WELCOME TO SAFER
WE RESEARCH TO SAVE LIVES,
PREVENT INJURIES AND
ENABLE SAFE MOBILITY.
TOGETHER.

OUR MISSION:TO ENHANCE TRAFFIC SAFETY

SAFER's approach:

- Create, transform and transfer knowledge
- Serve as an open innovation arena
- Be a base for international collaborations

Our Vision:

"*Excellent <u>inter-disciplinary research</u>, <u>innovation</u> and <u>collaboration</u> to secure close to zero accidents and injuries in traffic and enable Sweden to hold global leadership in traffic safety.*"

"*Traffic safety will be a key factor for implementing a sustainable, connected automated traffic system.*"

WHAT DO WE SEE AHEAD OF US?

The long and winding road towards automation and driverless vehicles

Urbanization, rural areas and long distance traffic – different safety aspects

Safe transport from door to door

Cooperative systems and new types of vehicles

THIS IS SAFER – KEY FACTS

SAFER is part of a bigger societal project: the design and realisation of smart, sustainable transport systems in the cities and beyond.

- A world leading **competence centre** for vehicle and traffic safety.

- Performs **collaborative excellent multi-stakeholder research** with about 30 partners from the industry, the academia and the society.

- **Creates knowledge and value** beyond what a single partner can achieve on its own.

- Contribute to the creation of a **safe, sustainable, connected and automated traffic systems**, where traffic safety is the key.

- An **open innovation arena** where partners can meet and share research and knowledge.

- Gives access to the **unique traffic safety research competence** within the SAFER network.
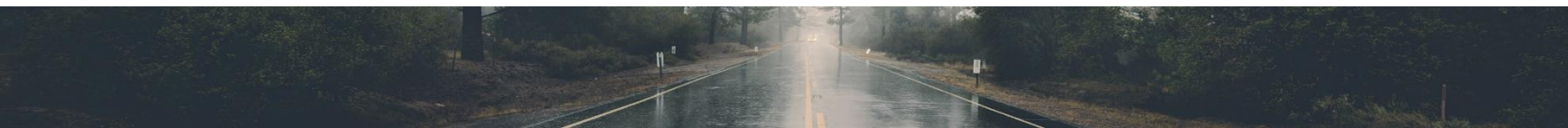
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OUR SAFER PARTNERS

Together for safe mobility.

- City of Gothenburg
- Swedish Transport Administration
- Swedish Transport Agency
- Region Västra Götaland - *financier*

