WELCOME!

SAFER Shareholders' meeting

April 19th, 2018

AGENDA

§1 Opening of the meeting, chaired by Fredrik Hörstedt, Vice president of utilization, Chalmers

§2 Member to verify the minutes

§3 Quorum and constitution for valid decisions

§4 Approval of the agenda

§5 Reviewing the minutes of the previous Shareholders meeting 2017

§6 Annual Report year 12

§7 Board members and Chair person year 13

§8 New partners and members

§9 Presentation of new partners level 2

§10 SAFER Stage V

§11 Other issues

ANNUAL REPORT

OPERATIVE YEAR 12

APRIL 1ST, 2017 – MARCH 31ST, 2018

SAFER

VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

SOME KEY FIGURES FROM YEAR 12…

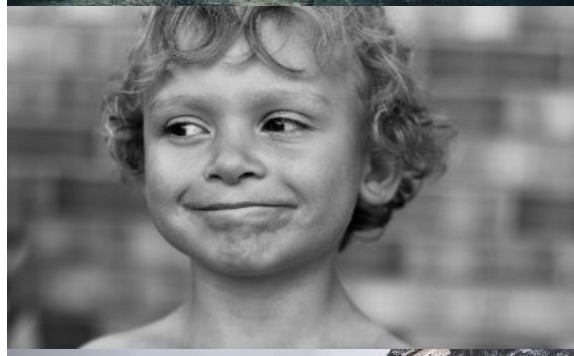
72/32

10

30+6

5

400.000.000



SAFER
VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

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:

SAFER provides excellent inter-disciplinary research, innovation and collaboration to secure close to zero accidents and injuries in traffic and enable Sweden to hold global leadership in the new paradigm where traffic safety is a key factor for implementing a sustainable, connected automated traffic system.

OVERALL CHALLENGES AND DEVELOPMENTS

The long and winding road towards automation and driverless vehicles

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

Always with the human at the centre!

Safe transport from door to door

Cooperative systems and new types of vehicles

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

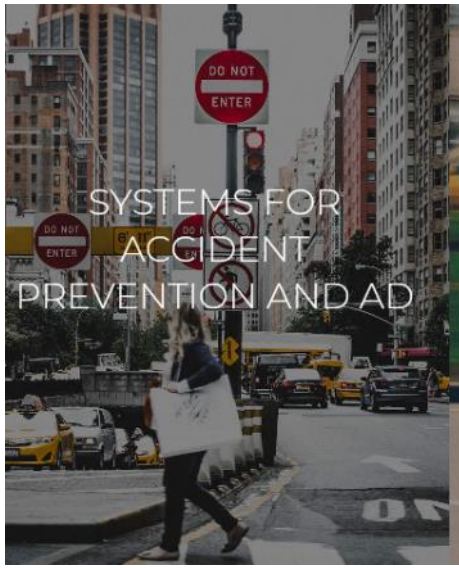
SAFER Core – the platform

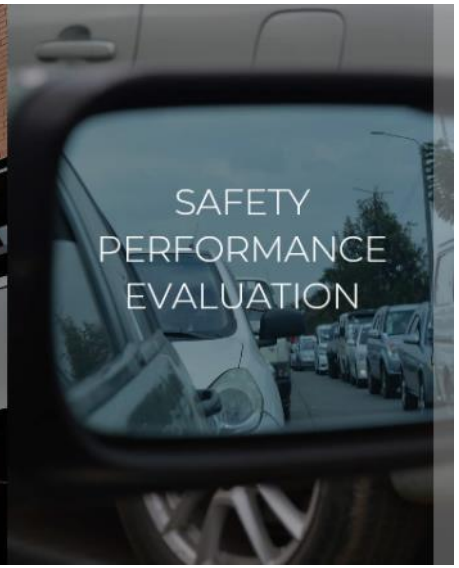
Cornerstones in the SAFE Core

1. Create identity and influence
2. Act as a thought leader
3. Create and share knowledge for innovation
4. Shared infrastructure

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.*





CHRISTIAN GRANTE

TANIA DUKIC WILLSTRAND

LOTTA JAKOBSSON

BENGT ARNE SJÖQVIST

TORBJÖRN ANDERSSON

WANTED POSITIONS

1. Visible and measurable results in practice
2. Hub for Swedish traffic safety research (in Sweden – for the whole world)
3. Acknowledged as a world leader in traffic safety research
4. A broad set of partners and collaborations in order to ensure the strategy and explore new needs and countermeasures
5. A balanced project portfolio and a long term financing of the core operations

KEY FIGURES YEAR 13

72/32

72 ongoing projects, 32 new projects with external funding added to the project portfolio.

10

Increased focus on automation and automated driving – **10 new high-profile projects and activities started** – SAFER's platform to take on the safety perspective in implementation of AD.

