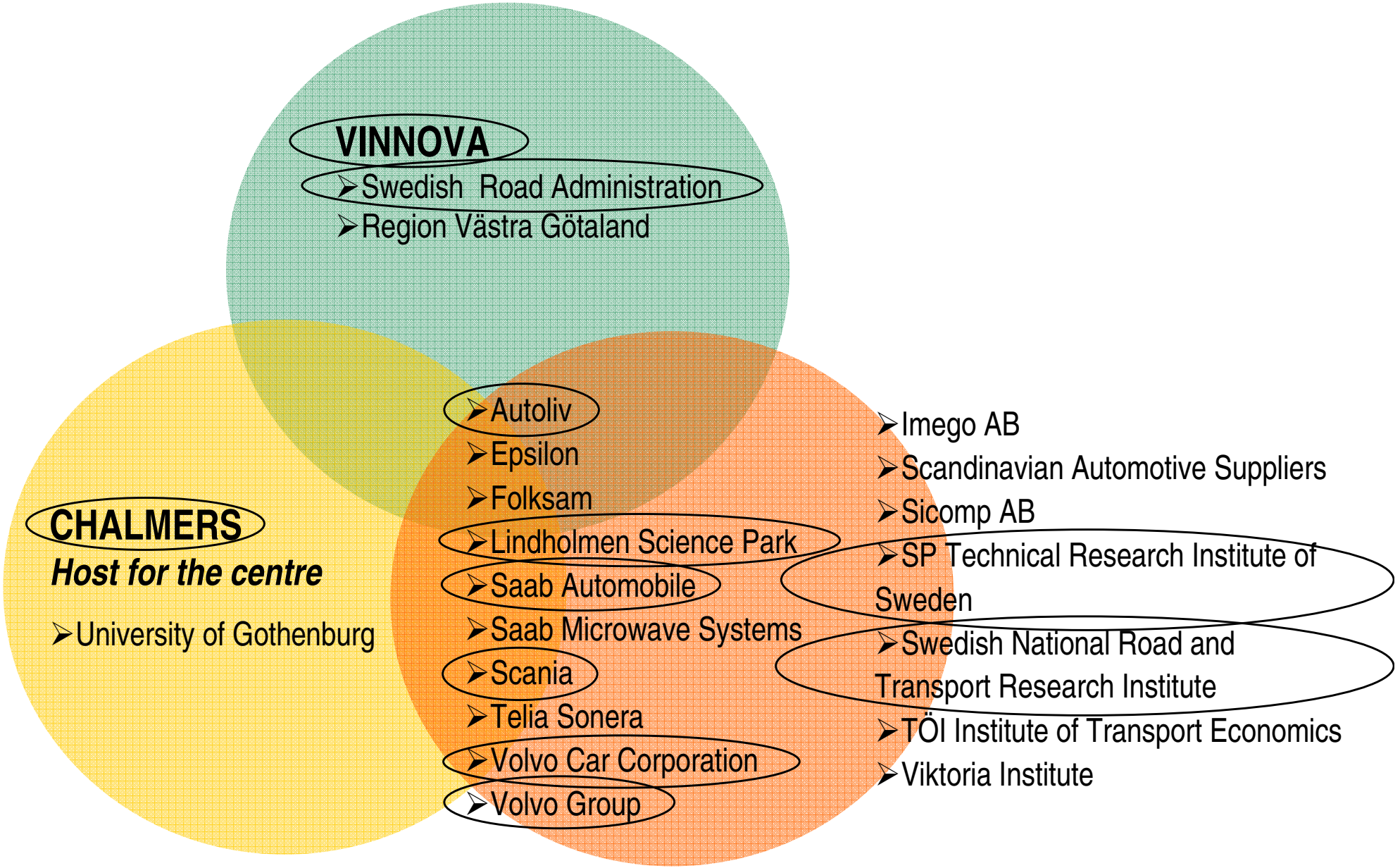
SeMiFOT
A SAFER PROJECT

25/09/08, First Stakeholder Meeting, Brussels

Outline

1. Background – SAFER
2. Background – FOT & NDS
3. SeMiFOT – Description
4. SeMiFOT – Achievements/lessons learned

22 Partners - 10 year commitment (2006 – 2016)



Generic Objectives in FOT & NDS context

Naturalistic driving (ND) data collection
-Natural driving, no special instructions, own vehicles, no experimenter present, unobtrusive data collection instrumentation…
-*Environment sensing* and *continuous logging* essential