Society

- Chalmers University of Technology
- Halmstad University
- Institute of Transport Economics (TØI)
- KTH Royal Institute of Technology
- *Jönköping University – School of Engineering*
- RISE (Research Institutes of Sweden)
- Swedish National Road and Transport Research Institute (VTI)
- University of Gothenburg
- *Mälardalen University*
- *University of Borås*
- *University of Skövde*
- *University of Umeå*
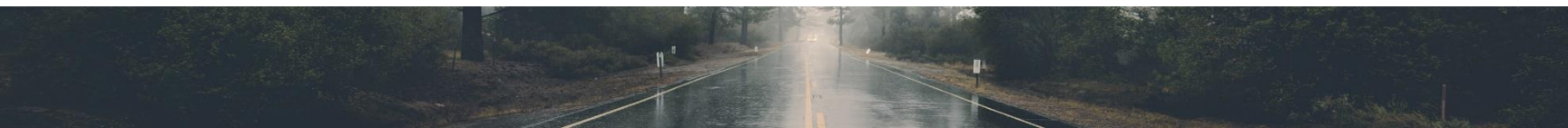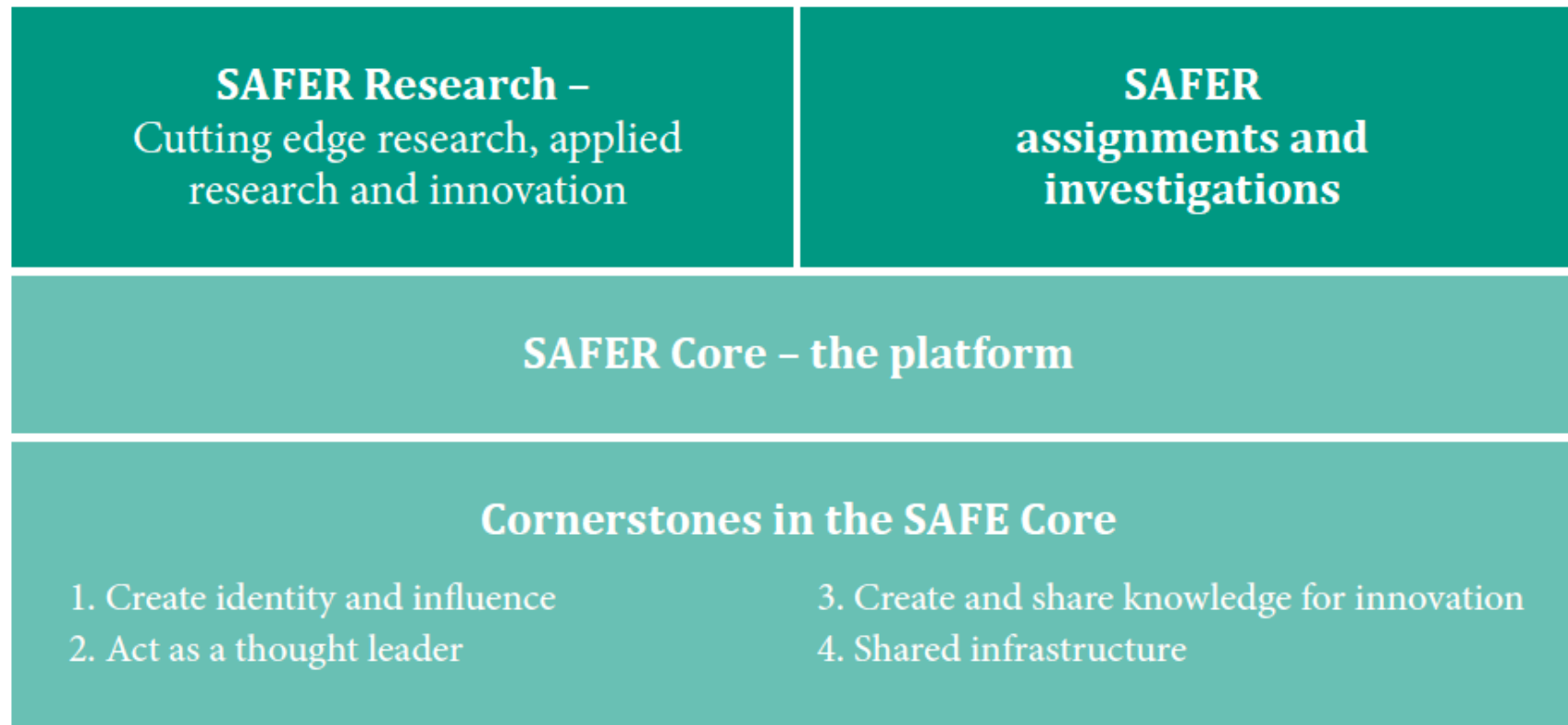
Academy & Institutes

Industry

- *Aptiv*
- Autoliv Development
- Combitech
- Cycleurope
- Folksam
- *HiMinds*
- If Insurance
- Lindholmen Science Park
- NEVS
- Scandinavian Automotive Suppliers (FKG)
- Scania
- Volvo Car Corporation
- Volvo Group
- *Malmeken*
- *Mediamobile / V-Traffic*
- *Smart Eye*
- *Trivector*
- *Zenuity*
- *Uniti*
- Veoneer
- *ÅF*