30+6

30 partners and members have been active in the SAFER community, and 6 more are joining.

5

Five new SAFER doctors!

400.000.000

Is the estimated value of the project portfolio ongoing during the operational year in SEK.

FINANCING

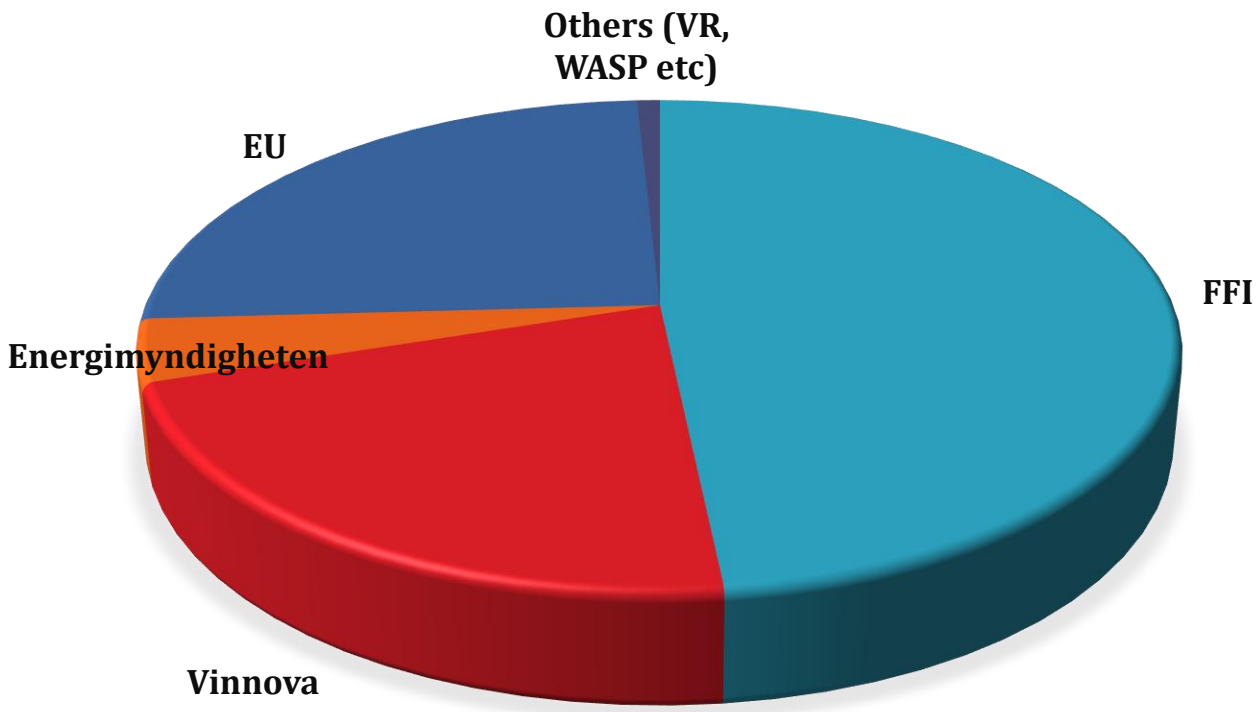
Two kinds of financing in Stage IV:

1. Project financing, research and assignments
   - E.g. EU, Vinnova, Energimyndigheten

2. SAFER Core
   - Funding from Västra Götalandregionen
   - Partner and member fees

FINANCING

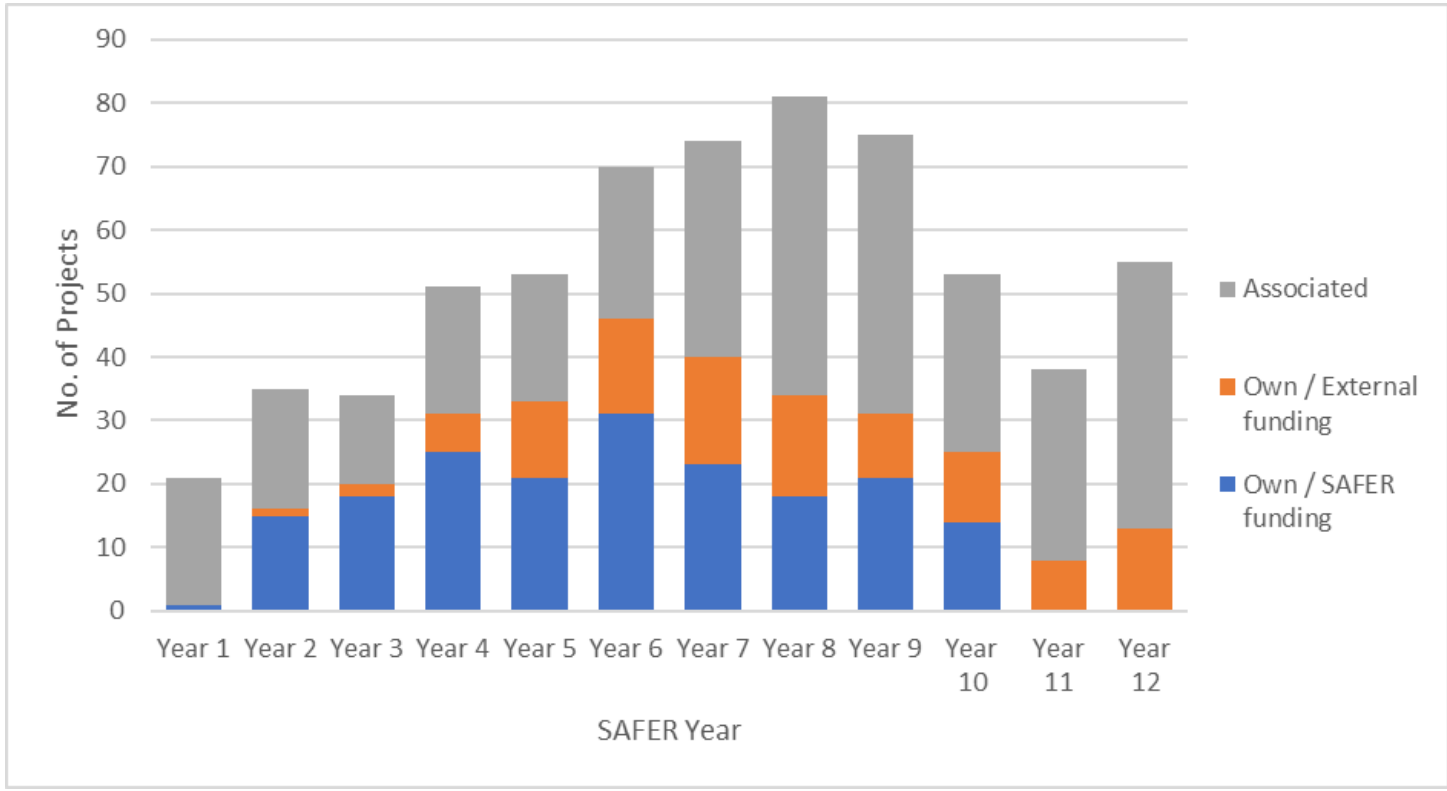
PROJECT FUNDING - TOTAL PROJECT BUDGET



PROJECT PORTFOLIO

Positive trend in number of projects:

- **73** ongoing projects in total.
- **32** new projects with external funding added to the portfolio.
- **43** projects now enters the operational year 13.
- Establishment of updated and simplified project working process.