is used to

assess the relationship between

DVE Factors

Driver Factors
- *Permanent*: Age, Experience, Style…
- *Transient*: Drunk, Tired, Distracted…

Vehicle Factors
- *Permanent*: Vehicle type, Spec…
- *Transient*: ADAS, Nomadic…

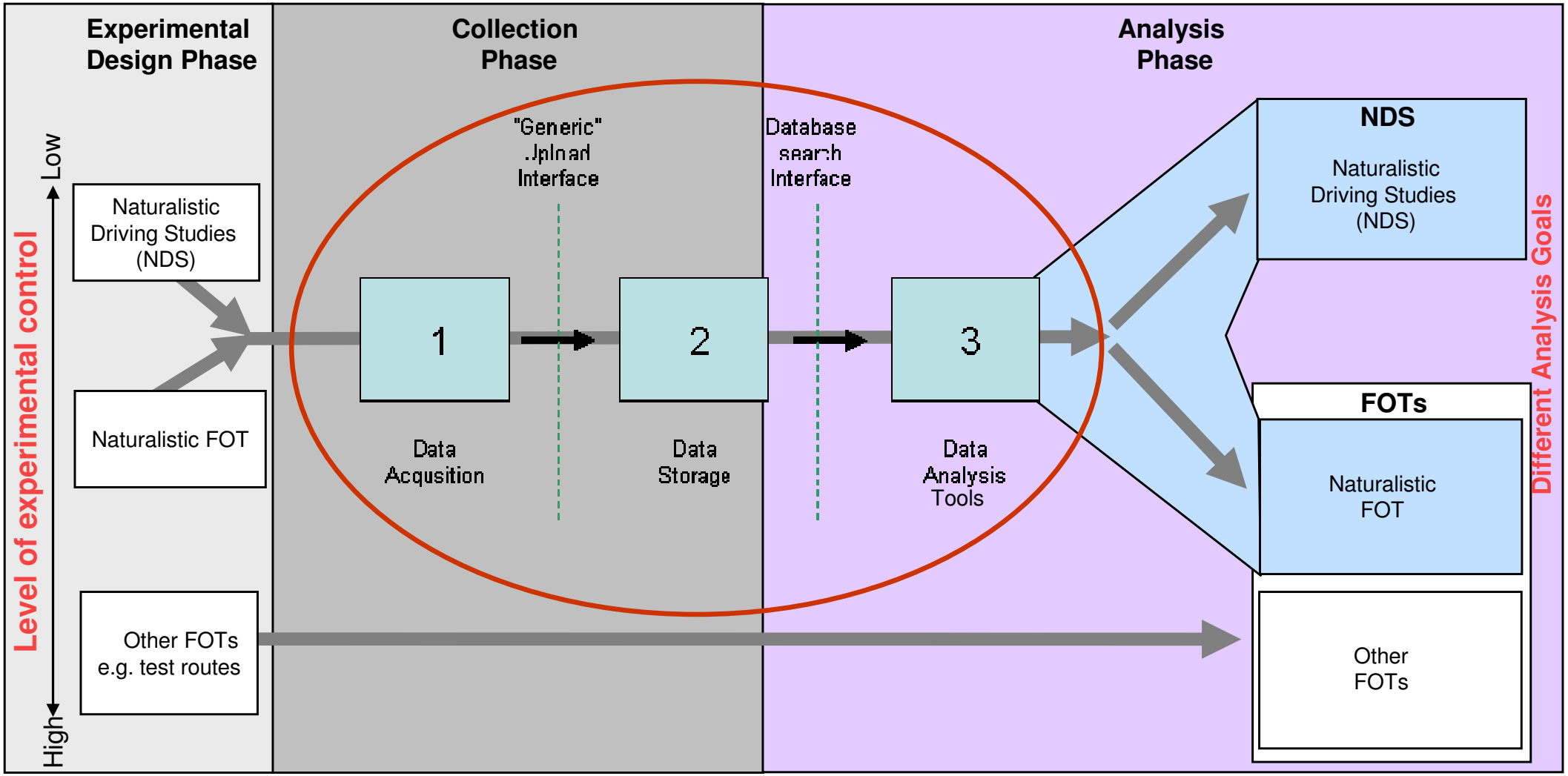
Environment Factors
- *Permanent*: Speeds, Road type…
- *Transient*: Weather, Lighting…