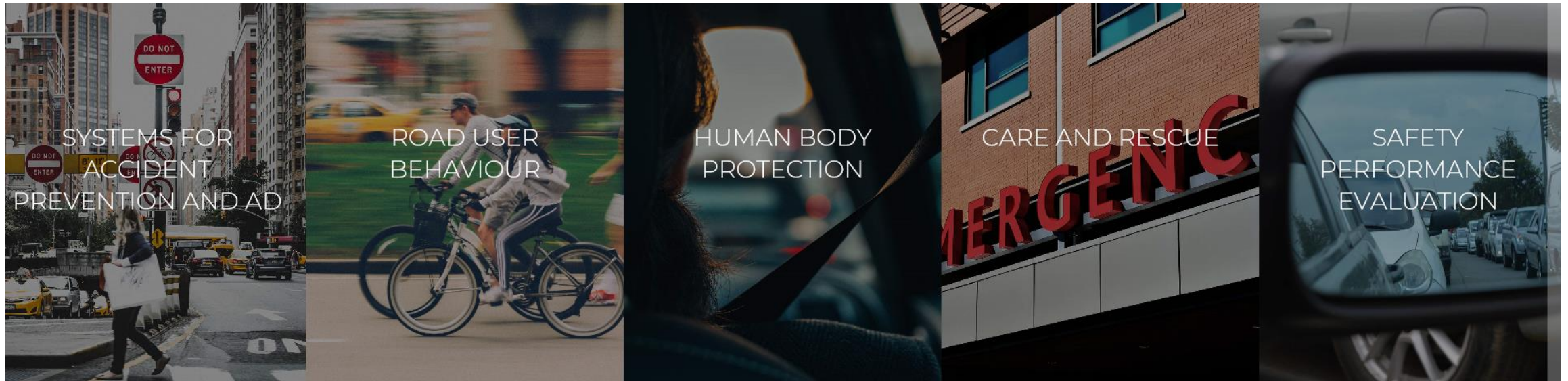*Intalics: members / associated partners*

OUR STRATEGY AND FOUR CORNERSTONES

To realise our vision of becoming a world leader in traffic safety,
our strategy is based on four interlinked cornerstones that direct our actions:

SAFER Research –
Cutting edge research, applied research and innovation

SAFER assignments and investigations

SAFER Core – the platform

Cornerstones in the SAFE Core

1. Create identity and influence
2. Act as a thought leader

3. Create and share knowledge for innovation
4. Shared infrastructure

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SAFER RESEARCH AREAS

One mission, five research areas. *Our five research areas represent world-class, multi-disciplinary research – all with the single-minded vision to save lives, prevent injuries and enable safe mobility.*
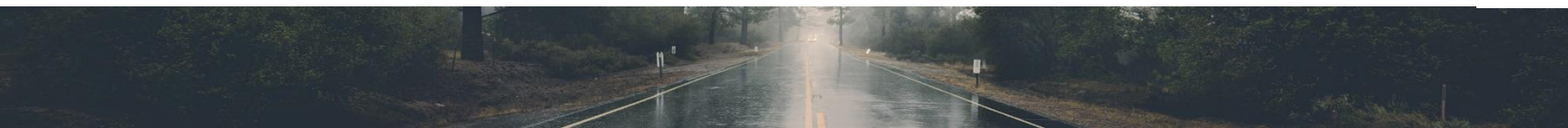

SYSTEMS FOR ACCIDENT PREVENTION AND AD

ROAD USER BEHAVIOUR

HUMAN BODY PROTECTION

CARE AND RESCUE

SAFETY PERFORMANCE EVALUATION

CHRISTIAN GRANTE

TANIA DUKIC WILLSTRAND

LOTTA JAKOBSSON

MAGNUS GRANSTRÖM

TORBJÖRN ANDERSSON

SAFER

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SAFER RESEARCH AREAS

The meeting set up.

- The Research areas has a governing *reference group*, led by a *Research area director*, supervising the project portfolio.
- Formal arena for partners to meet and identify key issues and initiate needs-driven research.
- Includes one representative from each SAFER partner (partner level 1 & 2).
- Work include e.g.:
  - Initiate, follow up and present projects
  - Development of road maps – the strategic research agenda
  - Knowledge sharing and networking
- Four meetings per year.

SYSTEMS FOR ACCIDENT PREVENTION

How can active systems and automation predict and prevent collisions?
This research area covers the development of automated functions that
help the driver to avoid hazardous situations.