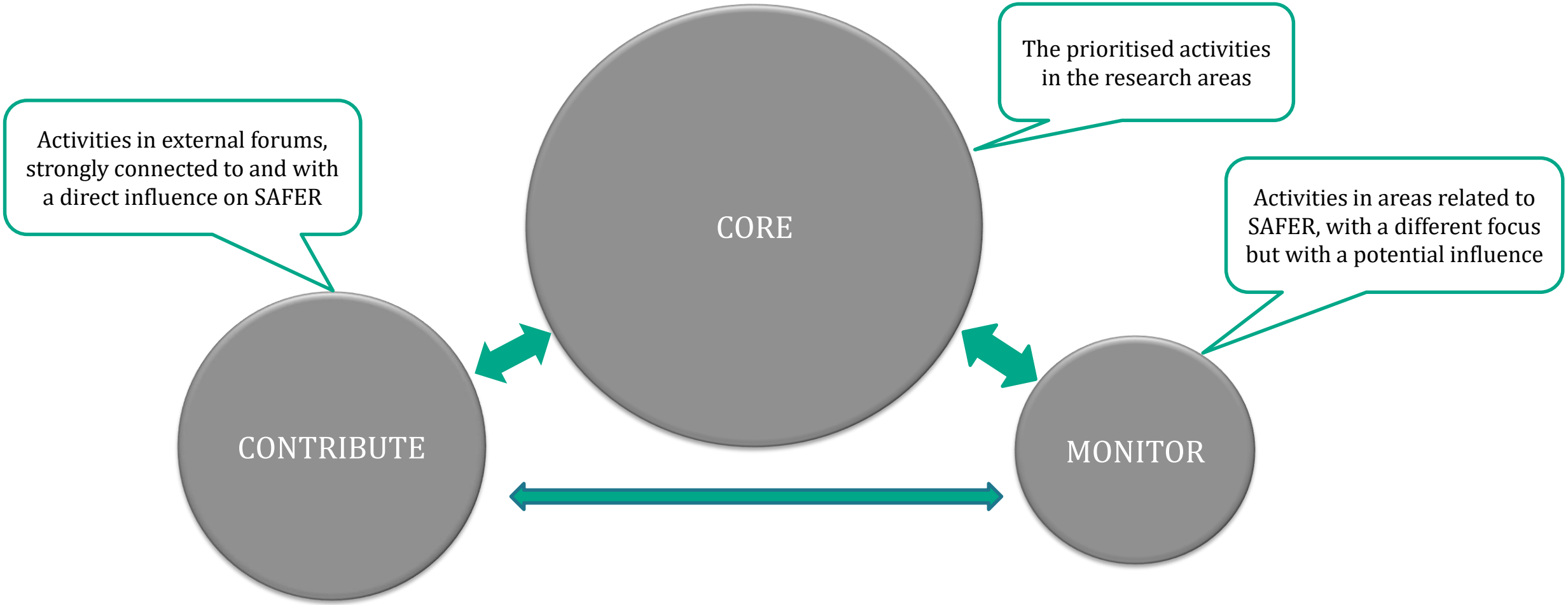
FINANCING SAFER CORE

EXPENSES	YEAR 11	YEAR 12 preliminary	YEAR 13 prognosis	COMPLETE STAGE 4 (YEAR 11-13)
Personnel	3142	3883	4084	11109
Offices	1589	2004	2066	5659
Other costs	205	1742	1360	3307
Sum	**4936**	**7629**	**7510**	**20075**
INCOME				
Partners	3463	3638	4600	11701
Members	70	70	70	210
New partners		260	340	600
Other			50	50
VGR	969	2901	3630	7500
Sum	**4502**	**6869**	**8690**	**20061**
Result	**-434**	**-760**	**1180**	**-14**

Numbers are in ksek

”WHEN TO SAY YES AND NO”

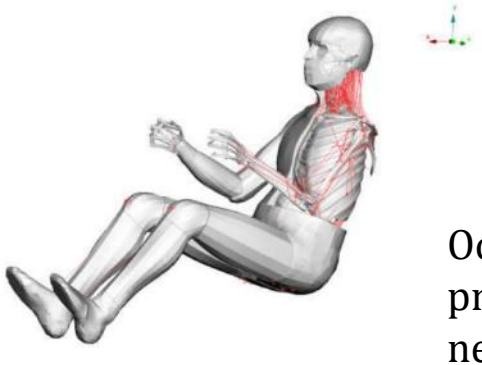
More focused and efficient way of working introduced



SAFE AUTOMATION

- SAFER takes on the **safety perspective** and **tool chain aspects** in the research and technology development.
- **Increased focus –** the project portfolio is growing.

EXAMPLES OF AUTOMATED DRIVING ACTIVITIES AT SAFER



Occupant injury prediction – preparing for challenges with new sitting postures (SAFER HBM –model)

Self-driving trailers in Viared industrial park, AD level 5 (idolly)

Use of SAFER's unique databases with NDD for development of simulation tools (Realsim for AD)

Customer and societal perspectives on AD – AD tests level 2 and 3 on public roads - SAFER to ensure the academic perspective on the research (Drive Me)

EXAMPLES OF AUTOMATED DRIVING ACTIVITIES AT SAFER, CONT.

AutoFreight
Highly Automated Freight Transports

Borås
Göteborg

Self-driving trucks on highway 40, level 4 (Autofreight)

Self-driving vehicles in mines and on public roads, AD level 5 (Auto plant to site)

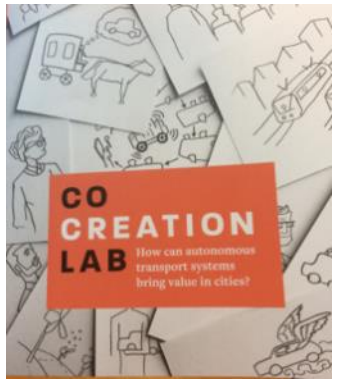
Improved visability and coordination between actors within AD (Drive Sweden Test Site automated Highway III)

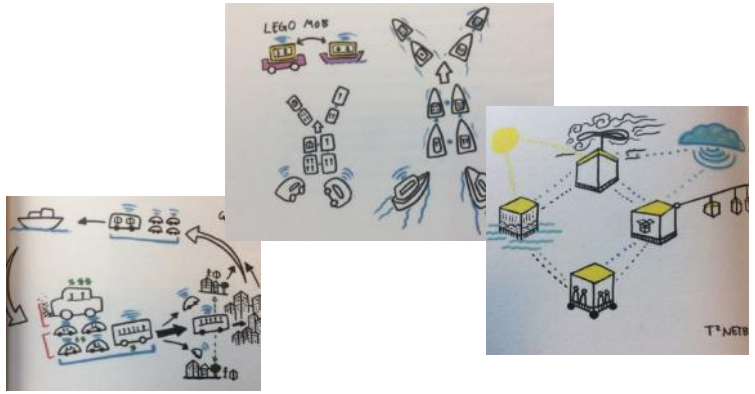
DRIVE SWEDEN

Methods to evaluate safety performance for introduction of AD (Esplanade)

ESPLANADE

EXAMPLES OF AUTOMATED DRIVING ACTIVITIES AT SAFER, CONT.