Crash Risk
- Relative risk, Population attributable risk…

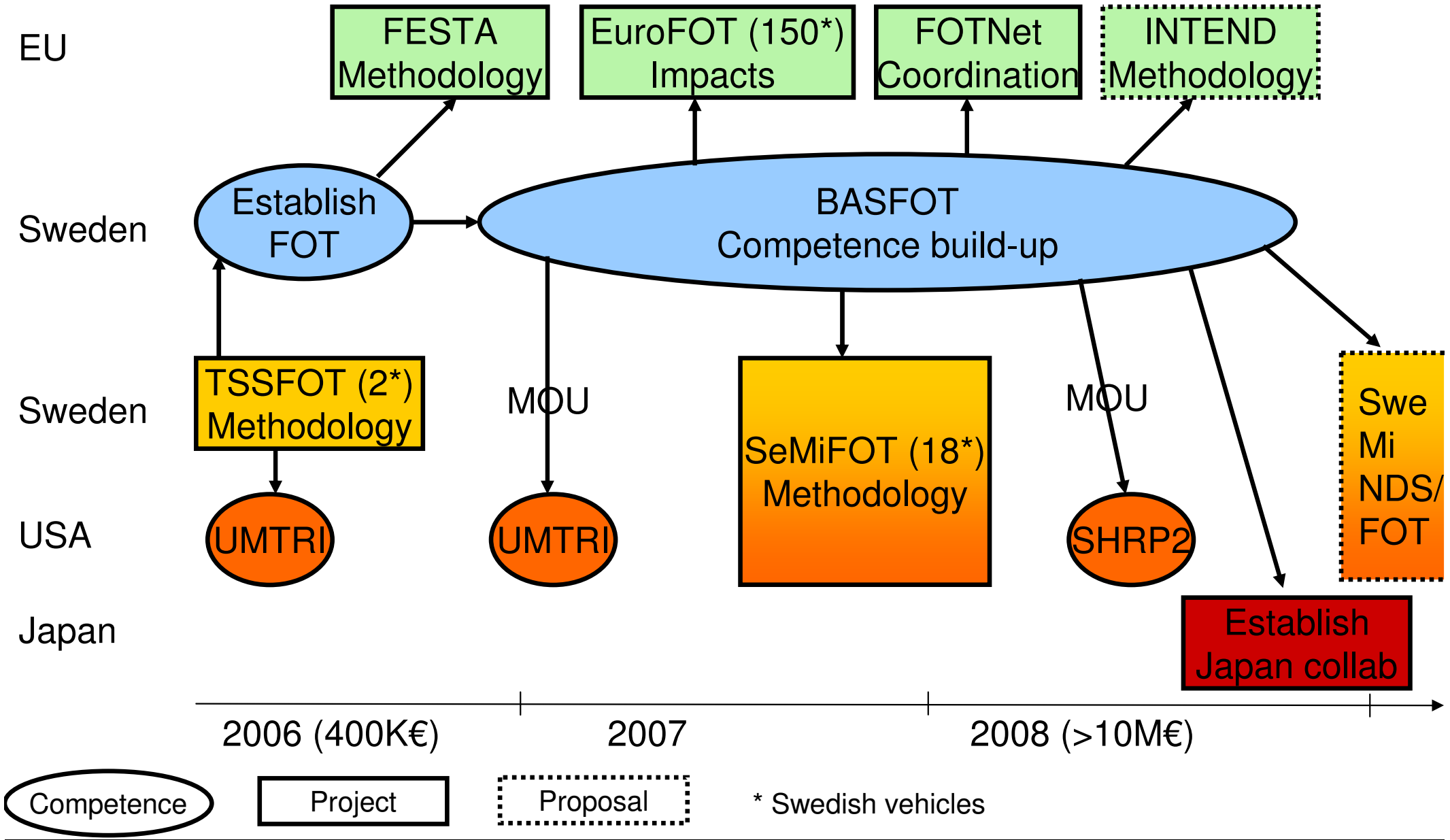
Driver Behavior
- Control behavior (lat, long), Attention, Decisions, Usage/adoption, Event involvement…