This research area includes e.g.:

- Active safety systems

- Semi-autonomous and fully autonomous vehicles

- Connected traffic systems where infrastructure, vehicles and vulnerable road users interact to enhance safety
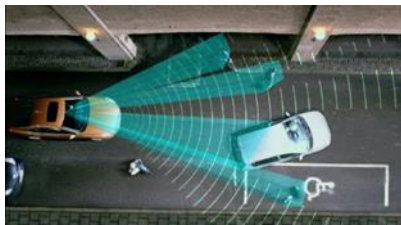
Research area director

Christian Grante
Volvo Group

ROAD USER BEHAVIOUR

How do people behave in traffic and how can we support them to act safer? Taking a deep, wide approach in the area of human behaviour, this research area is about developing scientific methods and tools to create prerequisites for safe driving.

This research area includes e.g.:

- Development of methods and tools to investigate driver state and behaviour
- Prerequisites for safe driving and risk management
- Autonomous driving support
- Human machine interaction
- Driver education and training

Research area director

Tania Dukic Willstrand
VTI

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HUMAN BODY PROTECTION

How do we best protect people in a crash? SAFER continuously develops this research area with the aim to understand and develop principles for countermeasures to prevent injuries in accidents.

This research area includes e.g.:

- Biomechanical injury mechanisms, responses and consequences (incl. pre-crash)

- Principles for protection including usage and pre-sensing input

- Structural requirements (design guidelines) regarding crashworthiness (self and opponent protection)

- CAE tools for material and structures

- Mechanical and mathematical occupant and unprotected road user models for complete crash sequence.
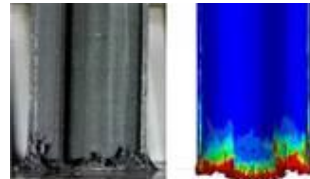
Research area director

Lotta Jakobsson
Volvo Cars
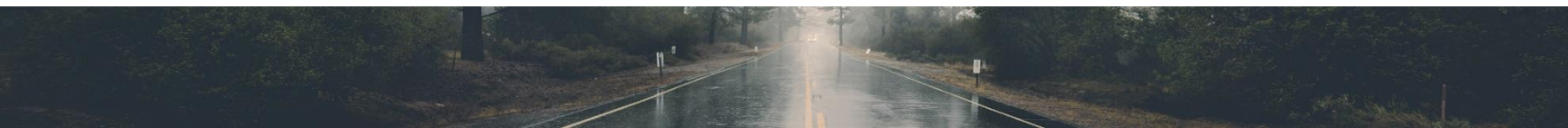
CARE AND RESCUE

What actions after a traffic accident are the most efficient in reducing mortality and injury severity? This research area addresses challenges for all road users related to what happens after a traffic accident is a fact.

This research area includes e.g.:
- Improved incident detection and assessment
- Improved on-scene care and rescue and, including safety for rescue personnel
- Reducing secondary long-term effects of traffic accidents

Research area director

Magnus Grasntröm SAFER (acting)

SAFETY PERFORMANCE EVALUATION

How do we develop the best methods for predicting and assessing real-world vehicle and traffic safety? In this research area we focus on the development of innovative methods to manage and analyse field data and assessment procedures for safety performance using data from both real and virtual environments.

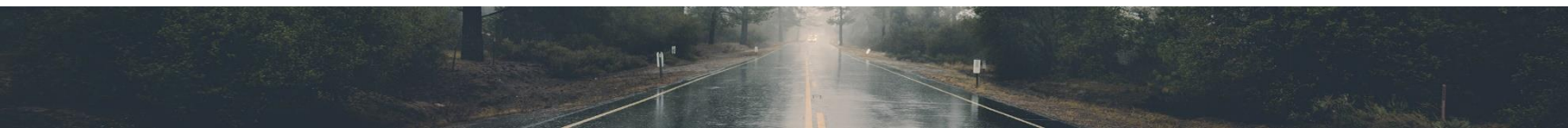This research area includes e.g.:

- Accident data analysis

- Naturalistic driving studies

- Field operational tests

- Method development

- Standardisation for data recording, data sharing and other general aspects of data analysis