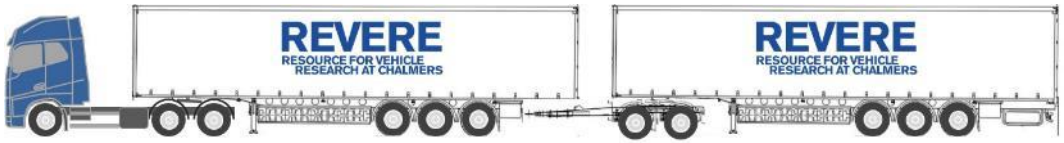




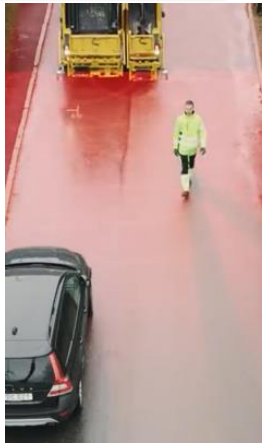
Stakeholder dialogue – how can AD bring values in cities (Cocreation lab)

Methods for development and testing of cooperative systems (VICTig)

AD level 4 in challenging city traffic and changing weather conditions (COPPLAR)



Self-driving vehicles in real world (Safe & efficient transport system)



AI / MACHINE LEARNING / BIG DATA / SECURITY

What do we have in place already?

- A research platform; leading edge research, initiation of new research.
- Research arena, a place to meet and interact: Industry-academia-authority collaboration.
- Project management.
- Project portfolio management (structure, reference groups).
- Supporting infrastructures.
- Research data creation (collection, annotation, analysis, distribution, security/GDPR etc).
- Tool chains and simulation platforms.
- High knowledge e.g. within the key area Human Interaction, which is relevant for all types of vehicles

AI / MACHINE LEARNING / BIG DATA / SECURITY

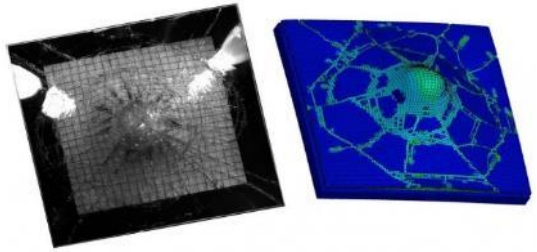
Next steps

- Clarify the strategy for how BD / AI / ML can be used in traffic and vehicle safety and how the security aspects need to be handled
- Further develop the infrastructures:
  - Tool chains, methodology, etc., which utilizes BD / AI / ML.
  - Support for development, testing and verification in research projects.
- Further develop safety simulation tools.
- Extend current research areas with BD/ML/AI
  - Investigate how these tools can leverage what we already do well today.
  - Further develop use of FOT data bases to *avoid* accidents.
- Research on verification of BD / AI / ML-based functions.

OTHER PROJECT HIGHLIGHTS

MeBeSafe – the Nobel prize winning theory about nudging is being tested to increase road safety

FFI Cykel: Projects to increase cycling safety – coordination of FFI call



SAFER's Composite cluster – overall progress within the area - three new national projects – and three new PhD-students

SAFER – still – on the map as a forefront of **child safety**

- **Småfolk** - contribute to identification and quantification of important real-world needs, as well as evaluation and development of countermeasures
- Well-attended child safety seminar **Child occupant protection** was conducted with about 70 international researchers from all around the globe

One third of the fatalaties in traffic can be avoided – research within **Care & Rescue** shows

Microwave helmet that helps detect occult injuries – idea originally from SAFER is now taken to the next development stage

Smart phone app helps detect MC accidents - **Detecht** - further developed at Chalmers entrepreneur school

SAFER HBM 9.0 launched – completely unique tool for SAFER's partners

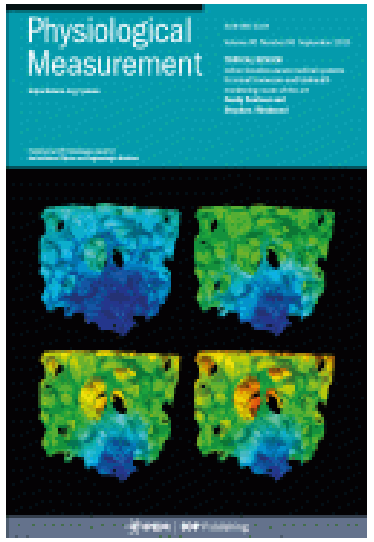
SAFER'S GLOBAL COLLABORATIONS

- International commitment is wide and done in different contexts.
- Continuous work to identify current and future global links that can help influence and enhance research.