Countermeasure effectiveness
- ADAS, Road treatments, etc

Method Chain in Relation to FOT & NDS



FOT/NDS projects at SAFER



SeMiFOT

A **SAFER** PROJECT

Sweden Michigan Naturalistic Field Operational Test

Contact

Trent Victor
SAFER
trent.victor@chalmers.se
+46 31 322 66 51

Helena Gellerman
SAFER
helena.gellerman@chalmers.se
+46 31 772 10 95

Partners

Industry

AB Volvo
Autoliv
Länsförsäkringar
Saab Automobile
Scania
Test Site Sweden/
Lindholmen Science Park
Volvia
Volvo Car Corporation

Authority

Swedish Road Administration

Academy

Chalmers University of Technology
Swedish National Road and Transport Research Institute (VTI)
Technical Research Institute of Sweden (SP)
University of Michigan Transportation Research Institute (UMTRI)

Partly financed by

Michigan Department Of Transportation (MDOT)
Swedish Governmental Agency for Innovation Systems (VINNOVA)

SAFER Vehicle and Traffic Safety Centre at Chalmers

SAFER is a joint research unit using competence from 20 partners from the academy, society and the industry.

Our vision is to enable Sweden to reach world leading competitiveness, and to provide new countermeasures to considerably reduce both the number of traffic accidents and the number of fatalities and serious injuries.

SAFER
VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

SAFER
PO BOX 8077
SE-402 78 GÖTEBORG, SWEDEN
www.chalmers.se/safer

SeMiFOT
A **SAFER** PROJECT

SAFER

SeMiFOT

A SAFER PROJECT

Contact

Trent Victor
SAFER
trent.victor@chalmers.se
+46 31 322 66 51

Helena Gellerman
SAFER
helena.gellerman@chalmers.se
+46 31 772 10 95

Partners

Industry

AB Volvo
Autoliv
Länsförsäkringar
Saab Automobile
Scania
Test Site Sweden/
Lindholmen Science Park
Volvia
Volvo Car Corporation

Authority

Swedish Road Administration

Academy

Chalmers University of Technology
Swedish National Road and Transport Research Institute (VTI)
Technical Research Institute of Sweden (SP)
University of Michigan Transportation Research Institute (UMTRI)