Research area director

**Torbjörn Andersson
Autoliv**

SAFER COMPETENCE AREAS

FIELD DATA

ROAD INFRASTRUCTURE

SENSORS AND COMMUNICATIONS

BEHAVIOUR IN ACCIDENT CAUSATION

VEHICLE DYNAMICS

TRAFFIC SYSTEMS

HUMAN MONITORING

DRIVING SIMULATOR APPLICATIONS

STRUCTURES AND MATERIALS

HUMAN FACTORS DESIGN

FUNCTIONAL SAFETY

BIOMECHANICS AND PROTECTIVE SYSTEMS

SEMINARS AND CONFERENCES

- Examples
  - Child safety seminar "Child Occupant protection"
  - Study tour to Halmstad University and Cycleurope
  - Continuous contributions to Transportforum and Tylösandseminariet

- Thursday seminars every week

- Planning for the 6th International conference on Distraction and Inattention in Gothenburg, October 2018

SAFER'S RESEARCH INFRASTRUCTURE

Access to different types of relevant infrastructures

- AstaZero real-world proving ground
- Revere research lab for active safety and autonomous driving
- SAFER Naturalistic Driving Data Platform
- SAFER open innovation arena and office environment
- Driving simulators (e.g. VTI's SIM IV)

SAFER'S GLOBAL COLLABORATIONS

Our international commitment is wide, with vital partnerships with universities and traffic safety research communities all over the world.

CHILDREN'S HOSPITAL OF PHILADELPHIA

EARPA – AUTOMOTIVE RESEARCH IN EUROPE

JAPAN AUTOMOTIVE RESEARCH INSTITUTE

ADVI – AUSTRALIAN DRIVERLESS VEHICLE INITIATIVE

UNIVERSITY OF IOWA

ERTRAC - EUROPEAN ROAD TRANSPORT RESEARCH ADVISORY BOARD COUNCIL

CTS – THE SWEDEN CHINA RESEARCH CENTRE FOR TRAFFIC SAFETY

NEUROSCINCE RESEARCH AUSTRALIA

AAAM - ASSOCIATION FOR THE ADVANCEMENT OF AUTOMOTIVE MEDICINE
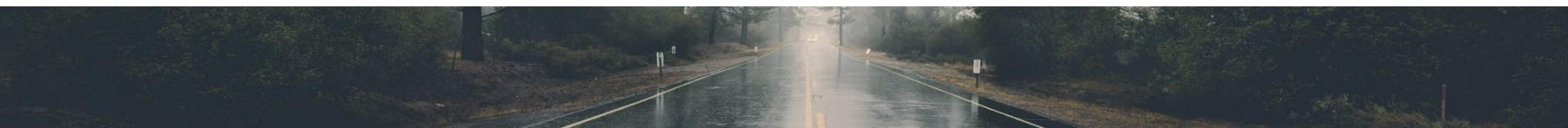
UMTRI – UNIVERSITY OF MICHIGAN

UNIVERSITY OF NAGOYA

HUMANIST

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THE SAFER PUBLICATION LIBRARY

Visit us on www.saferresearch.com and enhance your insights in safe mobility research!

Some examples
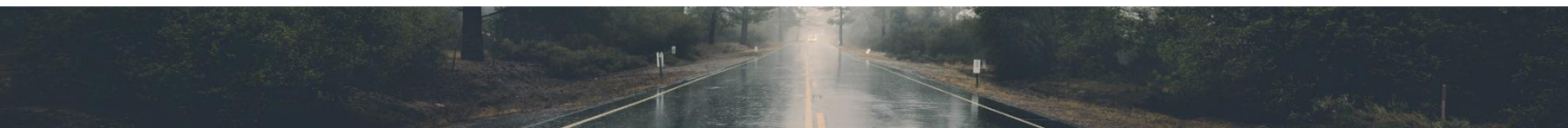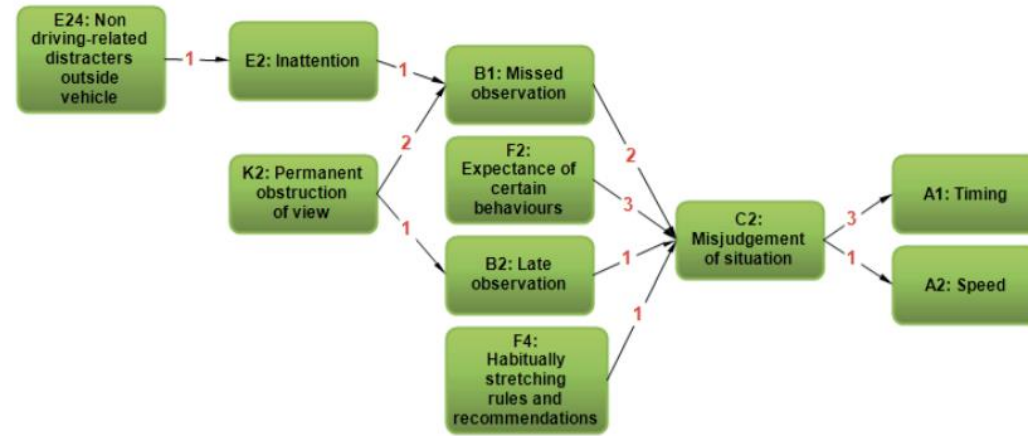
SAFER SUCCESS STORY: Field data analysis platform