Organisation	Funding	Project brokerage	Influencing
ADVI			
CLEPA (through Autoliv and others)			
CTS			
Drive Sweden			
EARPA			
ERTRAC			
EUCAR (through AB Volvo and Volvo Cars)			
Forum for transport innovation			
GNS Väg			
HUMANIST			
SDSN Northern Europe			
Wallenberg WASP programme			

RECOGNITION AND ACKNOWLEDGEMENTS

- Starting up **four large Horizon 2020 projects** (in strong competition)
  - MeBeSafe, L3Pilot, SaferAfrica, CARTRE
- Continuous invitations to **speak at conferences**, e.g. round table discussion on cycling safety at the International Transport Forum.
- Researchers awarded **NHTSA's prize** for e.g. Safety Engineering Excellence.
- Most **influential publication** of the year in prestigious journal Physiological Measurement (and more!)
- **Delegations visit SAFER** to learn about the successful collaborative platform, e.g. CATARC from China

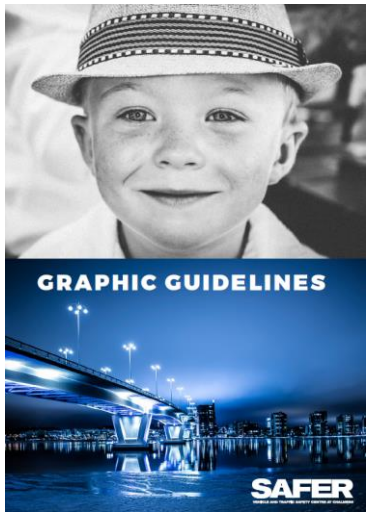


International Transport Forum
Global dialogue for better transport

KEY HIGHLIGHTS SAFER'S INFRASTRUCTURES

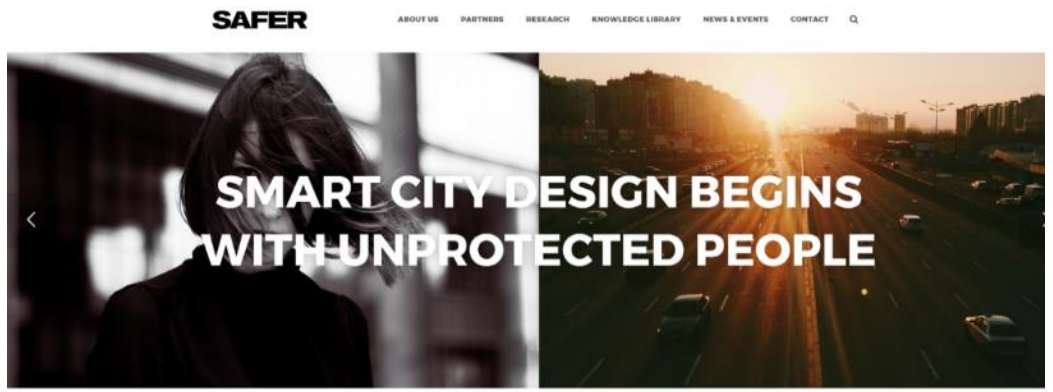
RESEARCH OUTREACH AND COMMUNICATIONS

Brand platform, graphic guidelines and communication strategy



Communication process and efficient structure implemented

New communication tools



WELCOME TO SAFER VEHICLE AND TRAFFIC SAFETY CENTRE AT CHALMERS

We research to save lives, prevent injuries and enable safe mobility. Together.