Partly financed by

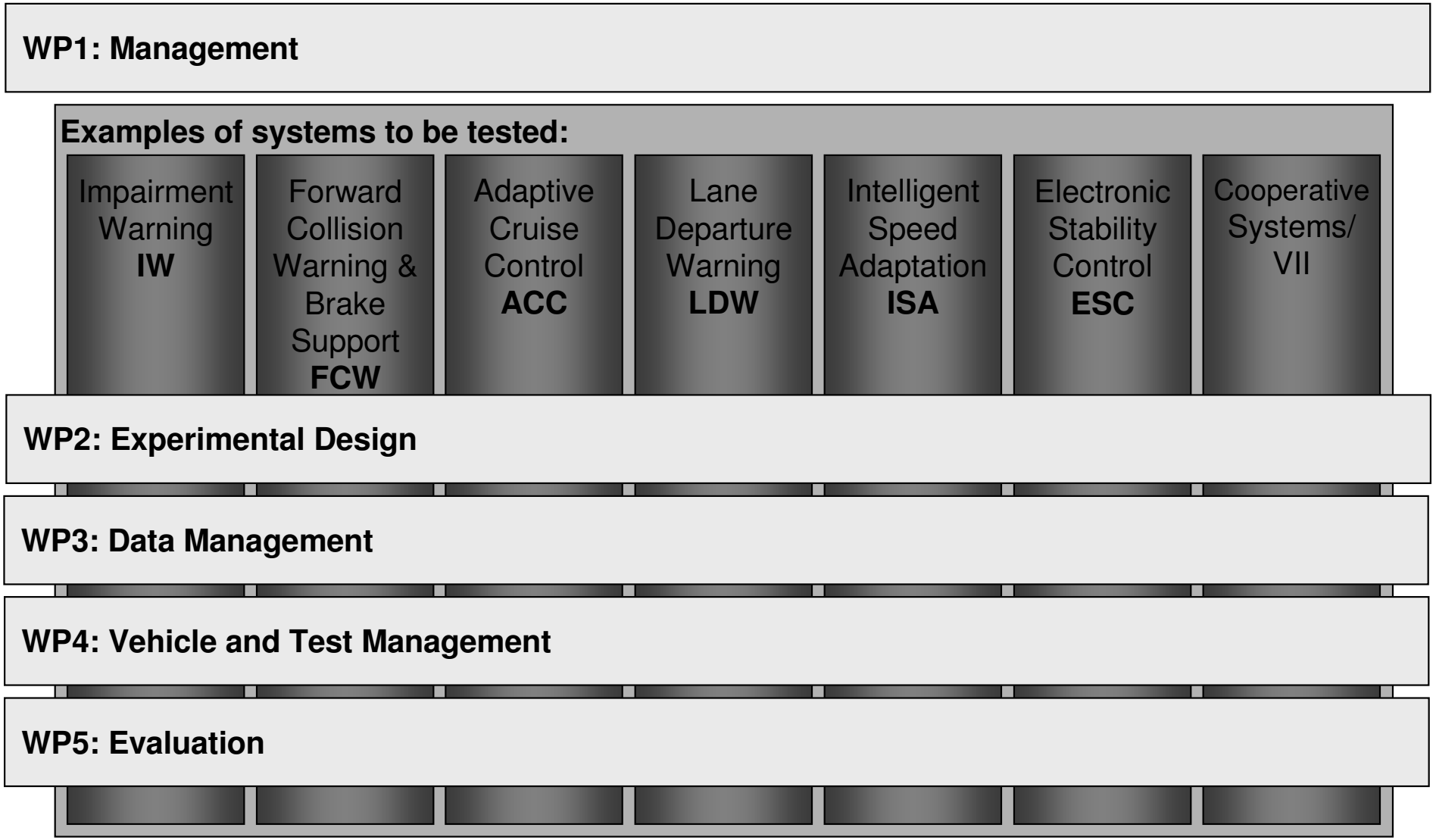
Michigan Department Of Transportation (MDOT)
Swedish Governmental Agency for Innovation Systems (VINNOVA)

18 vehicles in Sweden and 2 vehicles in USA, ca 6 months data collection, duration Jan 2008-March 2009

Some SeMiFOT Goals

- **To further develop the Naturalistic FOT method into a powerful tool** for a) accident research, and b) evaluation of safety, efficiency, and usage & acceptance, and c) countermeasure innovation and development.
- **To verify the Naturalistic FOT methodology at an *intermediate scale***, at a larger scale than TSS FOT, and a smaller scale than EuroFOT.
- **To achieve a close cooperation between Swedish and Michigan partners**

SeMiFOT WPs


WP1: Management
Examples of systems to be tested:
Impairment Warning IW
Forward Collision Warning & Brake Support FCW
Adaptive Cruise Control ACC
Lane Departure Warning LDW
Intelligent Speed Adaptation ISA
Electronic Stability Control ESC
Cooperative Systems/ VII
WP2: Experimental Design
WP3: Data Management
WP4: Vehicle and Test Management
WP5: Evaluation