"The analytical work at SAFER has provided Volvo Cars with useful tools to accurately evaluate the effectiveness of rear-end crash avoidance systems and also for comparing the crashworthiness of European and US car fleets."

Anders Eugensson
Director, Government Affairs
Volvo Car Corporation

- Newly developed assessment method for active safety system testing
- Built world-class infrastructure for accident data collection
- Provided input for policy decisions, e.g. negotiations concerning the Transatlantic Trade and Investment Partnership (TTIP)
- Hub for the Initiative for the Global Harmonisation of Accident Data (IGLAD).
- Among world leaders in accident analysis
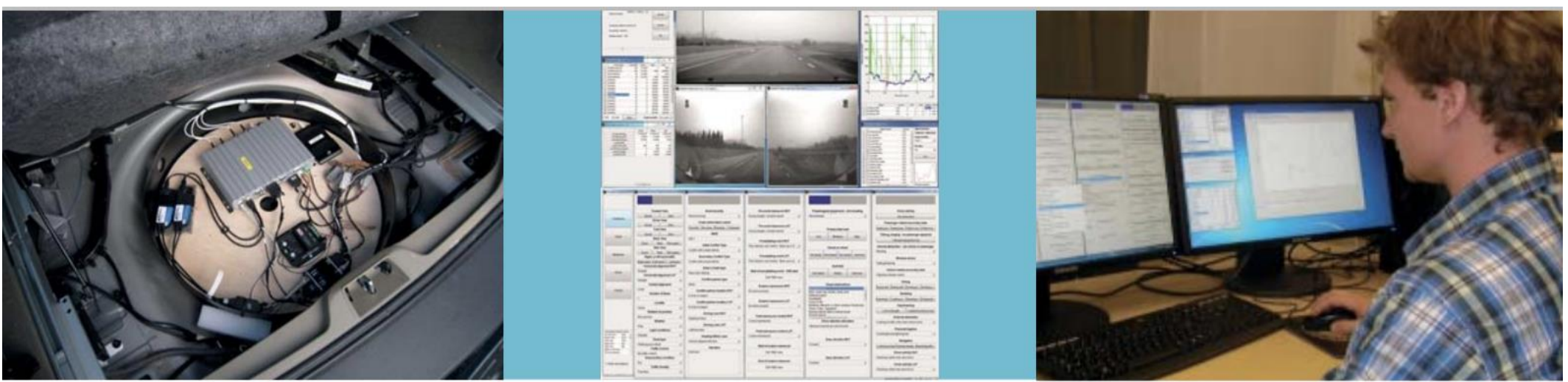
SAFER SUCCESS STORY: Naturalistic data platform

"SAFERs platform for naturalistic driving data is used in our global projects in Sweden, US and China. The platform plays an important role when analysing and understanding driver behaviour, and is used in the development of our active safety systems."