myNEWSdesk™

Successful seminars, workshops and conferences

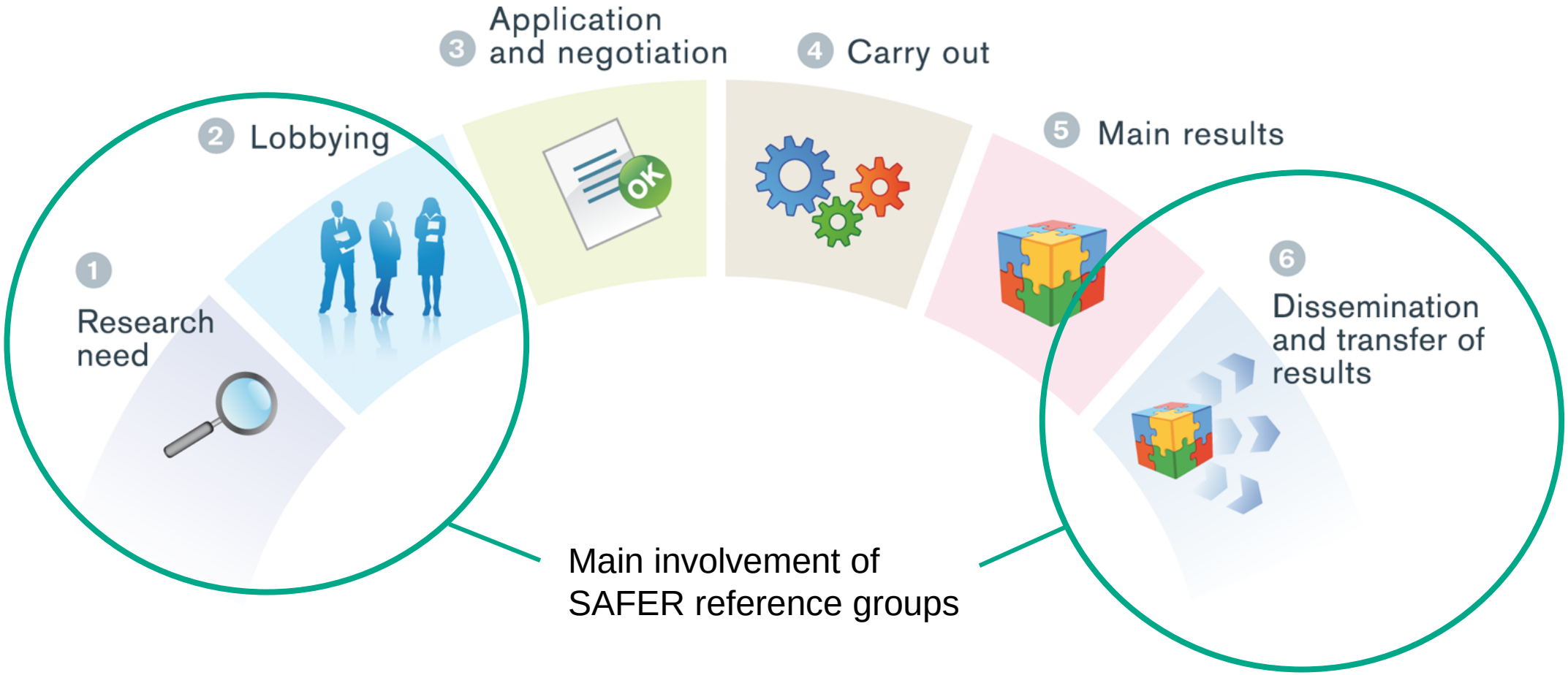
- 15 seminars/conferences arranged, e.g:
  - Child safety seminar “Child Occupant protection”
  - Study tour to Halmstad University and Cycleurope
  - Transportforum
- Thursday seminars almost every week – in total 27.
- Participation in ESV, Detroit, June 2017.
- SAE conference - Vision Zero and CTS session, Shanghai, October 2017.
- Planning for the 6th International conference on Distraction and Inattention in Gothenburg, 15-17 October 2018.

SAFER DOCTORS YEAR 12

- **Stephen Ridella**
  The contribution of vehicle, occupant and crash factors to the risk of injury as a result of vehicle rollover – new approaches to data and modeling
- **Minjuan Wang**
  Same, Same but Different: On the Design of Cross-Regional Advisory Traffic Information Systems
- **Jóna Márin Ólafsdottir**
  Muscle responses in dynamic events – volunteer experiments and numerical modeling for the advancement of human body models for vehicle safety assessment
- **Peter Nilsson**
  Traffic Situation Management for Driving Automation of Articulated Heavy Road Transports - From driver behaviour towards highway autopilot
- **Victor Strömbäck Alvarez**
  Understanding Boundary Conditions for Brain Injury Prediction –FE Analysis of Vulnerable Road Users

Also, seven students have written their licentiate thesis at SAFER.

PRO-ACTIVE WORK - CALLS FOR PROPOSALS



Main involvement of SAFER reference groups

SAFER RESEARCH AREAS

The meeting set up.

- The Research areas has a governing *reference grou*p
- Includes one representative from each SAFER partner (partner level 1 & 2).
- Four meetings per year + extra workshops when needed.

- Formal arena for partners to identify key issues and initiate needs-driven research.
  - Initiate, follow up and present projects
  - Development of road maps – the strategic research agenda
  - Identification of suitable calls
  - Knowledge sharing and networking

THIS IS WHERE IT ALL HAPPENS!