Experimental Design - Lessons

- Ethical review
  - 50pg proposal → answer: not needed
- Legal issues and driver/data integrity
  → conservative/careful stance, many unclear issues here
- Hypothesis *prioritization*
  → *Influencing factors*:
    - Opportunities – new/good issues, new methods
    - Resources – time, competence
    - Partner interests – e.g. OEM constraints
    - Data reduction and analysis method constraints
  → Iteration needed, not a waterfall

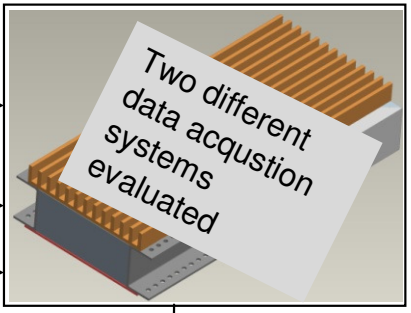
SAFER Data Acquisition System

Extra ”external” sensors
Accelerometers
Eyetrackers – SeeingMachines/SmartEye (13units total)
Lanetracker/ForwardDistVel – possibly MobilEye

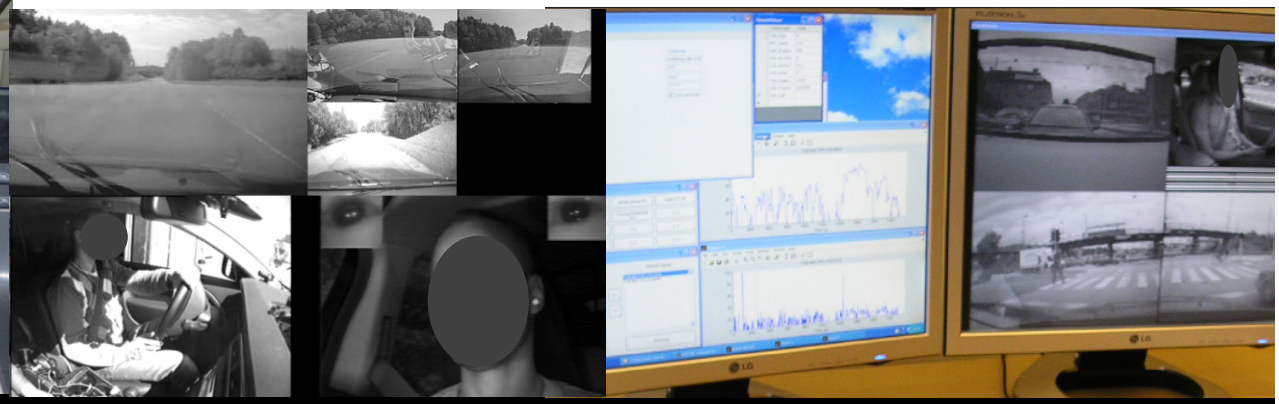
GPS (1 Hz)

CAN
Steering Wheel Angle
Turn Indicator
Gear Level Position
Accelerations
Etc …..