John-Fredrik Grönvall, Senior Research Manager, Field data
Volvo Car Corporation

- Common world class infrastructure for naturalistic data (ND) collection, secure data storage and analysis
- SAFER chosen as Central Data Centre in the largest ND study in Europe
- Cross-Atlantic Connected Analysis Centres with remote access developed and tested at SAFER and UMTRI
- The platform almost self-financed through projects since the start
- Data Protection Concept developed for all stages in data handling
- Tools for collection of naturalistic data from vulnerable road users (pedestrians and bicyclists)

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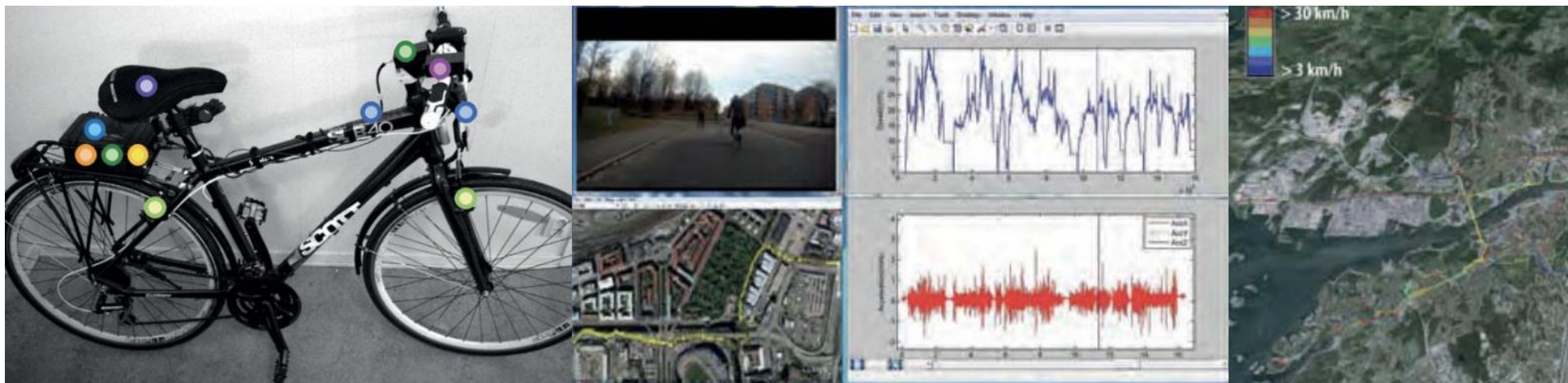
SAFER SUCCESS STORY: Cycling safety

"The unique collaboration between SAFER's partners has focused on cycling safety research, a very important area for the holistic view of traffic safety and the possibility to reach zero accidents."

Irene Isaksson-Hellman, If P&C Insurance

SAFER and Chalmers are today a world leader in cycling safety research, having
- o pioneered collection and analysis of naturalistic cycling data
- o published several scientific papers on the topic
- o organized the 3rd International Cycling Safety Conference
- o led several projects on cycling safety
- o actively participated to different networks on cycling safety
- o attracted the interest of the national and international press and media

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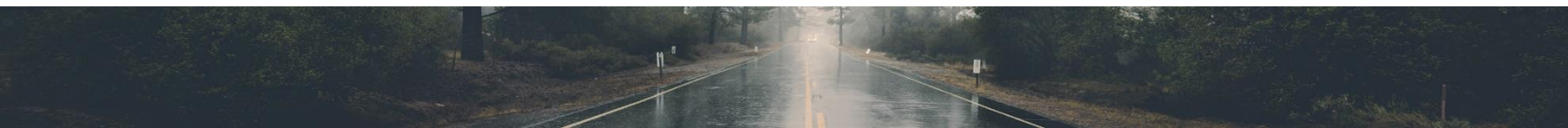# SAFER SUCCESS STORY: Boundary Conditions for Automation (ARV)

"The ARV project has provided a creative arena for cross-brand collaboration around vehicle automation."

Christian Grante
Volvo Group Technical Specialist Preventive Safety and Automation
Volvo Group Trucks Technology (GTT)

- Collaboration arena for Swedish industry and academia giving a context to on-going and new projects
- Inspiring SAFER partners to "think outside the box" through seminars and workshops
- White paper on Swedish areas of strength concerning automated driving
- Gained and disseminated knowledge on state-of-the-art
- Introduced the notion of "boundary conditions for automation," particularly regarding traffic safety

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