OUTLOOK YEAR 13

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§3 Quorum and constitution for valid decisions

§4 Approval of the agenda

§5 Reviewing the minutes of the previous Shareholders meeting 2017

§6 Annual Report year 12

§7 Board members and Chair person year 13

§8 New partners and members

§9 Presentation of new partners level 2

§10 SAFER Stage V

§11 Other issues

SAFER BOARD YEAR 13

- Autoliv: Cecilia Sunnevång
- Chalmers: Sinisa Krajnovic and Johan Karlsson (who also represents University of Gothenburg)
- RISE: Jan Jacobson
- Swedish Transport Administration: Maria Krafft
- Volvo Car Corporation: Malin Ekholm
- Volvo Group: Magnus Rilbe
- VTI: Jonas Jansson
- Independent chair person: Karin Svensson

Hans Fogelberg (Region Västra Götaland) and Eric Wallgren (Vinnova) are welcome to join the board as observers.

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NEW MEMBERS IN YEAR 13

- **Aptiv** (fd Delphi) – global tech company that developes safety and connectivity technology to the automotive industry.

- **HiMinds** HiMinds is a professional services company that specialises in software development in projects that utilize embedded systems, smartphones and the cloud. Focus is innovation and efficient product development in the field of Internet Of Things.

- **Jönköping University – School of Engineering** is one of four schools that has research focus targeted at Industrial Product Realisation in cooperation. Research areas relevant to SAFER are Materials and Manufacturing, Product Development, and Computer Science and Informatics.

- **Smart Eye** – global (but anchored locally) supplier of eye-tracking systems to the automotive industry for development of active safety systems.

NEW PARTNERS YEAR 13

SCANIA

veoneer

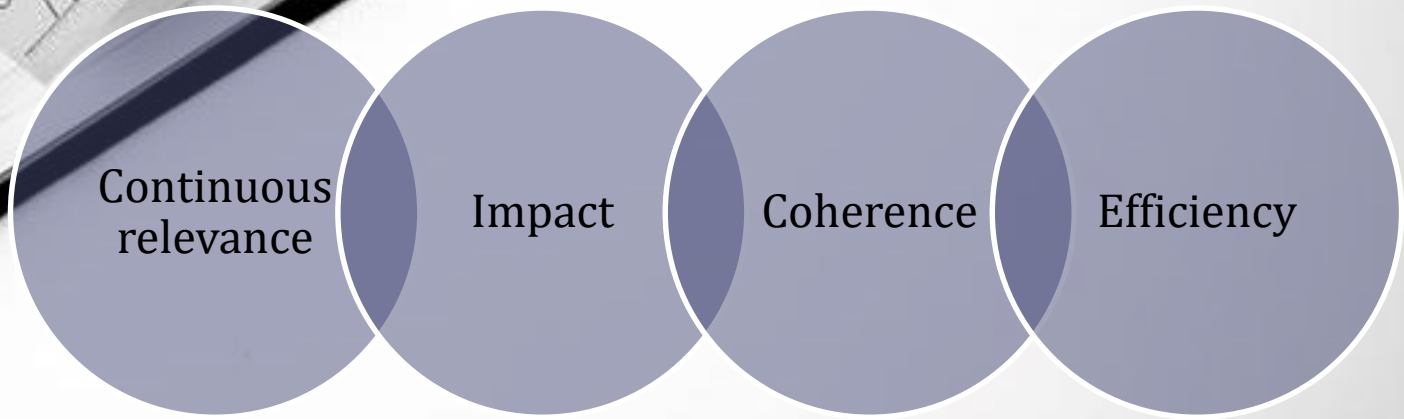
SAFER STAGE V

Current agreement for Stage IV ends March 31st, 2019 – time to start up dialogue about a Stage V.

MATTERS TO BE DISCUSSED

As a next step with the partners

- Where do we want to be 2030?
- Research content
- Partner set-up
- Links and collaboration with related activities
- Core and project financing
- Platform structure



PRELIMINARY TIME PLAN

APRIL | MAY | JUNE | JULY | AUG | SEP | OCT | NOV | DEC | JAN-MARCH | APRIL

- Partner dialogues and development of idea
- June 20: Board meeting; Base idea presented
- Development of a draft agreement and operational plan
- Sep 5-6: Strategy days: Setting the plan
- End September: Stage V presented to partners
- Working with feedback from partners
- Nov: Final agreement in place
- Nov: Extra Shareholders meeting
- Partners to join
- Contracts with partners
- Stage V!

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STAGE V – NEXT STEP

Proposal

Shareholders' meeting gives the task to the SAFER Board to develop a vision, strategy and framework for SAFER stage V.