Video (Analogue)
6 Cameras in total



Hard drives



SeMiFOT
A SAFER PROJECT

SAFER

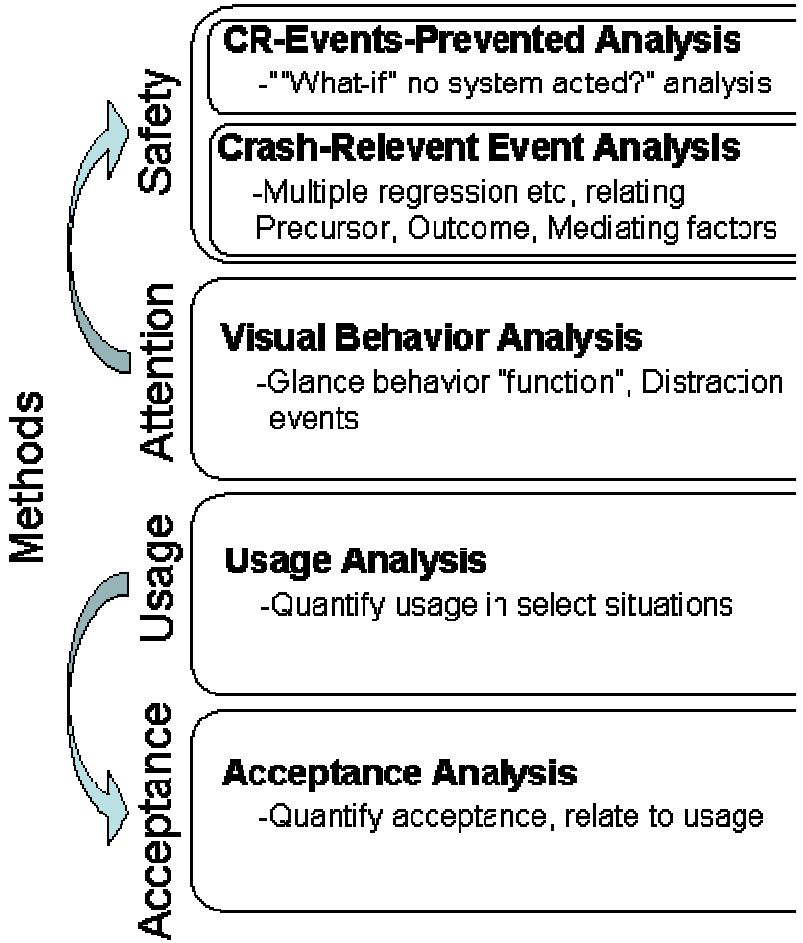
Analysis Tools - Requirements

- Direct database use/searching
- Event identification - manual and automatic annotation
- Deriving Measures and calculating Performance Indicators
- Quality monitoring

[Show video]

Analysis Methods

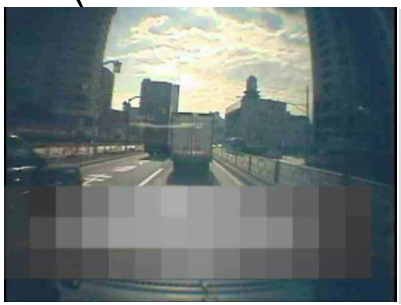
- Methods **innovation** →
- **UMTRI** assistance on **ADAS safety impact** assessment
- Tool for **accident research**
  - Memoradum of Understanding between SAFER and **SHRP2**
- Tool for **Countermeasure** innovation
- **Consumer systems and insurance** for large-scale data collection in future



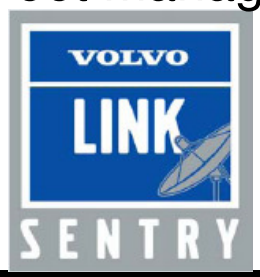
Consumer Systems

Risk management systems
(for e.g. fleets, parents)

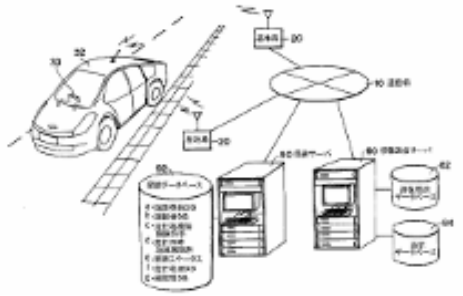
Japanese systems
(insurance-driven - taxi, fleet)



Remote diagnostics
and fleet management



Pay-as-you-drive
(insurance-driven)



Conclusions

- Involvement from the whole Swedish automotive industry and academia
- Focus on *Naturalistic FOTs* and NDS
- Want to strengthen EU/US/Japanese connections
- Still in project ramp-up

SAFER

VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

Borderless research to save lives

trent.victor@chalmers.se / trent.victor@volvo.com

Tel +46 31 322 66 51

www.chalmers.se/safer

safer@chalmers.se